TEACHING LEISURE SKILLS TO INDIVIDUALS WITH DEVELOPMENTAL DISABILITIES USING VIDEO PROMPTING

Master’s Thesis

Presented in Partial Fulfillment of the Requirements for the Degree of Master of Applied Behavior Analysis in the Graduate School of Applied Professional Psychology at Rutgers, The State University of New Jersey

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July 29th, 2021
ABSTRACT

Leisure skills are an important part of an individual’s life. Participating in leisure activities allow individuals to cope with overwhelming events that occur on a daily basis and provides a way for one to relax. However, for individuals with developmental disabilities, leisure skills tend to be overlooked. More often than not, non-functional academics are what end up being focused on, while other skills like leisure and vocational skills are not being given as much importance. The current study investigated the use of video prompting to teach three leisure skills to an adolescent with developmental disabilities. Each leisure skill was task analyzed and videos were developed for each step of the task. Using a multiple probe across leisure skills design, the intervention was implemented for the selected tasks. Results indicate that video prompting was an effective intervention for teaching leisure skills.
ACKNOWLEDGEMENTS

I would first like to thank the Douglass Developmental Disabilities Center, for allowing me to complete my study here, despite all challenges which had frustrated my efforts. I would like to express my deepest gratitude to my advisor, Dr. Robert LaRue, for his unequivocal support, patience, and understanding. This study would not have been possible without his guidance. I would also like to thank Dr. Kate Fiske and Dr. James Maraventano, who have provided me with knowledge to grow as a writer as well as professional. Thank you both for always willing to lend a hand and provide the feedback when needed. I am so grateful for all of you and you all will always hold a special place in my heart.

Additionally, I want to take the time to thank all the wonderful parents and teachers that allowed me to work with child/student and provided whatever support I may have needed.

Above all, I would like to thank my mother and father, who have showed me the true meaning of patience. Growing up I was always told “I am the captain of my own ship, either I can choose sink or steer it towards the direction of success”. And now I can proudly say I steered the ship towards success and the results are fruitful. Thank you both for being my superheroes and for working so hard to give me a great education. I would not be where I am today without the two of you.
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Introduction

Many of us find ourselves overwhelmed by the stressors of everyday life. These stressors may include responsibilities we have at home, work, or school. To cope with stress, children and adults often find strategies to help them to relax, like playing a video game or watching a favorite television show. For most of us, acquisition of these leisure skills usually occurs naturally with little or no training. However, these critical coping strategies are often overlooked in individuals with disabilities.

What are Leisure Skills?

Leisure skills are activities that people use to occupy themselves when they have free time (Dattilo & Schleien, 1994). As the name implies, leisure skills are preferred activities that can be completed alone or with others. Leisure skills may include socializing with others, spectator entertainment, artistic expression, intellectual stimulation, or physical exercise. Not only can leisure skills provide our day-to-day lives more meaning and enjoyment, they can also open the door for social interaction and better health.

Importance of Leisure Skills for Individuals with Disabilities

The development of leisure skills for individuals with disabilities can prove to be quite fruitful for a number of reasons. Therefore, enlarging the scope of an individuals’ leisure skill set can bring about new opportunities and adventure. In fact, recognizing the needs of humans, while acknowledging individual interests, can aid in acquisition of leisure skills. That being said, acquisition of leisure skills can foster independence and lessen the need for help of others. Leisure skills can help to fill large parts of the day not dedicated to programming (Solish et al., 2010). They can lead to an increase in social interaction within the community and enhance happiness. (Jerome et al., 2007). Furthermore, the acquisition of leisure skills provides a new
experience as they captivate the individual, evoke excitement, and inspire knowledge and motivation (Wehman, 1997). Some leisure skills involving exercise, can have physiological benefits, such as increased lung capacity, increase in strength, and weight loss. Additionally, leisure activities may promote psychological benefits such as self-confidence, and a heightened sense of creativity and adaptability (Leonard, 2015). Simply put, individuals with developmental disabilities that possess strong leisure skills have the potential of growing and broadening their horizons.

