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Video Modeling and Video Prompting for Increasing Independent Task Acquisition in Students with Intellectual and Developmental Disabilities

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Dedication

For my babies River, Lorelai, Rowan, and Esmé (and any future babies). To my husband Sam for taking care of everyone so I could write this. Mom- you were right, my big feet were to hold up my big brain.

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Video Modeling and Video Prompting for Increasing Independent Task Acquisition in Students with Intellectual Disabilities

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This study compared the relative efficiency and effectiveness of video prompting with video modeling on participants' independent functioning for both daily living and vocational tasks. The relative effectiveness of video prompting and video modeling was evaluated using an adapted alternating treatment design. Four participants accessed videos via YouTube using a cell phone and tablet on Android Platforms. Results suggested that Video prompting was slightly more efficient than video modeling; however, levels were very similar across procedures. Three of the four participants performed better during the video prompting condition in which each step was presented individually as opposed to the video modeling condition in which the video played as a whole. Participants also demonstrated improvements in their performance during maintenance, although not to the degree displayed during the intervention. Participants indicated that the intervention was enjoyable and suitable for learning in different environments.

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CHAPTER 1

INTRODUCTION

One of the primary goals of Rehabilitation Counseling is to assist clients in reaching their highest possible level of independence, both in the home and in the workplace. The clients of rehabilitation counselors are primarily individuals with disabilities. Currently, there are an estimated 56.7 million people with disabilities in the United States, which are nearly 1 in 5 individuals. This statistic shows an increase of 2.2 million people with disabilities since 2005. Of those 56.7 million individuals, 1.2 million adults had an intellectual disability, while 944,000 adults were reported to have other developmental disabilities diagnoses including Autism Spectrum Disorders (ASD) and cerebral palsy. The Census also found that 1.7 million children had an intellectual or developmental condition (Brault, 2012).

According to the American Association on Intellectual and Developmental Disabilities, “developmental disabilities” can be both physical or cognitive and appear before the age of 22 (American Association on Intellectual and Developmental Disabilities, 2010). The Center for Disease Control (CDD) has stated that attention deficits hyperactivity disorder (ADHD), ASD, cerebral palsy, hearing loss, learning disability, vision impairment, other developmental delays, and intellectual disabilities fall within the category of developmental disabilities (Center for Disease Control and Prevention, 2018). An intellectual disability is characterized by significant limitations in intellectual functioning and adaptive behaviors that occur during the developmental period, which is before the age of 18. There are three main categories of adaptive behaviors including conceptual skills, social skills, and practical skills. Conceptual skills

include the subcategories of language and literacy, money, time and self-direction. Social skills include social problem solving, social responsibility, interpersonal skills, and the ability to follow rules. Lastly, practical skills include activities of daily living, occupational skills, navigating schedules and routines, safety, and the use of money (American Association on Intellectual and Developmental Disabilities, 2010).

Comorbid disorders are common among those with intellectual and developmental disabilities. In a 2015 survey of 1,424,378 individuals both typically developing and those with intellectual disabilities (8014 individuals), that of those with IDD,61.5% of those individuals had physical comorbid diagnoses (ranging from one to 5 additional diagnoses), and it was also noted that 26.7% of those individuals had been diagnoses with one or more mental disabilities as well. Looking at the remaining number of individuals (1,4,22,574) who ae considered typically developing only 15% had a diagnosis of one or more mental disability with 48.4% of individuals having one or more noted physical condition (Cooper et al., 2015). To put this into perspective the individuals with disabilities only makeup 0.6% of all those included individuals.

When working with individuals with disabilities, it is important to be knowledgeable regarding the legislation that pertains specifically to this population. Prior to the 1950's, the focus of legislation was related more toward work and economic value. Beginning in the late 1950s, legislation included education, community life, and social needs of individuals with disabilities. Over time, emphasis and focus have evolved toward independent living goals that are commonly seen today.

For individuals with intellectual and developmental disabilities (IDD) to gain their highest possible level of independence, interventions are needed to help facilitate

individuals acquisition of essential skills. The highest level of independence varies by individual with some individuals hoping to transition into further education, vocational settings, community situations, or independent living settings as a whole. The need for services related to learning essential independence skills is discussed in the post-secondary transition section of the Individuals with Disabilities Education Act (Individuals with Disabilities Education Act, 2004). Previously known as the Education for All Handicapped Children's Act of 1975, this Act was reauthorized (and retitled) in 1990, with an overall purpose "to ensure that all children with disabilities have available to them a free appropriate public education that emphasizes special education and related services designed to meet their unique needs and prepare them for further education, employment and independent living (Education for All Handicapped Children's Act, 1975). According to IDEA, transition planning should be a part of an individualized education plan by at least age 16; and prior to age 16 if the individualized education (IEP) committee deems it necessary. These transition plans should include post-school goals such as employment and independent living. Transition programs exist for college students with intellectual and developmental disabilities between the ages of 18-26 (Disability Rights Pennsylvania, 2008.)

Transition and transition-related goals are crucial for individuals with disabilities as they are more likely than their typically developing peers to be under or unemployed; they are also less likely to engage in post-secondary education or live independently (Prince, 2013). In fact, the rate of employment for individuals with disabilities is 30% while the rate of employment for individuals without a disability is 76%. For adults with intellectual disabilities, the unemployment rate exceeds 70%, which is in stark contrast

with their non-disabled peers (Institute for Community Inclusion, 2011). However, it should be noted that while individuals with intellectual disabilities are employed, only 18% of those individuals are employed competitively (i.e., representative of t underemployment; Siperstein, Parker, & Drasher, 2013). A 2014 data analysis, utilizing the Rehabilitation Services Administrations data set, showed that while vocational rehabilitation services play an important role in relation to post-secondary education for individuals with intellectual and developmental disabilities, it played less of a role when compared to individuals with other types of disabilities. In fact, younger individuals (e.g., transition aged) with intellectual disabilities were significantly less likely to engage in education services while involved with the vocational rehabilitation system; again, when compared to other same-age individuals with other disabilities (Grigal, Migliore, & Hart, 2014).

Although legislation such as IDEA exists, there are still skills that could be considered both independent and vocational-related such as cooking, banking, or cleaning that may go unaddressed for a multitude of reasons (e.g., not having a goal on individualized education plans or student plan; parents performing tasks for children; lack of consideration to teach a student specific skills). Thus, it becomes more important to provide individuals with disabilities skill acquisition programming prior to their graduation and emergence into the community. When this does not occur, there are often additional programs students can enroll in to better engage with their community while learning recommended skill sets (e.g., transitional living facilities; post-secondary training programs.

Prompting Strategies

When individuals with disabilities enter vocational or educational transitional programs with the goal of furthering their independence, there are a multitude of interventions and services available. The use of visual prompting strategies is one of the most common interventions for assisting in the obtainment of independence. There are a variety of visual prompting strategies that have been shown to be useful with individuals with a wide array of disabilities in reference to the acquisition of vocational or independent living skills including static picture and picture schedules (Lancioni & O'Reilly, 2001). When using static pictures or still photos to teach a skill, clinicians (a) photograph each step in a task individually, (b) they arrange the photos steps in order, and (c) the present them to the participants who recreate what is occurring in the photographs. For example, making a copy could be considered a simple vocational task with seven distinct steps (e.g., 1. Select item to be copied; 2. Open Copier; 3. Place page in copy machine; 4. Input number of copies to be made on keypad; 5. Press COPY; 6. Collect copies; 7. Remove original document) thus requiring seven separate still photos to teach the task as a whole. In recent years, with technological gains (as well as cost effectiveness that has come with aspects of technology), the use of video-based prompting procedures has become more prevalent. While the devices used to present the information vary across studies, the usual procedure requires researchers to video or photograph models (which could be the individual, or others including researchers) performing and completing steps in a written task analysis for a specific work task.

Several types of video intervention-based prompting procedures have been evaluated in recent studies (Gardner & Wolfe, 2015, Kellems & Morningstar, 2012, Mechling, Ayres, Bryant, & Foster, 2014). Video modeling typically entails the individual watching the entire video (of the skill being performed by another individual) and then performing the skill he/she just viewed. One version, continuous video modeling (Mechling et al., 2014), entails the viewing of a video on a loop as the individual performs the task. Thus, if one step is missed, the individual must wait for the video to begin replaying to observe demonstration of the missed step. With video self-modeling, the individual is video recorded performing the skill as opposed to a researcher or other individual. Within video prompting, similar to the use of still photos, the video is broken into several discrete steps that represent a task analysis; and can include voice over components (Domire & Wolfe, 2014). The video is generally edited to allow for continuous play with the option of text or auditory prompts. The information is uploaded to a handheld device that is provided to the individual. This allows for individuals to view and perform the correct steps in each task at their own pace with the video under their control; which can then be reviewed, paused, and fast-forwarded in real time while the individual performs the task.

Static pictures and video have both been shown to have positive results on the acquisition of independent vocational and daily skills (Chicak , Kessler, & Alberto, 2008; Kellems & Morningstar, 2012; Riffel, Wehmeyer, & Turnbull, 2005; Van Laarhoven, Van Laarhoven-Myers, & Zurita, 2007; Van Laarhoven ,Van Laarhoven-Myers, Johnson, Grinder, & Grinder, 2009; Van Laarhoven, Kraus, Karpman, Nizzi, & Valentino, 2010). While food preparation and assembly tasks are commonly taught via static and video-

based methods, critical life skills such (e.g., transportation; moving through the community) can also be positively impacted by these interventions (Kelly, 2013; Mechling & Gustafson, 2009; Mechling &Seid, 2011). Additionally, both video modeling and video self-modeling have been used successfully “across multiple disciplines and populations to teach a wide variety of skills including motor behaviors, social skills, communication, self-monitoring, functional skills, social skills, athletic performance and emotional regulation” (Bellini & Akullian, 2007, p. 268). The positive outcomes pertaining to static photo and video modeling with prompting among transition age and young adults with disabilities are important to the field of disability studies. Specifically, they indicate potential benefits and possible generalization to other skills with individuals with disabilities in terms of independent living and vocational skills.

Individuals with intellectual disabilities are consistently one of the most highly stigmatized group (Werner, Corrigan, Ditchman, & Sokol, 2012; Hernandez, Keys, & Balcazar, 2000; Thomas, 2000). The addition of a job coach to a work environment may increase the stigma experienced by individuals with developmental and intellectual disabilities. Job Coaches generally analyze the tasks for a certain work position and then systemically instruct each task in the work environment. Through this process, those working with a job coach are expected to gain these skills during which time the job coach begins to slowly phase out their presence in the work environment (Nisbet & Hagner, 1988). Job coaches can “call attention to an exaggerate the disability of supported employees and contribute to their stigmatization” (Nisbet & Hagner, 1988, p. 261). Additionally, the presence of job coaches may inadvertently hinder social opportunities and independence (Gilson & Carter, 2016). With the rise of YouTube, it is

easy to configure videos such that they can be accessed at any time; thus forming a library of videos depicting skill for individuals with disabilities. With such easy access to, and the widespread acceptance of mobile devices, the ability to view such videos may allow for a less stigmatizing approach to teaching vocational and independent living skills versus having a job coach or aide in order to learn a skill set and allow for independent learning. While not all individuals could perform without a job coach, their presence could potentially be decreased or faded at a more rapid pace.

The use of YouTube to help with skill acquisition is a relatively new development in the literature with few studies having evaluated a “generalized” modality for intervention viewing; instead, previous studies have relied on specific playback devices with certain video files that could only be accessed through the viewing device itself, often with the user not having the ability to access similar videos (Cihak, McMahon, Wright, Gordon, & Gibbons, 2017;Rivera, Hudson, Weiss, & Zambone, 2017). With YouTube, individuals can access intervention videos on any type of device with an internet connection. Further, they have the ability to seek and access videos pertaining to other interventions and skills. Advancing Technology now allows anyone to store information to a cloud-based service (e.g., YouTube; Dropbox), allowing for easy access via any mobile device or computer with an internet connection (Kellems, Rickard, Okray, Sauer-Sagiv, & Washburn, 2018).