**Identification of the Problem**

Despite the obvious benefits, teaching leisure skills tends to be a low priority for parents and practitioners. Educators and families may find it hard to find the time to teach these skills (Naarden-Braun et al., 2006). In 1991, the Individuals with Disabilities Education Act (IDEA) was passed which mandates the use of evidence-based intervention to teach educational skills to allow children to excel in life once their education comes to an end (U.S Department of Education, 2004). Therefore, many schools exclusively focus on academic goals, while overlooking the importance of leisure skills. However, a large portion of one’s life occurs outside the realm of work responsibilities. Leisure skills are what fill the gaps in our lives. A lack of leisure skills can have a negative impact of individuals with disabilities, as it may lead to using down time in an inappropriate manner, such as engaging in disruptive behavior or ritualistic responding (Wehman & Schleien, 1980). Thus, identifying preferred leisure activities can compete with disruptive behaviors and in turn can enhance the quality of life for individuals with developmental disabilities (Cannella-Malone, et al., 2016).

**Existing Literature on Methods for Teaching Leisure Skills**
Several studies have evaluated methods for teaching leisure skills to those with developmental disabilities. Some of the earliest work on teaching leisure skills can be seen in (Scheleien et al., 1981). The researchers used forward chaining procedures to teach three severely developmentally disabled adults how to play darts. A combination multiple baseline across subjects and changing criterion design was used to teach dart throwing skills at the community developmental center where they were placed. All three participants acquired the dart throwing skill. In fact, generalization was also successful as the participants could demonstrate the skill across other environments.

Frank, Wacker, Berg & McMahon (1985) used picture prompting to teach five developmentally disabled children selected computer skills. Sessions were run in a special education classroom of an elementary school. Children were taught to perform two computer tasks. One was to initiate and terminate a spelling program and the other was to initiate and terminate a clock program on the computer. Both skills were evaluated in a combined multiple baseline (across students) and sequential withdrawal design. It was concluded that picture prompting was successful for teaching the computer skills to all of the students. In fact, the skills were generalized across settings and maintained over time as well.

Luyben et al (1986) taught three developmentally disabled adults how to pass a soccer ball using forward chaining. Using a multiple baseline across subjects design, the authors used a nine-step task analysis along with most–to–least prompt hierarchy to teach the soccer pass. It was concluded that forward chaining and prompting was an effective way for teaching leisure skills as all three participants acquired the skill.
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Jerome et al., (2007) taught three adults with developmental disabilities to use the internet using errorless learning and backward chaining. In this study, the authors used a multiple baseline design to compare the effectiveness of the two training procedures (i.e., errorless learning and backward chaining) for teaching participants to access preferred websites. The authors found that both strategies were successful for teaching all three participants to use the internet.

Dollar et al., (2011) used simultaneous prompting to teach independent living skills and leisure skills to two adults with developmental disabilities. A multiple probe design across behaviors for each participant was used to demonstrate a functional relationship between simultaneous prompting and steps of a task analysis that were acquired. One participant was taught to use an iPod, CD player and DVD player, while the other participant was taught to fold a shirt, fold underwear, and hang pants. Using total-task chaining, simultaneous prompting was an effective method to teach leisure skills.

Overall, these studies have collectively shown that individuals with developmental disabilities can be taught leisure skills using strategies, such as forward chaining, backward chaining, and simultaneous prompting. However, the literature showing the effectiveness of these strategies using telehealth/video-based instruction is sparse.

The Use of Video-Based Interventions for Individuals with Developmental Disabilities

With advances in technology and security, the use of video-based instruction is fast becoming a viable and necessary strategy for teaching skills. Video-based instruction is a broad group of strategies that make use of media to teach a variety of skills. Video-based instruction
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includes video modeling, video prompting, video self-modeling, computer-based video instruction, and video priming. Video prompting is among the most common strategies used with individuals with developmental disabilities (Ayres et al., 2017).