The purpose of this dissertation was to examine the effectiveness of video prompting and video modeling presented on Android devices utilizing YouTube on independent task completion of independent living and vocational tasks exhibited by transition-aged individuals with mild to moderate intellectual disabilities. Thus, the

purpose(s) of the current dissertation was to answer several questions including (a) what are the relative effects of video modeling vs. video prompting when each is presented on Android and YouTube-based technology in terms of efficiency and effectiveness in terms of skill acquisition of teaching basic living and vocational skills, (b) what is the extent to which maintenance of effects will be achieved following intervention, and (c) what are the views of participants regarding the respective YouTube-based (i.e., social validity).

CHAPTER 2

EVALUATING PROMPTING PROCEDURES: A REVIEW OF THE LITERATURE

Task analysis in relation to vocational skill acquisition began with Supported Employment. Supported employment is a vocational rehabilitation method designed to create community jobs for people with severe cognitive, physical, and psychiatric disabilities (Nietupski & Hamre-Nietupski, 2000, p. 104). Between 1960 and 1970 the emergence of applied behavior analysis (ABA) as an important training technology was recognized (Wehman & Bricout, 1999). Job carving is a supported employment strategy where an entire position is analyzed and specific tasks within that duty are taken out and assigned to a specific individual with a severe disability; this can also be thought of as customized employment (Griffin, 1998). These tasks are presented to the individual and they are trained to perform simple instructions on segments of jobs; not the job task as a whole as is often done when creating and teaching a task analysis. As time progressed these methods began to be utilized and expanded upon outside of those with severe disabilities in supported employment or sheltered workshops and into the Vocational Rehabilitation Services for those with multiple severity levels of multiple disabilities.

The Technology Related Assistance for Individuals with Disabilities Act of 1988 recognized that individuals with disabilities need special equipment to perform to their own highest standard, allowing them to live and work at more independently. Through this legislation methods of funding were made available including discretionary grants to agencies; designated by Governors to develop comprehensive State programs that coordinate or directly serve persons needing assistive technology and demonstration and innovation grants in local agencies (Cohen, 1994). In refence to the grant, technology that is considered “low” technology would include communication books

which could help an individual in supported employment to increase their numbers of interactions with their typically developing coworkers; or ”high” technology, such as attached computers with voice synthesizers to allow for an individual to operate specific equipment (Wehman & Bricout, 1999). Major advances in technology have led to the use of video and the internet to be utilized as “technology related assistance”, that allow for skills to be taught for very little cost in regard to equipment and utilization.

As mentioned previously, the emergence of ABA led to the use of job carving as well as the task analyses that are now often used in the literature. The use of task analysis as well as participant response to such an intervention can be viewed through the lenses of ABA and observational learning theory (which is also referred to as social learning theory (Greer, Singer-Dudek, & Gautreaux, 2006; Grusec, 1992). Observational learning theory refers to cognitive and behavioral changes that occur due to observing others in similar actions (performing similar tasks). Modeling in this context is a process in which someone demonstrates a behavior that could be imitated, such as the video modeling and prompting procedures (modeling within ABA is based on the social learning theory).

Method

Search Procedures

The University of Texas at Austin Library’s Academic Search Premiere was used to perform a systematic search of journal articles. This search allowed for the use of several databases including Education Resources Information Clearinghouse (ERIC), JSTOR, and EBSCOHOST. Additionally, Google Scholar was used to perform a search with identical parameters, and a hand search of references of retrieved articles was also performed to identify potential articles for inclusion. The search terms included,

disabilities, static picture, video modeling, video prompting, still photo, comparison, and *prompting* as well as related synonyms.

Inclusion/ Exclusion Criteria

Articles identified for inclusion must have met the following criteria. The articles were published on or after 2005 to allow for more relevant technology to be used. Additionally, studies must have included participants who were in or have completed middle school and had an identified intellectual disability in the mild to moderate range. The age range of the participants will include those identified as transition age- generally 12-26 years old, however if an article had an outlier participant it was also included The focus of intervention for each study had to be related to independent living/ daily living or vocational skills, with a maintenance phase included. Studies had to include video modeling, continuous video modeling, video prompting, or still photo prompting. All participants were taught to use the technology prior to engaging in each intervention

Articles were excluded if the participants were classified as having severe disabilities, as opposed to mild to moderate or if the disability of the participants were not elaborated on, interventions involving computer-based video instruction (CBVI) were also not included. Articles were also excluded if it was impossible to separate the prompts from one another.

Data Extraction

Studies which met the inclusion exclusion criteria were then summarized into several categories. Each study was coded for design type, disability status, gender, number of participants, focus of intervention, target skill or task, and results.

Additionally, percentages of inter-observer agreement and procedural reliability of study were also coded. Effect sizes were coded using percentage of non over lapping data (PND) as well as visual analysis. Studies were sorted into three categories; video prompting only, video modeling only, and comparison studies. Comparison studies were those in which one or more interventions were compared to another, such as video modeling, video prompting, and/or static picture prompting.

Results

Seventeen studies met all inclusion and exclusion criteria and are presented in tables 1-3. Within the tables, the articles are presented in alphabetical order by last name and date if the same authors were identified across multiple studies. The participants' broad intellectual disability is included in the table as well as their ages and gender. Other factors included the experimental design, the task targeted by the intervention, and setting in which the intervention took place. Results information is presented in two sections including visual analysis and PND. Articles were classified as **positive** if a functional relation was found for all participants involved, **mixed** if the functional relations were not demonstrated for all participants, and **negative** if no functional relations could be found for any participant. Additionally, the author calculated the percent of non-overlapping (PND) data for each participant for each study. A PND of 90% or higher is considered a **highly effective** intervention, whereas those between 70-90% are considered **effective**. Any PND below 70% to 50% would be considered **questionable** and anything under 50% would be considered **ineffective** (Scruggs & Mastropieri, 1998). To gain more accurate results among the comparison articles, the mean percentage of steps performed correctly by each participant in each

condition was also reported. The calculated mean percentage of performance steps is not included in the table but is discussed.

Table 1. Video Prompting Only

Reference	Participant Characteristics	Setting	Design	Task	Visual Analysis	PND
Gardner & Wolfe (2013)	N=4 2 Male 2 Female 13-14 Mild to Moderate ID	Kitchen Space of Classroom	Multiple Baseline Across Participants	Washing Dishes	Positive	100%
Goodson et al (2007)	N=4 Males 33-36 Moderate ID	Dining area of Vocational Center	Multiple Baseline Across Participants	Setting Table	Mixed during VP Positive during VP+EC*	100% during VP + EC
Graves, Collins, Schuster & Kleinert (2005)	N=3 1 Male 1 Female 16-20 Moderate ID	Resource Classroom	Multiple Probe across Behaviors	Make Mac and Cheese, Cook Noodles, Make PBJ	Positive	100%
Heider, Canella-Malone & Andzik	N=2 Females Moderate ID, Down Syndrome, Selective Mutism	Transition Program Homeroom	Multiple Probe Across Behaviors	Name Tag, Coffee Tray, Wrappig	Positive	100%
Kellems et al (2018)	N=3 2 Males 1 Female 19-20 Fragile X, Autism	Apartment in community living program	Multiple Probe Across Behaviors	Cooking and Cleaning Tasks	Positive	100%
Sigafoos et al. (2007)	N=3 Males 27-33 Mild to Moderate ID	Kitchen of Vocational Center	Multiple Baseline Across Participants	Washing Dishes	Positive	100% Durin g Interv ention
Sigafoos el al. (2005)	N=3 Males 34-36 Moderate ID and Autism	Kitchen of Vocational Center	Multiple Probe	Cook Popcorn	Mixed	100% 100% 44%

Table 1
Continued.

Van Laarhoven et al (2009)	N=1 Males 17 Moderate ID	Animal Shelter	Multiple probe	Vocational Tasks	Positive	100%

EC= Error Correction

Table 2. ***Video Modeling Only***

Reference	Participant Characteristics	Setting	Design	Task	Visual Analysis	PND
Kellems & Morningstar (2012)	N=4 Males 20-22 Autism	Place of employment	Multiple Probe Across Behaviors	Current Job tasks	Positive	100%
Mechling et al (2014)	N=3 1 Males 2 Female 15-17 Autism, DS, Prader Willi	Home Living Center High School	Multiple Probe Across Task	Cleaning Tasks	Positive	100%
English et al (2017)*	N=3 Males 18-23 Asperger's, Autism	Flower and Herb nursery	Multiple Probe Across Skills	Vocational Gardening Skills	Mixed	100% in 4 of 6 skill sets

*this study included a video prompting procedure for one participant when VM could not be mastered but it was not in the original study design

Table 3.*Comparison Articles*

Reference	Participant Characteristics	Setting	Design	Task	Visual Analysis	PND
Alberto, Cihak, & Gama (2005) [1,2]	N=8 4 Males 4 Females 11-15 Moderate ID	Grocery Store	Alternating Treatment Design	Withdraw Money, Make Purchase	Positive	100%[1,2]
Cihak, Alberto, Taber-Doughty & Gama (2006)[1,2]	N=6 Males 11-12 Moderate ID	Grocery Store	Alternating Treatment Design	Withdraw Money, Make Purchase	Positive	100%[1,2]
Mechling & Gustafson (2008)[1,2]	N=6 Males 15-21 Mild to Moderate ID	Home Living Room of High School	Adapted Alternating Treatment Design	Cooking Related Tasks	Positive	100%[1,2]
Mechling & Gustafson (2009)[1,2]	N=6 3 Males 3 Females 18-22 Moderate ID	Apartment Kitchen	Adapted Alternating Treatment Design	Cooking Related Tasks	Positive	100%[1,2]
Mechling, Ayers, Bryant, & Foster (2014)[1,3,4]	N=3 1 Male 2 Females 15-17 Autism, DS, Prader Willi	Home Living Center of High School	Adapted Alternating Treatment Design and Multiple Probe Across Behaviors	Multistep Cleaning Multistep Folding Multistep Putting Away	Mixed	87.5%[2,3] 87.5%[2,4] 20.0%[2,4] 62.5%[3,4] 75.0%[2,3]
Van Laarhoven et al (2010)[1,2]	N=2 Males 13-14 Mild to Moderate ID	Faculty Lounge Middle school	Within Subjects Adapted Alternating Treatment Design	Microwave Pasta Fold Laundry	Positive	100%[1,2]

[1]Picture Prompting
[2] Video Prompting
[3] Video Modeling
[4] Continuous Video Modeling

Participant Characteristics

The 17 studies which met the inclusion and exclusion criteria described visual prompting interventions to 64 participants. Three of these participants were involved in

two studies by the same author bringing the actual number down to 61 participants. The participants ranged in age from 11-36 years old with 15 females and 38 males. All articles included individuals with mild to moderate intellectual disabilities and/or developmental disabilities .Several different methods to obtain the functional level of the participants were utilized; most commonly the *Weschler Intelligence Scale for Children-Third Edition (WISC-III), Standford-Binet Intelligence Test- 4th Edition* (Alberto et al., 2005; Chiak et al., 2006; Cihak et al., 2007; Gardner & Wolfe, 2015; Mechling & Gustafson, 2008; Mechling & Gustafson, 2009; Van Laarhoven et al., 2009). The Woodcock Johnson test of Achievement (Van Laarhoven et al., 2009; Van Laarhoven et al., 2010), Childhood Autism Rating Scale (Mechling & Gustafson, 2008), Leiter International Performance Scale revised (Mechling & Gustafson, 2008), Kaufman Brief Intelligence scale (Gardner & Wolfe, 2015; Van Laarhoven et al., 2010), and Kaufman Assessment Battery for Children (Mechling & Gustafson, 2008) were also used to obtain information. The Vineland Adaptive Behavior Scale- Interview edition was used to assess information related to domestic living skills in several articles (Goodson et al., 2007; Sigafoos et al., 2005; Sigafoos et al., 2007). These articles did not provide specific information on how the mild to moderate intellectual disability diagnosis was confirmed but did state that the intellectual developmental disability (IDD) must have been documented for inclusion in their studies.