Video prompting involves dividing recorded steps for a skill into individual responses (Kellems et al., 2016). When using video prompting, the individual will usually be shown the first step of a skill until they are able to demonstrate the ability to complete the step before moving onto the next step. (Cihak, Alberto, Taber-Doughty, & Gama, 2006). Video prompting has helped those with developmental disabilities acquire leisure skills, as it allows for immediate feedback, repetitive teaching as well as learning, and it can be cost effective (Kellems et al., 2016). Overall, video prompting has been shown to be effective for teaching a number of skills, including listening to music, arts and crafts, photography, exercising, and playing games (Chan, et al. 2013) & (Cannella-Malone, et al., 2016).

Until recently, little research has established whether video prompting is an effective method for teaching leisure skills. Chan et al. (2013) used video prompting to teach a 35-year-old man with Down syndrome three different leisure skills (painting a picture, listening to music, and taking a digital picture). With a multiple probe across behaviors design, the researchers found that video prompting and instructional prompts was effective for teaching the individual all three of the leisure skills.

Cannella-Malone et al., (2016) used a video prompting intervention package to teach nine adolescents with developmental disabilities three different leisure skills. Using a multiple probe across behaviors design, the following leisure skills were taught: playing darts, creating artwork using Lite Brite, taking a selfie, taking a silly selfie, completing a puzzle, completing weighted
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curls, painting nails, creating origami, assembling Mr. Potato head, playing basketball, making an air rocket, and playing with a bubble gun. Video prompting with error correction was effective for all but one individual. Out of nine participants, eight acquired three leisure skills each.

Kellems, et al., (2018) used a video prompting intervention to teach three students with developmental disabilities three different life skills and leisure skills. The first participant was taught to throw a ball overhand, to walk backwards, and to do jumping jacks. The second and third participant were taught to wipe a mirror, cut a banana, and brush their teeth. The effects of the instruction were compared and evaluated using an alternating treatment design. Results demonstrated that video prompting, and static pictures are both effective, however, skill acquisition was greater and occurred more quickly using video prompting.

Additionally, there is no research on whether video prompting is an effective method for teaching leisure skills that individuals with developmental disabilities actually enjoy. Leisure skills are supposed to be preferred. They are skills that individuals choose to engage in voluntarily and thoroughly love to engage in. That being said, social validity measures need to be explored as well.

Based on the limited number of studies on the topic, the evidence supporting video prompting to teach leisure skills to individuals with developmental disabilities is encouraging. As we are currently facing a worldwide pandemic, practitioners have been forced to find effective instructional methods that minimize the need for physical contact and proximity. The inability to instruct face-to-face has detrimentally affected the daily lives of many children, adolescents, and adults with developmental disabilities. For individuals with developmental
disabilities, who need structure in their routines and predictability; the everyday changes, confusion and uncertainty from the pandemic are especially stressful. It is not only stressful for those individuals but also for their families. The lack of structure has led to an increased in maladaptive behaviors and regression in skill acquisition (Clopton, 2020). As the world navigates the realm of remote learning and telehealth for such individuals, video prompting can be the useful resource for families in need of support. Therefore, the purpose of this study is to determine whether video prompting would be an effective method to teach enjoyable leisure skills for one individual with developmental disabilities.
Methods and Design

Participants

Three individuals with autism spectrum disorder were selected for the current study. However, two out three participants had to discontinue participation due to personal reasons.

Table 1

Participant name, gender, age, and disability label

<table>
<thead>
<tr>
<th>Name</th>
<th>Gender</th>
<th>Age</th>
<th>Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Declan Fuller</td>
<td>M</td>
<td>17</td>
<td>Autism Spectrum Disorder</td>
</tr>
</tbody>
</table>

Declan can follow directions (with items, familiar locations, etc.), read/write/spell simple words, perform simple mathematics with a calculator, and basic self-help/ADL/pre-vocational skills (e.g., basic cleaning). Additionally, he communicates via his augmentative communication systems (iPod Touch, PECS).