Articles published prior to the release of the DSM-5 would have used now obsolete criteria in selecting participants with the correct diagnoses. For example, in the DSM-IV-TR the diagnostic criteria for Mental Retardation would have included three criterion: (a) significantly sub average intellectual functioning: an IQ of approximately 70

or below on an individually administered IQ test (for infants, a clinical judgment of significantly sub average intellectual functioning), (b) Concurrent deficits or impairments in present adaptive functioning (i.e., the person's effectiveness in meeting the standards expected for his or her age by his or her cultural group) in at least two of the following areas: communication, self-care, home living, social/interpersonal skills, use of community resources, self-direction, functional academic skills, work, leisure, health, and safety, and (c) would have seen an onset prior to 18 years of age. In addition, there were three descriptors based on the severity of the impairment. Within this study, mild mental retardation included an IQ level from 50-70, with moderate MR 35-55. While this study does not include those with severe or profound disabilities, it is worth noting that these IQ levels range from 25-40 and below 25 respectively (American Psychiatric Association [APA], 1988). However, the diagnosis for mental retardation as a whole was replaced with intellectual disability within the DSM-5, and the criteria now includes deficits or impairments in adaptive or intellectual functioning, usually with an IQ of 70 or below on an accepted standardized intelligence test. However, the new DSM-5 can place an individual with an IQ of 80 to 85 in the mild category of intellectual disability if their social impairments are so severe that they the IQ score is weighed against the persons ability to perform day to day life skills and activities.

The DSM-IV-TR criteria for Autistic Disorder included A: a total of six or more items from (1) (2) and (3) with at least two from (1) and on each from (2) or (3). (1) qualitative impairment in social interaction, as manifested by at least two of the following: marked impairment in the use of multiple nonverbal behaviors such as eye to eye gaze, facial expression, body postures, and gestures to regulate social interaction,

failure to develop peer relationships appropriate to developmental levels, a lack of spontaneous seeking to share enjoyment, interests or achievements with other people, and lack of social or emotional reciprocity. (2) qualitative impairments in communication as manifested by at least one of the following: delay in or total lack of, the development of spoken language, in individuals with adequate speech, marked impairment in the ability to initiate or sustain a conversation with others, stereotyped or repetitive use of language or idiosyncratic language, and/ or lack of varied, spontaneous make-believe play or social imitative play appropriate to developmental level. (3) Restrictive repetitive or stereotyped patterns of behavior, interests, and activities, as manifested by at least one of the following: encompassing preoccupation with one or more stereotyped patterns of interest that is abnormal either in intensity or focus, apparently in flexible adherence, to nonfunctional routines or rituals, stereotyped and repetitive motor mannerisms and/or persistent preoccupation with parts of objects. B criteria includes delays or abnormal functioning in at least one of the following areas, prior to 3 years: (1) social interaction, (2) language as used in social communication, or (3) symbolic or imaginative play and C, the disturbance is not better accounted for by Rhett's Disorder or Childhood Disintegrative Disorder. However, an included note within the DSM5 stated that those individuals who held a well-established DSM-IV-TR diagnosis of Autism, Asperger's Disorder or other Pervasive Developmental Disorder (not otherwise specified) should be given a diagnosis of autism spectrum disorder.

Intervention Procedures

Only three of the studies used video modeling alone, eight articles used video prompting alone, and six articles compared video prompting with either static picture

prompting, video modeling, or continuous video modeling (CVM was only seen in one article). A commonality among the picture prompting articles is that they are among the oldest of those included within those selected. A majority of the articles focused on daily living skills, such as cooking related tasks, laundry, washing dishes, making purchases, or withdrawing money. Few studies included vocational tasks. Often the vocational tasks were tailored to work the individual was already engaged in such as working at an animal shelter. The exception being the tasks found in the Heider et al. study and English et al. which gave tasks that could be considered ambiguous (either home or vocational related tasks) such as setting a coffee tray, gardening, and wrapping items with paper and tape. The devices used throughout the intervention varied greatly with the newest articles utilizing mobile devices such as the iPhone or iPads, and older articles using handheld computers, televisions, VCR's, and portable DVD players. The interventions took place in a variety of locations, including residential/transitional facilities, living center classrooms within high school and middle school, regular classrooms (usually used to familiarize participants with the technology being used) and places of employment for the participants.

Experimental Design and Outcomes

All studies selected for inclusion utilized single subject designs. The non-comparison articles used multiple baseline across participants in three studies and eight studies utilized multiple probe designs across behaviors or participants. The comparison articles (six) used an adapted alternating treatment design to compare one intervention to another. Baseline data were collected for all but two articles (Van Laarhoven et al., 2010; Van Laarhoven et al., 2009); in all other articles baseline data

ranged from 3-6 data points. In the articles where baseline data were not taken, a pretest procedure was used, with the pretest as the determination for participant selection in the studies (those scoring under 50% in pretesting). The studies were analyzed in those three categories including video prompting alone, video modeling alone, and comparison articles.

Video Prompting Alone.

Eight of the articles chosen for inclusion focused on video prompting alone as an intervention. Among the six articles there were a total of 23 participants ranging in age from 13 to 36, all diagnosed with mild to moderate intellectual disabilities (or autism). Three of the studies included a multiple baseline design (Gardner & Wolfe, 2015;Goodson, Sigafoos, O'Reilly, Cannella, & Lancioni, 2007;, 2005;Sigafoos, O'Reilly, & Canella, 2007) and the additional five articles used a multiple probe design(Heider et al.,2019, Kellems et al., 2018, Sigafoos et al., 2005 & Van Laarhoven, Van Laarhoven-Myers, Johnson, Grider, & Grider, 2009). Each study focused on what would generally be considered daily living skills; specifically, food preparation, setting the table, or kitchen clean up. The exceptions being the Van Laarhoven study which focused on vocational tasks in a specific setting (animal shelter) and the Heider et al study which focused on various tasks such as gift wrapping, setting coffee trays, and creating nametags.

Two articles (i.e., Kellems et al., 2018; Sigafoos et al., 2005) did not include prompting, additional instruction, or feedback to complete the steps of the task analyses. Within the Sigafoos et al. study, two of the participants acquired the skills to operate a microwave oven to make popcorn during the sessions. These results were

able to be replicated at 80-100% task completion during follow up sessions. One of the participants in the study failed to make progress and was noted to no longer seem interested in learning the skill. Training for this individual was terminated. Prior to the deterioration, the individuals performance showed 0-20% of steps completed independently during the baseline phase , rising to the 80% level over the course of the study. The Kellems et al., study considered tasks mastered if 80% of the steps were completed correctly across three consecutive sessions, all participants met this criterion within 3-6 sessions across all tasks.

The remaining studies all used different versions of prompting or error correction throughout their intervention sessions. Four studies (Gardner & Wolfe, 2015; Goodson et al., 2007; Heider et al., 2019, Van Laarhoven et al., 2009) used error correction procedures. Goodson et al. separated the sessions into video prompting and video prompting with error correction; whereas Gardner and Wolf included the error correction procedure from the beginning of their intervention. Within the Gardner and Wolf study, a three-step least to most prompting procedure was used (verbal/visual, model prompt, physical prompt). Heider et al., Goodson et al., and Van Laarhoven included a two-step error correction procedure. During this procedure participants were told to watch the clip again or to watch the correct behavior being modeled. The Goodson (2007) and Heider et al. (2019) studies did not include a physical prompt throughout and only relied on modeling. Within the Goodson et al (2007) study, one individual met criterion without the introduction of the error correction phase. The additional three participants all reached 100% on their task analysis when the error correction procedure was implemented. All participants in the Gardner and Wolf study

were able to reach criterion (i.e., 90% of steps completed independently across 4 consecutive sessions) in a relatively short amount of time (i.e., less than 10 sessions). Only one participant was included in the Van Laarhoven et al. (2009) study, this individual reached criterion (i.e., 85% correct or higher across three consecutive sessions) across all the vocational tasks. The two participants included in Heider et al. required prompts to unlock their device and to select the correct task during the training sessions. Both participants correctly used the device when the self-directed video prompting began, achieving 100% correct responding. Level one error correction (providing specific feedback, resetting the scene, and directing the individual to replay the video clip) was needed by both participants during the task completion portion of the intervention. One participant needed level two error correction (i.e., resetting the scene, provide specific feedback, and complete the step as a model). All participants showed increasing trends across trials pertaining to task acquisition.

The remaining two studies (Graves et al., 2005; Sigafoos et al., 2007) utilized slightly different procedures. Within the Graves et al (2005) study, prompts were built into the video the participants were using. If a participant did not engage in a step or complete the step within a certain time period, the video would provide an auditory prompt and model the correct behavior. All participants in this study met criterion. Participants in the Sigafoos et al. (2007) study reached 90-100% correct responses when the video prompting intervention was implemented. Upon withdrawing the intervention, the performance of the individuals deteriorated. Therefore, a three-step fading procedure was implemented in which the smaller steps to the task analysis were combined into larger chunks. The participant would then watch multiple steps performed

(similar to video modeling). Implementation of the fading procedure resulted in 80-100% correct responding across participants.

Maintenance or follow-up procedures were included in all studies except one (Goodson et al., 2007). Throughout the maintenance sessions participants in all articles were able to independently perform 80-100% of the steps in the task analysis. Fading procedures were only used within one study (Sigafoos et al., 2007) which could account for the deterioration in other studies. The PND for all video prompting alone articles was 100% with positive visual analysis.

Video Modeling Alone

Three studies focused on video modeling alone. There was a total of ten participants ranging in age from 15- 23 years old. All the individuals within the studies had mild to moderate intellectual disabilities or Autism/ Asperger's disorder. One individual had a co-morbid diagnosis of Down Syndrome- while another had comorbidities of selective mutism and epilepsy. All three articles utilized a multiple probe design across participants. The English et al. (2017) and Kellems and Morningstar (2012) studies focused solely on vocational related tasks, while the Mechling et al. (2014) study focused on daily living/household tasks.

No prompting procedure or error correction procedures were used during the intervention stage within the English et al. (2017) or Kellems and Morningstar (2012) studies. In the Kellems and Morningstar (2012) study, if a participant asked a question related to how to perform the task, a prompt was given for them to refer to the visual prompt. Each participant (four) in the study was able to acquire the skills need to perform multiple vocational related tasks at their places of business. The baseline

scores for the tasks ranged on average from 0- 61%. An 80% criterion was set for each of the 12 (three each) tasks, which was achieved across the participants. Three of the 12 tasks were mastered to 100%. Maintenance probes were conducted on the first task when criterion was met for the second and third tasks respectively, as well as a probe on the second task when the third had been met. No data were taken for the third tasks. Throughout maintenance, participants were able to perform 78-95% of the steps in each task correctly and independently.

Within the English et al (2017), no feedback was provided during the baseline sessions or the actual intervention session (outside of the feedback loop- which was a separate condition) for all gardening skills. Participants were given built-in video feedback after each session, during this time period the researcher and the participants would watch videos that had just been recorded of their task performance. The researchers would provide praise for correct skill step performance and corrective feedback for incorrect steps. The individuals were then asked to perform the skill again. One participant needed to utilize video prompting- but did receive the same video feedback sessions as the others within the study. A PND of 100% was seen across all participants. All participants were able to maintain and generalize these skills. Maintenance data was collected between one and six weeks following the intervention.

Mechling et al (2014) included continuous video modeling (CVM) and CVM + error correction. CVM + error correction was used only if criterion(100% over 3 session) was not met over 8 sessions. During error correction, the instructions began first with gestures and then modeling the behavior. Baseline data ranged from 0-20% across participant. Gains in performance were seen in the continuous video modeling alone

condition. After the introduction of error correction criterion was met for some tasks. Maintenance data taken across participants, which included gaps as long as 73 days ranging from 92.6% to 100% of steps completed independently. This was the only study to use continuous video modeling. All the articles in the video modeling alone category had a PND of 100%, and positive visual analysis.