Setting

This study was conducted in a secure location in the participant’s home. The participant was positioned in front of the computer screen and material arrangement was done by the parents. All sessions were conducted through the use of a secure HIPAA-compliant Zoom video conferencing software. All relevant leisure materials were present in the home of the participant. Data collectors were conducting the study and observing from a remote location.

Activity and Materials

An informal leisure skills assessment survey was sent home to the parents or guardians to identify leisure skills to be targeted and were asked to indicate all that were possibly preferred.
The survey included a list of twelve leisure activities hand-picked by the research team and instructions to select the top three choices. Based on the survey, three activities of choice were be selected for the participant. The following leisure skills options were included in the study and the steps of each task analysis can be found in Table 2.

1. Watering plants
2. Playing iPad game
3. Watching YouTube
4. Building a structure
5. Reading
6. Arts and crafts
7. Cooking
8. Basketball
9. Dominos
10. Selfie
11. Dancing
12. Exercise
### Table 2

**Steps for each task analysis**

<table>
<thead>
<tr>
<th>Leisure Skills (Task analysis: steps)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Washing dishes</strong></td>
<td>a) wash up, b) get water container, c) get a 1/4 cup measuring cup, d) fill the measuring cup with water, e) pour the water from measuring cup into container, and f) pour the water from container onto the sink of the plate.</td>
</tr>
<tr>
<td><strong>Playing board game</strong></td>
<td>(a) press button on bottom of frame, (b) slide finger on lock screw, (c) touch the Fruit Ninja icon on the screen, (d) press the single player icon, (e) press play, (f) place your finger on the fruit and swipe upward to slice each one, and (g) press the center circle button on the bottom of the frame to close Fruit Ninja.</td>
</tr>
<tr>
<td><strong>Watching YouTube</strong></td>
<td>(a) press button on bottom of frame, (b) slide finger on lock screw, (c) touch the YouTube icon on the screen, (d) pick a video to watch from the home screen, (e) watch the video, and (f) press the center circle button on the bottom of the frame to close YouTube.</td>
</tr>
<tr>
<td><strong>Building a structure</strong></td>
<td>(a) line up and press down 5 blocks of Lego horizontally onto the Lego grid, (b) line up and press down 4 blocks of Lego horizontally on top of the 5 blocks of Lego, (c) line up and press down 3 blocks of Lego horizontally on top of the 4 blocks of Lego, (d) line up and press down 2 blocks of Lego horizontally on top of the 3 blocks of Lego, and (e) line up and press down 1 block of Lego horizontally on top of the 2 blocks of Lego.</td>
</tr>
<tr>
<td><strong>Reading</strong></td>
<td>(a) pick out a book to read, (b) open up the book, (c) flip through the pages to look at the pictures, and (d) close the book.</td>
</tr>
<tr>
<td><strong>Arts and Crafts</strong></td>
<td>a) get the art box, (b) cut the paper into half, (c) squeeze a may bit of glue onto the colored crayon, (d) stick the crayon to the back of the paper plate, (e-a) keep repeating steps c and d till you have all 6 colored crayons stacked, (f) squeeze a may bit of glue on a cotton pad, (g) stick the cotton pad onto the plate, and (h-a) keep repeating steps a and p till 6 cotton pads are stuck to the paper plate to form a cloud.</td>
</tr>
<tr>
<td><strong>Cooking</strong></td>
<td>a) get a mug, b) add flour to the mug, c) add sugar to the mug, d) add cocoa to the mug, (e) add oil to the mug, (f) add water to the mug, (g) mix it all the ingredients until the mixture is smooth, (h) open the microwave door, (i) place the mug in the microwave, (j) close the microwave door, and (k) press 1-40 s on the microwave, (l) press the start button, (m) open the microwave door after keeping steps and grab your mug brownie, and (n) close the microwave door.</td>
</tr>
<tr>
<td><strong>Basketball</strong></td>
<td>(a) get the paper ball off table, (b) walk to line, (c) aim by looking at rim of the basketball and holding ball at chest level, (d) push hands up and release ball towards basket, (e) throw a basketball, and (f) put ball back on table.</td>