Video Comparison Studies

Six comparison studies met the inclusion/ exclusion criteria. A majority focused on a video intervention compared with a static photo/ picture prompt which preceded the use of video interventions. Two studies included a video modeling intervention (Alberto, Cihak, & Gama, 2005; Mechling et al., 2014), while the remaining four articles utilized video prompting. The comparison studies included a total of 23 participants with 9 being female. The ages ranged from 11-22 years old, each being diagnosed with mild to moderate intellectual disabilities (including autism, Prader Willi and down syndrome). Four articles utilized an alternating treatment design or an adapted alternating treatment design (Alberto, Cihak, & Gama, 2005; Cihak, Alberto, Taber-Doughtry, & Gama, 2006;Mechling & Gustafson, 2008;Mechling & Gustafson, 2009). The remaining two studies also used versions of alternating treatment designs in combination with other designs; adapted alternating treatment design in combination with a multiple probe across behaviors (Mechling et al., 2014) and within subjects alternating treatment design (Van Laarhoven et al., 2010). Each of the studies focused on daily living tasks such as withdrawing money from an ATM, cooking, and cleaning. The comparison articles did not include vocational tasks as a target behavior. The setting for each was in the natural environment or a simulation of a natural environment.

Prompting procedures varied greatly by study; three studies (Mechling et al., 2014;Mechling & Gustafson, 2009;Mechling & Gustafson, 2008) did not utilize prompting of any kind outside of the technology, two articles used least to most prompting after errors or failure to initiate a task (Alberto et al., 2005;Chiak, Alberto, & Gama, 2006), one article utilized multiple prompting procedures (prompts to both initiate the task and prompts to begin using the technology), and error correction procedures (Van Laarhoven et al., 2010).

Follow up and/or maintenance data was taken for all but one study (Mechling et al., 2014). All participants were able to maintain their performance when given a probe at 2 weeks post intervention in two articles (Alberto et al., 2005; Cihak et al., 2006). The Van Laarhoven et al (2010) article showed both individuals generalizing and maintaining the skills after one week with the technology removed, however only one participant was able to maintain their performance at the six-week mark. Both remaining Mechling & Gustafson articles included maintenance procedures with varying results, the 2009 article showed that three of six participants were able to maintain their performance when the static pictures were taken away. Only one of the six were able to maintain their performance with the removal of the video prompting procedures. Four of six participants in the 2008 article were able to maintain their performance during follow up. Two individuals did have decreases in their performance levels with the removal of the static pictures. Additionally, one individual refused to continue when the video prompting was removed.

Alberto and Chiak found that picture prompting and video modeling and video prompting were not functionally different in regard to the number of sessions required

for an individual to meet the set criterion or acquisition of each task in the community-based setting The four remaining articles found that video prompting appeared to be at least somewhat more effective compared with the static picture conditions (Mechling & Gustafson, 2008; Mechling & Gustafson, 2009; Mechling et al., 2014; Van Laarhoven et al., 2010). The 2014 Mechling et al. study was the only article to compare three different prompting procedures; static picture, continuous video modeling, and video prompting. The video prompting was more effective than the continuous video modeling. It was also the only articles to have a mixed visual analysis and multiple PND scores not meeting 100%.

Additional Observations

There was no indication throughout the reviewed articles that the individuals would be able to access the videos utilized within the intervention or other videos after completion. There was also no indication on which platform these videos were stored or who would have access to the videos themselves. With the increased use and popularity of YouTube, accessing such videos on a digital platform would make it easy for individuals to both locate and learn from additional videos for whatever skill sets they require. As it is common now to have information directly at one's fingertips, it would certainly make sense for individuals with disabilities endeavoring to obtain their highest levels of independence to be able to easily navigate this common platform in order to increase their independent living or vocational skills sets. A potential contribution for the rehabilitation counseling field in expanding learning opportunities using YouTube could be offered through this research; which has been done to a limited degree in the past.

The comparison articles within this review generally compared a still photo intervention to video-based intervention; but only one article (i.e., Mechling, Ayers, Bryant, & Foster, 2014) compared two video interventions to each other. This could possibly show a need for additional research comparing the two video interventions procedures (video prompting and continuous video modeling) within the stated population and ages. While the still photo/ static picture format is no being used as often in the literature, more research into the video-based methods is needed as we continue to advance technologically.

It was noted in the Van Laarhoven (2010) article, that there was a concern in regard to the cost effectiveness and efficiency of creating such interventions. Alberto et al. (2005) took data regarding preferences of the teachers/ implementers of the programs and their thoughts on using different interventions (video vs. picture). Within the Alberto et al. study, the teacher believed the video interventions were the most efficient to create. Chiack (2006) found different perceptions in that their social validity data showed a preference for the picture interventions for the same reasons. Additional concerns raised include the lack of studies in relation to handheld devices, although there have been significant gains in the use of handheld devices, specifically iPhones. With the acceptance of handheld devices, it may be easier to use phones to present pre-recorded videos of specific tasks, thus freeing the teachers/implementers from the amount of time necessary to create such an intervention. None of the studies included information in regard to which intervention was the most efficient among video prompting and video modeling, most likely due to the fact that only one study (i.e., Mechling, Ayers, Bryant, & Foster; 2014) was able to compare the two.

Conclusion

The purpose of this literature review was to examine the effectiveness of video modeling and video prompting procedures when utilized by transition and adult aged individuals with mild to moderate intellectual disabilities or developmental disabilities. Included within this review was the use of static pictures, which is often compared, in terms of its effectiveness, with a video technique. Several different devices have been used in the literature to present video procedures, however, no studies utilized an android device. Additionally, there was no mention of the system on which these video-based interventions were stored or if they were in fact stored within a database; or if the individuals would be able to access such videos following the completion of the research studies when YouTube was not utilized.

CHAPTER 3

METHOD

Participants

To be eligible to participate, the individuals were required to meet several criteria including (a) a diagnosis of mild to moderate intellectual disabilities/ developmental disabilities (including learning disabilities) and/ or an Autism Spectrum Disorder (ASD), (b) they had to be older than 18 and a graduate from a residential treatment facility, (c) they had to be their own guardian, and (d) they had to have some familiarity with android technology. Initially, informational flyers were placed near the Carbondale Towers, a living facility for adults with disabilities who have graduated from residential living facilities in the area. Four individuals were selected to participate in the study including one female and four male participants. Diagnostic scores for each participant were obtained via either the Woodcock Johnson III or the Wechsler Adult Intelligence Scale IV (WAIS-IV). In addition, participants' characteristics were evaluated via the DSM-5 and DSM IV (i.e., because the change in literature and diagnostic standards happened near the beginning of the research, and some participants may have been evaluated under prior diagnostic criteria). Table 4 shows the participant characteristics of those chosen to participate in this study.

Table 4. ***Participant Characteristics***

Participant	Gender	Age	Disability	Test
Dani	Female	24	OHI[1] Mild ID[2] ADHD	Woodcock Johnson III
Jonathon	Male	25	LD-NOS[34] ADHD Mild ID[2]	WAIS IV
Will	Male	27	Mild ID[2] LD	WAIS IV Woodcock Johnson III
Yamada	Male	25	Autism LD-NOS[34]	Woodcock Johnson III

[1]Other Health Impairment
[2] Intellectual Disability
[3] Learning Disability
[4] Not otherwise Specified

Setting

The setting of the study was a fully functional rental apartment. This apartment was set up to include everything an individual may need prior to moving in to live independently. This setting was chosen as its features were familiar to the participants and could be easily generalized to other basic apartments. Features included a full functioning kitchen, bathroom, washer and dryer set, Wi-Fi capabilities, and a multifunctional living space to observe and perform the preselected tasks.

Tasks

Four distinct tasks were presented during the intervention stage of the study. The tasks were divided into two vocational and two daily living activities, and each included a task analysis developed prior to any filming (See Appendix A). The vocational tasks were sorting mail-postal style (i.e., as it is sorted by zip code through the united states

post office) and rolling silverware in napkins (i.e., as is done by many restaurants in the food industry). The daily living activities tasks consisted of completing a load of laundry and baking peanut blossom cookies. All four tasks were chosen as they represent activities that could be completed while living independently and/or could be beneficial from a vocational standpoint with regard to job skills. The videos all included auditory prompts pertaining to the skill performed. Prior to the intervention, participants were taught to locate the correct YouTube channel on an Android phone.

Rolling silverware. The first stimulus presented in the rolling silverware video was a first-person view of an adult model (a) placing a red and white plaid cloth napkin in front of them, (b) folding the napkin into a triangle (c) placing a knife at the edge of the fold, (c) placing a fork atop it, (d) moving the silverware within the napkin toward the point of the triangle, (d) folding in the edges of the napkin, and (e) completing the roll itself.

Mail sorting. The first stimuli that appeared on the videos was a first person view of an adult model with two boxes; (a) an auditory prompt to select the workbox was provided simultaneously (i.e., a workbox that contained the different letters to be sorted). Auditory prompts were then given to (b) sort the letters into piles based on zip code. All matching zip code stacks were then (c) banded if they contained 5 or more instances of the same zip code. The viewers are then given an auditory prompt to (d) place the stacks into the outgoing box. The outgoing box in this instance being the one that was empty at the beginning of the video.

Baking cookies. The video prompting and modeling videos for baking cookies began by showing an adult model washing her hands in the kitchen sink followed by her checking the inside of the oven to ensure that nothing was already inside prior to preheating. The next steps demonstrated included (a) scooping/rolling and dipping the cookie dough into the sugar, (b) placing the cookies onto the cookie sheet (12 cookies), (c) placing the cookie sheet into the oven to bake, (d) while the cookies were baking,

the model demonstrated the unwrapping of 12 Hershey's kisses, (e) removing the cookies from the oven, (f) and placing a Hershey kiss in the center of each cookie.

Laundry. The video prompting and modeling videos video for laundry began by showing a pile of multicolored and black and white clothing on the floor. Next, an auditory prompt to sort the laundry into colors and whites was provided while the model sorted the laundry into colors and whites. Next steps included (a) adding the clothes to the machine, (b) setting the washing machine to cold, (c) setting the water level to small, (d) measuring the detergent, (e) adding the detergent to the machine, (f) turning the machine to a normal/light setting, and (g) pulling the dial to start the machine.

Independent Variables

Video Modeling

During this condition, participants watched a continuous video of the entire task being completed and were then prompted to complete the task. Participants were only able to view the video one time per trial. Participants performed two tasks using this approach: one independent living and one vocational skill.

Video Prompting

In the Video Prompting condition, participants viewed step-by-step versions of each tasks and were able to go back or pause each step, though the videos ran continuously. Participants performed two tasks using this approach: one specific to independent living and one vocationally related.

Error Correction Procedures

Error corrections procedures included two different prompts. If an individual did not engage in the task or a specific step within 5 s during the video prompting condition, they were prompted to rewind the step and view it again. If no response was emitted, the researcher modeled the next step and vocally prompted individual to continue to the next step in the task analysis. With the Video Modeling procedure, the researcher

modeled the step and then prompted the participant to continue to the next step in the Task Analysis.

Dependent Variable

Independent Correct Responses

After each session the percentage of correct responses was calculated by using the number of steps performed correctly as the numerator and the number of possible steps in each task as the denominator and multiplying this result by 100%

Materials

Devices

Two different android devices were used to present the YouTube Videos of the tasks. The first device used was an Android LG G6 Cell Phone. The dimensions of this phone were 5.86 X 3.83 X 0.31 inches, weighing 5.75 ounces with a resolution of 1440 X 2880 pixels, running on an Android 7.0 operating system. The second device used was a Samsung Galaxy S Tablet. The dimensions of this device were 8.37 X 4.94 X 0.26 inches, weighing 10. 51 ounces with a resolution of 1600 X 2560 Pixels, running on Android 4.4 operating system.

The video files were recorded using the Android LG G6 phone and edited using the video editing software that comes standard with the device. After editing, the videos were placed on a specific YouTube Channel (i.e., NicoleTAVIDS), as either step-by-step videos (Video Prompting) or as continuous video (Video Modeling) for each task.

Research Design

A within-subjects adapted alternating treatment design was used to compare the effects of video prompting and video modeling. Traditional ABA designs do not allow for the comparison of two or more treatment designs. As an alternative to withdrawal, multiple baseline and multiple probe designs the AATD allows for two procedures to be taught with different methodologies and comparison for different rates of acquisition to

be addressed (Sindelar, Rosenberg, & Wilson, 1985). The mastery criterion was set at 90% of correctly demonstrated steps across 3 sessions. Three or four sessions were conducted each week for two weeks. An additional session was implemented approximately three weeks after the conclusion of the intervention to assess maintenance. Baseline data were collected for three sessions for each task prior to the implementation of the intervention phase.

Experimental Procedures

Device Training and Baseline

Prior to baseline, participants were familiarized with the two devices and taught to access YouTube via the devices as well as how to get to the specific channel on which the videos were uploaded. However, they did not view the videos at this time.

For each task (two vocational and two daily living), three points of baseline data was taken with participants being prompted to complete the task without the use of technology but with all necessary items available. The participants were given five seconds to initiate a step, if a step was not initiated the researcher would shield the view and complete the step. The participants would then be instructed to continue the process by completing the step they believed would be next. This method was repeated for each step.

Intervention

During the intervention phase, participants were presented with four tasks across with two tasks assigned to the Video Modeling condition and two assigned to the Video Prompting condition. At the beginning of the task the participant was provided a general prompt to watch the video modeling or video prompting segments and instructed on how each version differed (i.e., if they would be able to watch the video continuously or if the video was segmented). They were then told to begin the task.

During the Video Modeling condition, the participant watched the entire instructional video and then placed the phone down to perform the task (or were

prompted to do so). Any time there was a 5-s delay in the initiation of a step, the delay was noted and the participant was prompted to continue. If another 5 s elapsed, the step was modeled by the researcher and the participants were again instructed to continue to the next step.

During the video prompting condition, each participant watched the video play step-by-step instructions with voice narration during the completion of the task. In this phase the video played continuously and the participants had the option to pause and rewind as needed. If there was a delay in starting a step of 5 s, it was noted by the researcher who then prompted the individual to continue to engage with device. If another 5 s elapsed, the video was paused and the step was modeled by the researcher and the participants were again prompted to continue to the next step.

If any type of error correction was implemented, it was noted and the step was considered incorrect even if the correction resulted in the step being performed correctly.

Maintenance

A maintenance session was conducted on each task five weeks following baseline. During this phase, the individuals were prompted to complete the tasks and no video-based procedures were used.

Data Analysis

Data were collected during all phases by utilizing the task analysis and using event recording to establish if a step was or was not performed correctly. Information regarding error prompting was also obtained on the same form (see Appendix B). To determine experimental control, visual analysis was used to determine a change in the target behaviors from baseline through intervention phases. Visual analysis procedures were supplemented via PND calculations.

Interobserver agreement (IOA) and Procedural Integrity. IOA was calculated taken during all sessions via a second, independent observer. IOA was calculated by

dividing the number of agreements by the number of agreements plus disagreements, with the resulting number multiplied by 100%. IOA was 100% for all sessions Procedural integrity was calculated via a form created by the investigator to ensure the implementation of the research went as planned and there was no variation in prompting procedures from task to task or individual to individual. Across sessions procedural reliability was 98%

Social Validity. Social validity was evaluated through informal interviews with the participants. Rating scales (using 1-5 likert scales) were also utilized. Participants provided scores via the rating scales in response to several statements including (a) which intervention was preferred by participants, (b) if the participants believed they interventions could be used in different settings, and (c) if participants would use this technology to learn new skills independently. The form also contained an area for participants to leave comments regarding any of the statements (see Appendix C).

CHAPTER 4

RESULTS

Jonathon

The results of the independent living tasks comparison are depicted in the top panel of Figure 1. Baseline data for making cookies in the Video Modeling condition ranged from zero to 28.5%. Baseline data for washing clothes in the Video Prompting condition ranged from 25 to 50% correct steps performed. Upon implementation of the Video Modeling condition, an immediate increase to 100% accuracy of responding was observed and maintained during the following two sessions; thus, mastery criterion was met with making cookies in the Video Modeling condition in three sessions. Upon implementation of the Video Prompting condition, an immediate increase to 100% accuracy of responding was observed and maintained during the following two sessions; thus, mastery criterion was met with washing clothes in the Video Prompting condition in three sessions. Overall, in terms of the efficiency of the two interventions with living tasks, the results across the two conditions were undifferentiated. The results of the vocational tasks comparison are depicted in the bottom panel of Figure 1. During the baseline phase for rolling silverware in the Video Modeling condition, Jonathon emitted zero correct steps during each session. During the baseline phase for clerical sorting task in the Video Prompting condition, Jonathon scored 40% during each session. When the Video Modeling condition was introduced with rolling silverware, an immediate increase to 50% (i.e., 4 out of 8 steps) correctly emitted responses was observed during the first session of the intervention phase. An increase was observed during the second session as well (i.e.,87.5%). During the final three sessions in the video modeling condition, Jonathon demonstrated 100% correct steps with rolling

silverware; thus, mastery criterion was met with rolling silverware in the Video Modeling condition in five sessions. With the sorting task, immediately upon implementation of the Video Prompting condition, Jonathon's score increased to 100% in the first session and maintained at that level for the following two sessions; thus, mastery criterion was met with sorting in the video prompting condition in three sessions. During the maintenance probes in both conditions, Jonathon demonstrated 100% accuracy. Overall, in terms of the efficiency of the two interventions with vocational tasks, the video prompting intervention resulted in Jonathon reaching mastery criterion in two sessions less than the video modeling task.

Zero overlap between baseline and intervention data were observed (i.e., PND of 100%) for both interventions.

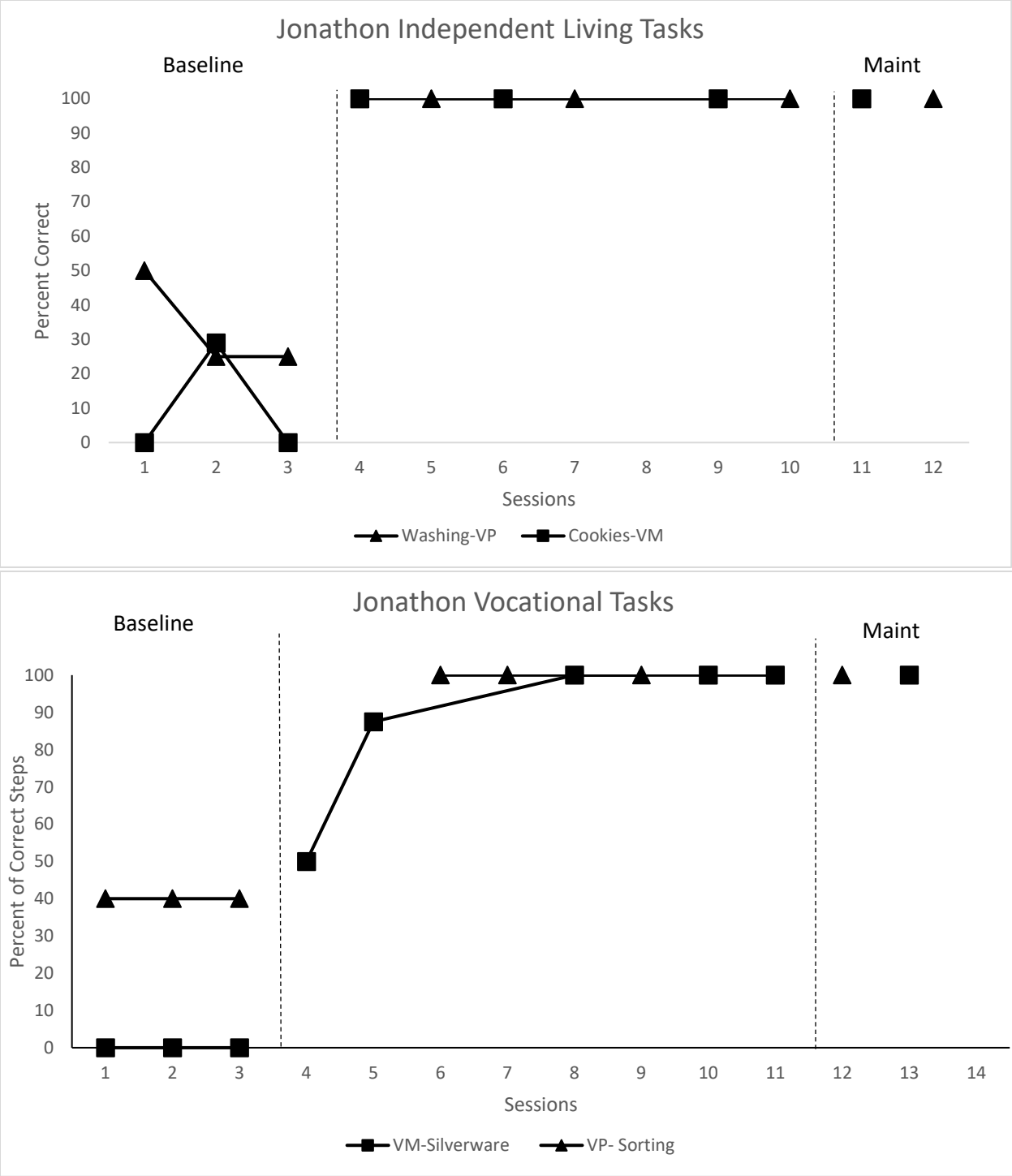


Figure 1. Percentage of steps performed independently by Jonathon
Note- Maint= Maintenance

Dani

The results of the vocational tasks comparison for Dani are depicted in the top panel of Figure 2. During the baseline phase for rolling silverware in the Video Modeling

condition, Dani's scored ranged from zero to 12.5%. During the baseline phase for clerical sorting task in the Video Prompting condition, Dani scored 40% during each session. When the Video Modeling condition was introduced with rolling silverware, an immediate increase to 100% correctly emitted responses was observed during the first session and continued during the next three sessions; thus, mastery criterion was met with clerical sorting in the video modeling condition in three sessions. Immediately upon implementation of the Video Prompting condition with clerical sorting, Dani's score increased to 100% in the first session and maintained at that level for the following two sessions; thus, mastery criterion was met with silverware rolling in the Video Prompting condition in three sessions. During the maintenance probes in both conditions, Dani demonstrated 100% accuracy. Overall, in terms of the efficiency of the two interventions vocational tasks, the results across the two conditions were undifferentiated.

The results of the independent living tasks comparison are depicted in the bottom panel of Figure 2. Baseline data for making cookies in the Video Modeling condition were zero in all three baseline sessions. Baseline scores in the Video Prompting condition with clothes washing ranged from 14 to 28% correct steps performed. Upon implementation of the video prompting intervention with washing clothes, an immediate increase to 100% accuracy of responding was observed and maintained during the following two sessions; thus, mastery criterion was met with making cookies in the Video Modeling condition in three sessions. Upon implementation of the Video Modeling condition with baking cookies, Dani emitted 12.5% correct steps in the first session followed by 20% in the subsequent session, error correction was used at this time with both verbal and model prompts being give. She then exhibited 100% correct steps performed during the subsequent three sessions; thus, mastery criterion was met with baking cookies in the Video Modeling condition in five sessions with the addition of error correction. During the maintenance probes, correct responding remained at 100% during the Video Prompting condition with washing clothes; responding dropped to 50%

steps correct in the Video Modeling condition with making cookies. Overall, in terms of the efficiency of the two interventions with living tasks, the video prompting intervention resulted in Dani reaching mastery criterion in two sessions less than the video modeling task.

PND scores were 100% for Video Prompting with both tasks; 100% for Video Modeling with clothes washing; and 75% for Video Modeling with making cookies.

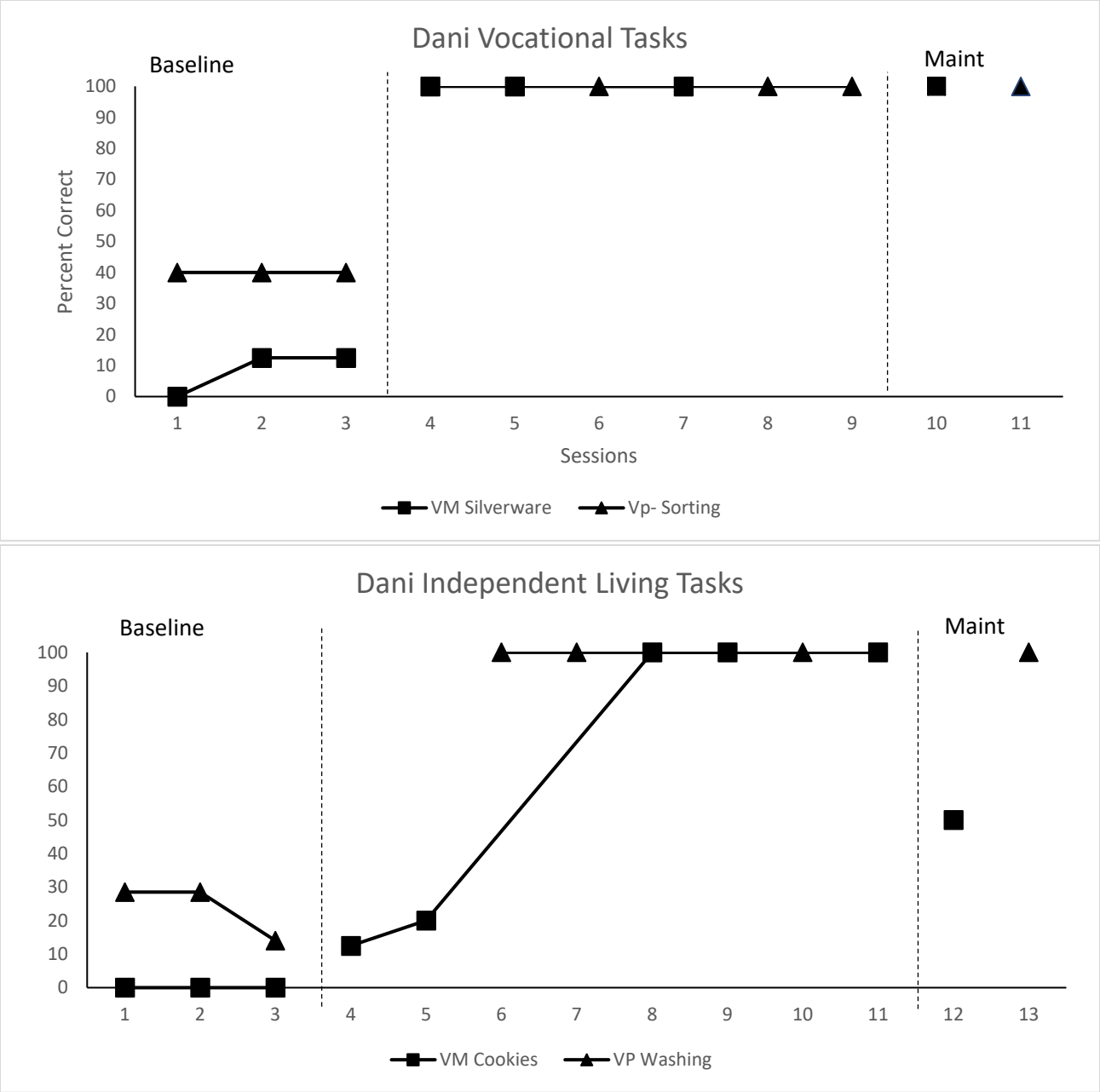


Figure 2. Percentage of steps performed independently by Dani

Note: Main= Maintenance

Will

The results of the vocational tasks comparison for Will are depicted in the top panel of Figure 3. During the baseline phase for rolling silverware in the Video Prompting condition, Will's score was 40% in all three sessions. During the baseline

phase for clerical sorting task in the Video Modeling condition, Will's scores ranged from zero to 25%. When the Video Prompting condition was introduced with rolling silverware, 20% correctly emitted responses was observed during the first session and with an increase to 100% in the subsequent three sessions; thus, mastery criterion was met with rolling silverware in the Video Modeling condition in four sessions. With clerical sorting in the Video Modeling condition, immediately upon implementation of the intervention, Will's score increased to 80% in the first session and increased to 100% during the subsequent three sessions; thus, mastery criterion was met with clerical sorting in the Video Modeling condition in four sessions. During the maintenance probes, correct responding remained at 100% during the Video Modeling condition with clerical sorting; responding dropped to 80% steps correct in the Video Prompting condition with rolling silverware.

The results of the independent living tasks comparison are depicted in the bottom panel of Figure 3. Baseline data for making cookies in the Video Modeling condition ranged from 37.5% to 62.5%. Baseline scores in the Video Prompting condition with clothes washing ranged from 28.5% to 57% correct steps performed. Upon implementation of the Video Modeling condition with making cookies, an immediate increase to 100% accuracy of responding was observed and maintained during the following two sessions; thus, mastery criterion was met with making cookies in the Video Modeling condition in three sessions. Upon implementation of the Video Prompting condition with clothes washing, an immediate increase to 100% accuracy of responding was observed and maintained during the following two sessions; thus, mastery criterion was met with making cookies in the Video Modeling condition in three sessions. During the maintenance probes, correct responding remained at 100% during the Video Prompting condition with washing clothes; responding dropped to 87.5% steps correct in the Video Modeling condition with making cookies. Overall, in terms of

the efficiency of the two interventions with living tasks, results were undifferentiated across conditions.

PND scores were 100% for Video Prompting with both tasks and Video Prompting with both tasks.

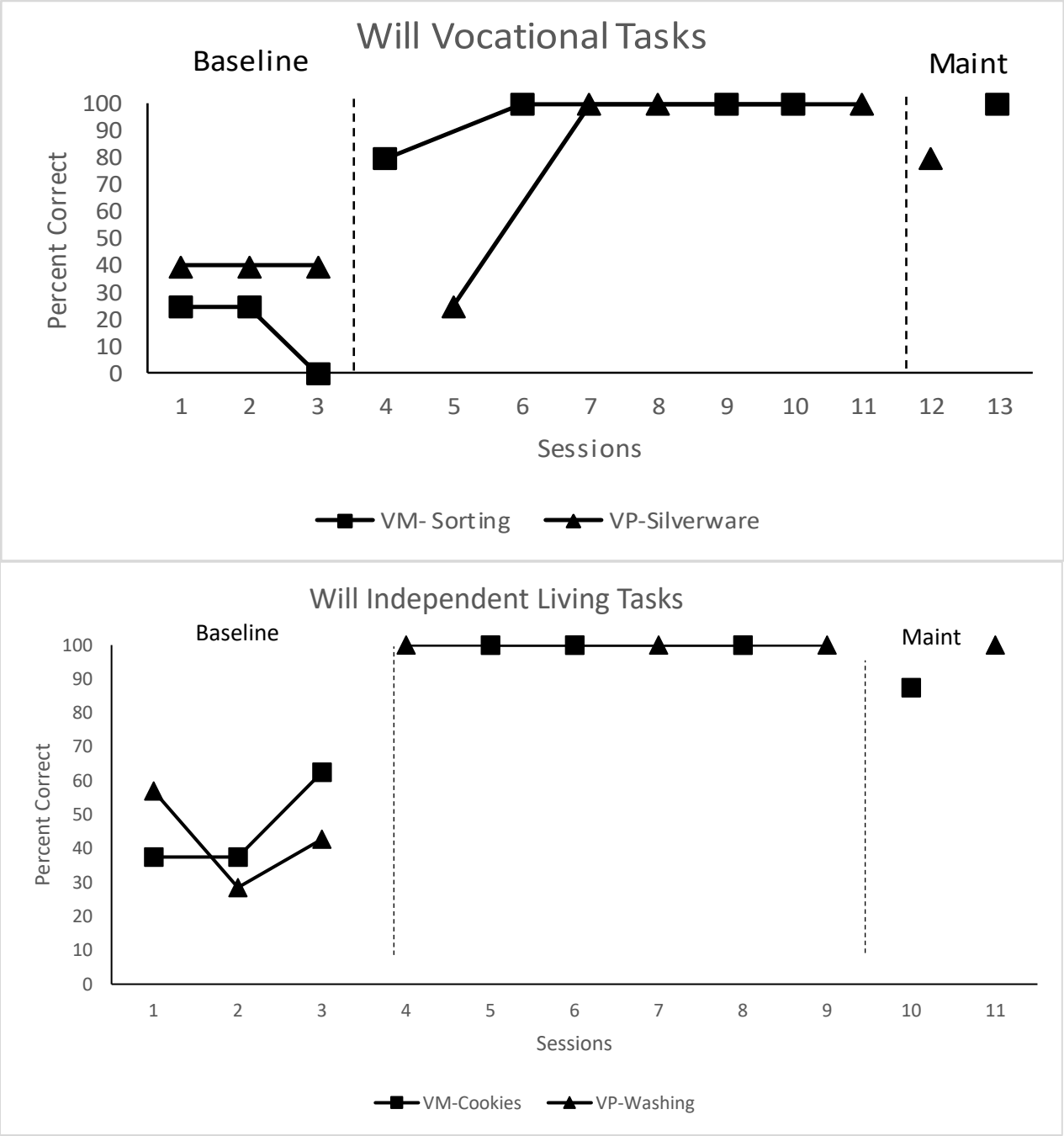


Figure 3. Percentage of steps performed independently by Will
Note: Main= Maintenance

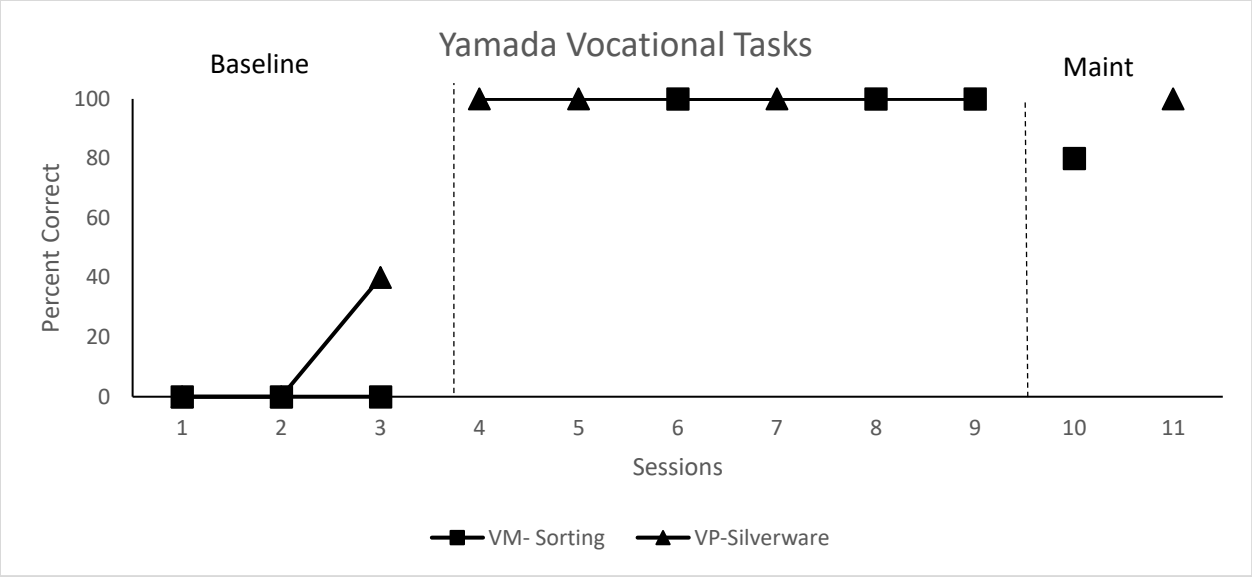
Yamada

The results of the vocational tasks comparison for Yamada are depicted in the top panel of Figure 4. During the baseline phase for rolling silverware in the Video Prompting condition, Yamada's scores ranged from zero to 40%. During the baseline phase for clerical sorting task in the Video Modeling condition, Yamada exhibited zero scores during all three baseline sessions. Upon implementation of the Video Prompting condition with rolling silverware, an immediate increase to 100% accuracy of responding was observed and maintained during the following two sessions; thus, mastery criterion was met with making cookies in the Video Modeling condition in three sessions. Upon implementation of the Video Modeling condition with clerical sorting, an immediate increase to 100% accuracy of responding was observed and maintained during the following two sessions; thus, mastery criterion was met with making cookies in the Video Modeling condition in three sessions. During the maintenance probes, correct responding remained at 100% during the Video Prompting condition with rolling silverware; responding dropped to 80% steps correct in the Video Modeling condition with clerical sorting. Overall, in terms of the efficiency of the two interventions with living tasks, results were undifferentiated across conditions.

The results of the independent living tasks comparison are depicted in the bottom panel of Figure 4. Yamada exhibited zero correct responses in all three baseline sessions with making cookies during baseline in the Video Prompting condition. Baseline scores in the Video Modeling condition with clothes washing ranged from 28.5% to 42% correct steps performed. Upon implementation of the Video Modeling condition with clothes washing, an immediate increase to 100% accuracy of responding

was observed and maintained during the following two sessions; thus, mastery criterion was met with making cookies in the Video Modeling condition in three sessions. Upon implementation of the Video Prompting condition with making cookies, an immediate increase to 62% accuracy of responding was observed in the first session and increased to 100% and maintained at that level during the subsequent two sessions; thus, mastery criterion was met with making cookies in the Video Prompting condition in four sessions. During the maintenance probes, correct responding remained at 100% during the Video Modeling condition with washing clothes; responding dropped to 62.5% steps correct in the Video Prompting condition with making cookies. Overall, in terms of the efficiency of the two interventions with living tasks, the video modeling intervention resulted in Yamada reaching mastery criterion in one less session than the video modeling task.

PND scores were 100% for Video Prompting with both tasks and Video Prompting with both tasks.



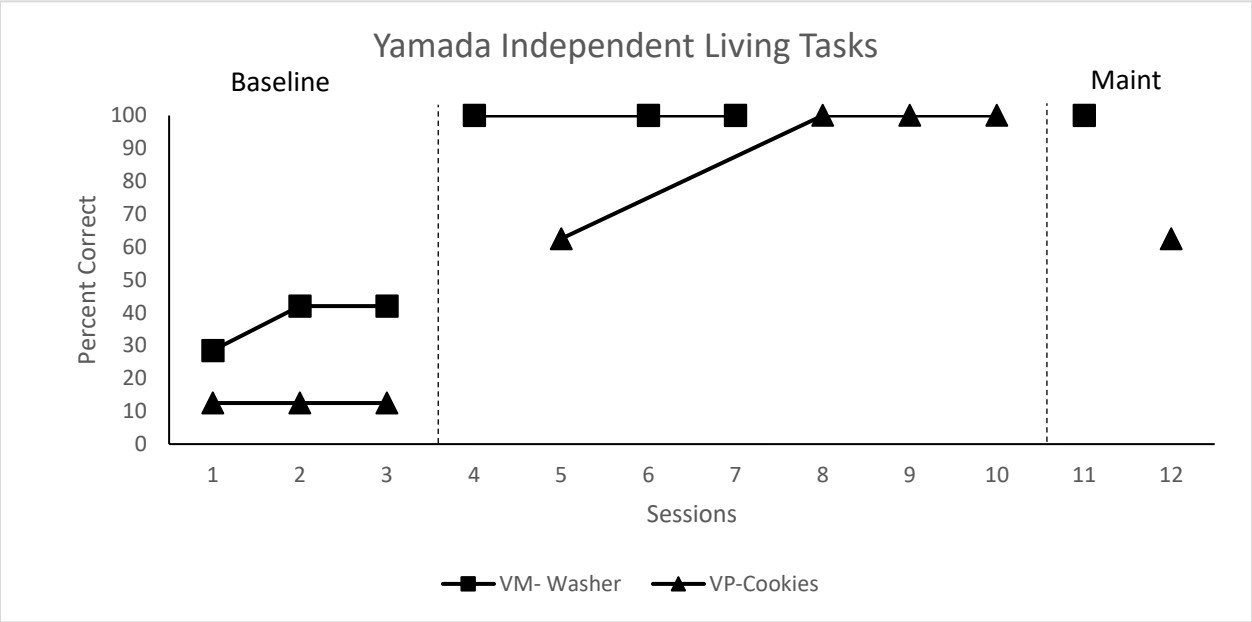


Figure 4. Percentage of steps performed independently by Yamada
Note: Main= Maintenance

Chapter 5
Discussion

Several questions were asked at the beginning of this research, the first being if both video modeling and video prompting were effective interventions, both through prior research as well as this study, it was shown that both interventions were effective in increasing the percentage of independent skill acquisition when presenting vocational or independent living tasks. However, it was not noted in the research which of the interventions led to the fastest skill acquisition. Within this study there was little difference between the two in regard to efficiency, with a total of 27 sessions across participants to reach criterion in the video prompting condition, and 28 sessions across participants to reach the criterion in the video modeling condition. With such close results the two interventions could be considered equal or slightly favor the video prompting condition.

In answering the second question, that is if one intervention is better or more effective than the other, there are multiple ways to look. Three of the four participants in this study performed better while they were in the video prompting condition, where each step was presented individually as opposed to the video modeling where the video would play as a whole. One of the individuals did equally well in both conditions, and all individuals were able to reach the set forth criterion. If looking at the information as a race to criterion it could be stated that video prompting resulted in faster skill acquisition as opposed to video modeling.

When the interventions were withdrawn during the maintenance phase, there were notable differences between the conditions. This could be a result of the task

difficulty, difference in intervention, or other outside factor. For example, one individual could be more motivated to learn vocationally related tasks as opposed to independent living as they could see themselves utilizing one over the other. In general, the withdrawal of the intervention still showed gains from baseline, although not all tasks were able to be performed at 100% by all participants during the maintenance probes. This still shows that some of the information learned through use of the device resulted in at least a partial skill acquisition.

Within the 17 studies that met the inclusion and exclusion criteria there were a total of 61 participants ranging in age from 11-36, with a majority of the participants (being male, all with intellectual disabilities which was presented in a broad way and inclusive of autism and autism spectrum disorders. The study reflected the gender disparity with three of the participants being male and only one female participant, in addition the individuals with in this research all had what were characterized as mild intellectual disabilities, thus it creates a gap in the research where it could have been extended to include more individuals with moderate intellectual disabilities or who identify as female and their ability to utilize the technology and increase their levels of independent responding. Those with severe to profound disabilities were intentionally not targeted as participants for this study, but this again leaves a gap into which additional research could be applied. In addition, all participants within the research as well as within this study were given their diagnoses using the criteria set forth from the DSM-IV-TR, as this has been updated to the DSM-5 there may be a question of if the individuals both in the research as well as within this study would meet the new criteria and if they would have been eligible for the respective studies. That being said a note is

included in the DSM-5 to provide direction in this event, stating that those individuals who held an established DSM-IV-TR diagnoses of autism, Asperger's disorder, or other pervasive developmental disorder should be given a diagnosis of autism spectrum disorder. Additionally, there was not a large age range regarding those participating, all individuals had less than a three-year age difference and had experienced the same independent living program prior to participation in this study.

As previously stated within this paper only two of the studies used video modeling alone as an intervention, with the others being six video prompting alone studies and six comparison studies. As there were only two; The Kellems & Morningstar (2012) article focusing solely on vocational related tasks and the Mechling et al (2014) article focusing on daily living tasks. Looking at the Mechling et al (2012) study, participants were able to reach the set forth criterion of 80% for each of the 12 tasks, only three of the tasks were mastered to 100%. That being said, all of the studies in the video modeling alone category had a PND of 100% and positive visual analysis. Within the current study a PND of 100% was not achieved on all tasks, contrasting the results was more obvious. For example, Dani reached a PND of 75% in her video modeling intervention performing the peanut butter blossom cookies task. In regard to video prompting, Dani's results showed a PND across both video prompting interventions, which held true during the follow up phase. Dani was unable to complete one of the video modeling tasks to 100% during the follow up as well. This is very much repeated with Will who within the video modeling condition was able to reach criterion within three sessions, however when the technology was removed during follow up his scores dropped to 62.5%. The PND for both video prompting tasks was 100% as well as for his

video modeling cookies tasks, however, a PND of 75% was shown for his other video modeling task (clerical sorting). Both video prompting and video modeling tasks for Yamada and Jonathon had PND's of 100%. The differences could be attributed to personal skill set, difficulty of task, or the interventions themselves.

The comparison articles were looking at comparing video prompting to static picture prompting, video modeling and continuous video modeling (which was only seen in one article). This may be reflective of the change in technology and presentation, as static picture seems to be fading from the mainstream while video modeling and continuous video modeling are coming more to the forefront of the body of research itself. That being the case, only one of the comparison articles within the literature review (Mechling et al, 2014) actually compared two video interventions with each other, which could show the possible need for additional research comparing video prompting and continuous video modeling procedures. Within this study, there was no still photo/ static picture intervention used as it is not the most current and did not seem reflective of the abilities of the participants.

This study looked at both daily living tasks as well as vocational tasks in order to allow for a full range of learning to take place. This study was also the only study to compare the interventions along with the two different focuses; daily living as well as vocational. Within the studies that met the inclusion/exclusion criteria, there was a lone focus (that is focusing only on one concentration vocational or daily living). Within the studies included for research, it was very rare to see vocational tasks being presented. When looking at the video comparison articles presented in chapter two, the comparison articles did not include anything related to vocational tasks as a target

behavior. Within the video prompting alone articles, only Van Laarhoven (2010) focused on a vocational task. The same can be said for the video modeling alone articles in which only one of the two articles; Kellems & Morningstar (2012) focused on vocational tasks alone. When vocational tasks were included, often times the chosen tasks were tailored to positions already held by the individuals participating in the studies.

While it makes sense vocationally to be learning one's own trade in a research setting, this is not always realistic as often times individuals with disabilities are underemployed if not unemployed. Thus, in this study individuals were given tasks that are considered common work tasks (rolling silverware and sorting mail). According to the dictionary of occupational titles the Mail Clerk position (DOT 209.687-026) is considered a light position with a Specific Vocational Preparation (SVP) of 2, meaning it is unskilled work that could be learned within 30 days to three months and would require individuals to be able to stand and walk for six hours out of an eight hour work day and sit for 2 hours. Using a program called SkillTran, there are an estimated 85,800 of these types of positions nationally with information provided by the Bureau of Labor Statistics. It was not quite as easy to find employment numbers regarding the rolling of silverware as it is a skill that is performed under multiple DOT numbers, the closet being Cafeteria Attendant (DOT 311.677-010) which is also a light position with an SVP of 2 and has an estimated 436,730 positions nationally.

The devices used with this study and the studies used within the literature reviewed also differed. Within the studies used for review devices included handheld computers, televisions, VCRs, and portable DVD played in addition to iPhone or iPads.

This study used only android devices- a phone and a tablet, to display videos. Much like the iPhone and iPad these devices are commonplace and would not seem awkward in the various situations in which one would need step by step assistance learning tasks. In relation to the settings in which the interventions took place, most studies within the literature review took place within treatment facilities, the living center classrooms of schools as well as their regular classrooms, and the intended work place of individuals, with the exception of the studies being performed at the grocery store with the ATM machines. Within this study, a house was used for both home living and vocational tasks. While the house itself seems to be better for the attainment of daily living goals it may have been out of place for the vocational tasks to be taught in such a location. This also goes into the idea of social validity which will be discussed later in this section.

One of the differences between this study and the prior research is the platform on which the individuals are learning these skills. Nowhere in the previous studies was there a mention as to which platform these videos would be stored or who would have access to the information and videos after the completion of their studies. With YouTube being so common place, those with and without disabilities are able to easily access any video they could want at any time, creating the opportunity for continued learning outside of research settings and the ability to increase their level of independent skill acquisition whether it be for independent living goals or specific vocational goals.

Social Validity

The fourth question presented was if the individuals themselves believed that the interventions were socially valid. To gather information on the thoughts of the participants, a brief survey was given upon completion of all research activities. Two of the individuals indicated that they would strongly prefer to learn through the use of video as opposed to individuals teaching the skills in one on one or group sessions, with the other two participants neither agreeing or disagreeing with that sentiment. All the participants indicated that they believed the platform was socially acceptable, meaning they did not think they would be ostracized for learning through this platform in a public space. In reference to using this type of intervention presented on YouTube, participants strongly agreed (three of four) or agreed (one of four) that they could use this in other environments to learn for themselves. Three of the four indicated that they strongly agreed that this platform was easy to use with the forth individual agreeing as well. While one individual indicated that they found both interventions to have the same level of difficulty, the other participants believed that the segmented – video prompting intervention was the easier of the two. All participants indicated whether they agreed or strongly agreed that the intervention presented on YouTube was a good way to learn work related and home skill/ independent living related tasks, and also, they would prefer to learn alone.

Cost Effectiveness

It was suggested in Van Laarhoven (2010) that a barrier for such interventions would be that there is a perceived notion that utilizing video prompting procedures is costly or time consuming. However, through this research it was shown that there was

very little cost outside of very inexpensive materials (cookie dough, napkins, etc) for the researcher. In relation to the participants, there would be no cost associated with such an intervention outside of their phone bills, while the devices of the researcher were utilized during the project, it would be very easy to access YouTube from anyone's own personal cell phone, computer, or even a library computer. There was also no cost to record the videos, as it was done on a cell phone and not expensive recording equipment. From a time perspective, in this research as well as other research done with such interventions, there is often a jump from a relatively low baseline to almost 100% accuracy after the intervention has been implemented. It also takes little time to record and edit, thus showing a timely, cost-effective as well as efficient solution that would be available to most individuals.

Limitations

There are several limitations to this study, the first and foremost being that the study is a single subject design, therefore the results of such a study must be considered for those who participated and cannot be easily generalized to the target population as a whole. Furthermore, there were only a limited number of participants, which would again make the information and results harder to generalize. Those who did participate were required to be their own guardians, which limits the individuals who may have benefitted from such a study. Although the intent of the research was to look at mild and moderate intellectual disabilities, only those with mild intellectual disabilities were able to participate. This could explain why the gains in performance when introduced to the technology was so apparent. The study may have yielded much different results if both severity levels were represented.

The “assigned” tasks throughout the study were counterbalanced across participants, however each individual may have something in their person which makes a specific task easier or harder for them to learn, which could be their age, gender, specific disability, or any other unique attribute. There was a range in the number of steps for each given task, however this could be important, as in the real world there are an unlimited number of steps to different tasks both at home and at work, and it would not be accurate to present four tasks that each may have the same number of steps because these could be missing or adding steps that be pertinent when performing such a task in vivo.

While the tasks were assumed to be equal in level of difficulty, there seemed to be trouble with the cookies portion for several individuals. A different home related task could be considered, should a replication study take place. The carry over effect may have also played a part in the results of the research. The participants may have been learning the task during the baseline trials, which would carry over to both the intervention phase and maintenance probes.

Some of the tasks may be harder to generalize to other settings, due to the machine being used. For example, the washing machine that was used in the videos has specific settings such as turning the knobs to “light/normal” or setting the water level, which does not have to be done on other machines. Perhaps the use of a more generic washing machine would have allowed for the skills to be more easily generalized to other locations. The same can be said for the oven, in that the video is showing the location of that oven’s controls, which may not be the same as ovens individuals may be using. The tasks were also grouped if the micro tasks went hand and

hand (such as measuring and adding the detergent being one step), this could be difficult for those watching who are not at the functional level of those who participated in the study and could be separated to allow for more discreet steps to be presented.

Originally, graphs related to error correction were going to be included within the research, however, very few prompts were given.

Future Research

The findings of this study could lead way for future research in respect to utilizing Android versus iPhone technology as well as the contribution and effectiveness that YouTube could have as a research tool for increasing the independence of individuals with disabilities. While it is quite common for all individuals to learn skills with YouTube, it would be interesting to see how this novel tool could help the lives of individuals with disabilities, specifically. While all the information in this study was presented on Android, the use of Android itself was not measured or studied throughout. While many of the past studies were presented on differing technologies, the more current are presented on iPhone, which some individuals find harder to use than Android and vice versa. Additionally, video prompting and video modeling could be further investigated among other participants, settings, and tasks to expand upon what has already been learned and how this could increase not only independent task acquisition, but the number and type of such tasks.

As mentioned in the limitations sections, only those with mild intellectual disabilities were able to participate in the research study. Should this study be replicated in any way, it may be pertinent to expand upon the populations tested. This could include not only individuals with mild to moderate intellectual disabilities but individuals

with other diagnoses as well. Only one female was included within this study, it seemed common throughout the research for the participants to be expressing the gender of male, thus different results may be seen when looking to those individuals who present as female. While this study looked at individuals who had already graduated from residential rehabilitation programs, it could be applied to those who are currently enrolled in a similar program, or even those who are still in high school to help meet IEP goals focused on independent living, which could at times be inadvertently ignored by parents and educators.

While this study looked at the opinions of its participants in regard to social validity, it may be beneficial to present this information to parents, teachers, or employers if they will be involved with the individuals who are learning a task on a cell phone or computer. As this study did not enter a work place or engage with individuals who were not their own guardians, this information was not collected. Additionally, although the researcher found it easy and inexpensive to create the videos, this may not be true across all individuals who may like to repeat such a study. As a whole, it would be wise to create a library of different vocational and independent living tasks that could be easily downloaded. For home or job specific tasks, a website where you could send in a request for a video may also be beneficial and could then reach more individuals with disabilities, helping them gain their highest level of independence.

With the goal of reaching ones highest level of independence, utilizing modern technology and technological platforms can only advance the lives of individuals with disabilities. While it is common to use websites such as YouTube every day to learn new skills, the application to various populations of disabilities to teach new skills or to

refresh old skills should not be ignored. The ability to access YouTube to learn would be a cost-effective means for both the individuals as well as those wishing to help teach them, as well as something that is socially acceptable. Often times individuals with disabilities can feel ostracized in their work environment when being shadowed or taught by a job coach or vocational expert, however being able to use one's cell phone be it an iPhone as in previous studies or Android devices such as in this study provides a portable way to access materials without outside intervention. This could possibly cause a confidence boost for individuals as well as make them feel more at ease in the workplace, with less attention drawn to their disabilities, and more to the quality of the work they are presenting. The same boost of confidence is a potential when living independently, be it with one's parents, friend, or alone, and being able to access videos to learn a skill without having to ask an outside person for help.

Appendices

Appendix A

Task Steps

Wash Clothes

1. Sort laundry by color/whites
2. Put colors clothes in machine
3. Set to cold
4. Set water level to small
5. Measure detergent and pour into washing machine
6. Turn far right dial to normal/light
7. Pull dial to start

Clerical Sorting

1. Collect work box
2. Place envelope in stacks according to zip code
3. Band all matching zip code stacks with 5 pieces of mail together
4. Place in outgoing box
5. If any do not meet the 5 letter requirement, band them together and place into outgoing box

Peanut Butter Blossom Cookies

1. Wash hands
2. Open oven to ensure nothing is inside, take anything out and place it aside
3. Preheat oven to 325 degrees for nonstick cookie sheet
4. Spoon out dough (prepackaged), roll into ball, roll in sugar
5. Place 12 rolled cookies on cookie sheet
6. Place cookies in preheated over for 12-15 mites (set time)
7. Unwrap 12 Hershey kisses
8. Carefully take cookies out of oven, place Hershey kiss in center of each

Rolling Silverware

1. Lay napkin flat diagonally
2. Fold bottom point to top point
3. Lay butter knife toward edge of fold
4. Place fork (tines up) on top of the knife
5. Roll until knife is back on the bottom, flat.
6. Fold right point toward middle
7. Fold left point toward middle
8. Roll up

Appendix B

Data Collection Forms

Baseline	+/-	+/-	+/-	Intervention							
	1	2	3		1	2	3	4	5	6	7
Collect Workbox											
Place envelopes in stacks according to Zip											
Bind all matching zip code stacks by 5											
Place in Outgoing Box											
Place outliers in box											

*= Prompt

Baseline	+/-	+/-	+/-	Intervention	+/-	+/-	+/-	+/-	+/-	+/-	+/-
	1	2	3		1	2	3	4	5	6	7
Wash Hands											
Open Oven											
Preheat Oven											
Spoon Dough											
Place on cookie sheet											
Bake											
Unwrap Kisses											
Remove Cookies/ Add Kiss											

*=Prompt

Baseline	+/-	+/-	+/-	Intervention	+/-	+/-	+/-	+/-	+/-	+/-	+/-
	1	2	3		1	2	3	4	5	6	7
Lay Napkin Flat											
Fold Bottom to Top Point											
Lay Knife at edge											
Place Fork tines up											
Roll until knife is on bottom											
Fold Right Point											
Fold Left Point											
Roll to Complete											

*=Prompt

Baseline	+/-	+/-	+/-	Intervention	+/-	+/-	+/-	+/-	+/-	+/-	+/-
	1	2	3		1	2	3	4	5	6	7
Sort Laundry											
Put colored laundry in machine											
Set to Cold											
Set water level to small											
Measure detergent											
Turn dial to normal											
Pull dial to start											

Procedural Reliability Checklist

Name: Participant:

Session:

Explain which Intervention			
Provide Technology			
Use Correct Data Collection Form			
Used Correct Video			
Began Task			
Provided EC Prompt			
Provide Tech Prompt			

Y=Yes
N=No
N/A= N/A

Appendix C

Social Validity Scale Form

For each of the following statements circle the response the best characterizes how you feel about the statement, where 1 is Strongly Disagree, 2 is Disagree, 3 is neither agree not disagree, 4 is Agree, and 5 is Strongly Agree

Statement	Strongly Disagree	Disagree	Neither Agree not disagree	Agree	Strongly Agree	Comment
The continuous video condition was easier than the segmented video	1	2	3	4	5	
The segmented video condition was easier than the continuous video	1	2	3	4	5	
This was a good way to learn vocational (work related) tasks	1	2	3	4	5	
This was a good way to learn home skill related tasks	1	2	3	4	5	
Using this platform is socially acceptable	1	2	3	4	5	
I found this platform very easy to use	1	2	3	4	5	

I would feel better using this platform than having a person with me teaching these tasks	1	2	3	4	5	
I prefer the continuous video condition	1	2	3	4	5	
I prefer the segmented video condition	1	2	3	4	5	
I could use this in other environments to learn new tasks	1	2	3	4	5	
I found this platform very difficult to use	1	2	3	4	5	
I would use to learn new tasks on my own	1	2	3	4	5	
I would prefer an individual to teach me these skills in person	1	2	3	4	5	

Do you have any additional comments regarding your participation in this research?

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