</tr>
<tr>
<td><strong>Dominoes</strong></td>
<td>(a) open the dominoes container lid, (b) choose domino piece, (c) place domino piece standing vertically on table, (d) choose next domino piece, (e) stand domino piece vertically in front or behind of the current standing domino, (f-i) keep repeating steps b and c till you have 5 dominoes standing (i) knock dominoes over by using the pointer finger, (j) place dominoes back in the container, (k) place lid back on container.</td>
</tr>
<tr>
<td><strong>Shirts</strong></td>
<td>(a) press button on bottom of frame, (b) slide finger on lock screw, (c) touch the photo booth icon on bottom of screen dock, (d) pick up tied with arms forward, (e) position camera so face is on the screen, (f) smile or make a silly face, (g) touch camera button while smiling or make a silly face on bottom of the screen, (h) press the center circle button on the bottom of the frame to close photo booth, and (i) place Pad on the table.</td>
</tr>
<tr>
<td><strong>Dancing</strong></td>
<td>(a) stand up, (b) press play on music playing device, (c) spread one arm forward in front of your body with your palm facing the floor below, (d) extend your other arm forward in front of your body with your palm facing the floor below, (e) route your one hand so that your palm goes from facing the floor, to facing the ceiling, (f) route your other hand so that your palm goes from facing the floor, to facing the ceiling, (g) take one hand and move it from its extended position towards your body and place it on your opposite shoulder, (h) take your second hand and move it from its extended position towards your body and place it on your opposite shoulder, (i) remove one hand from your shoulder and place it on your head, (j) remove your other hand from your shoulder and place it on your head, (k) take one hand and move it from the head and place it on your opposite hip, (l) take your other hand and move it from the head and place it on your opposite hip, (m) remove one hand from one hip and place it on the waist, (n) remove your other hand from the other hip and place it on the waist, (o) make your steps from one side to another in a box and turn around, (p) jump into air, and (q) press pause on the music playing device.</td>
</tr>
<tr>
<td><strong>Exercises</strong></td>
<td>(a) stand up, (b) pick up weights off table, (c) slowly curl one dumbell to your shoulder, (d) slowly release the dumbell down to your side, (e) slowly curl the dumbbell in your other hand to the front of your shoulder, (f) slowly release the dumbell down to your side, (g) keep repeating steps c, d, e, and f till 3 sets for each dumbell are completed and (h) placing the weights back on the table. The weights that were used will be 5 lb dumbells.</td>
</tr>
</tbody>
</table>
Development of Videos

The videos used for this study were created using an iPhone video recording camera. Video clips for all activities were created using the same materials as those distributed in the participant’s home. Each video clip was filmed from the perspective of a spectator. For example, for the first step in “activity X”, the student heard, “First, do this,” and saw the performer in the video demonstrate the specific step.

Dependent Measures and Data Collection

For this study, data were collected on the percentage of steps completed accurately for each task analysis. The steps for the task analysis were listed on a data sheet and were used to score the correct or incorrect completion of each step during every session. During baseline, a response was scored as a correct if the participant completed the step within a predetermined number of seconds from when the instruction was delivered or within 15 seconds of when the previous step was completed. When the intervention was implemented, the participant completed each step within 15 seconds of being shown the video clip for that corresponding step. A response was scored as an incorrect if the participant engaged with the leisure item in a manner inconsistent with its purpose or did not engage with the activity at all.

Interobserver Agreement and Procedural Integrity

Interobserver agreement (IOA) data were collected for 30% of sessions across each condition (on the participant’s engagement in the activity). The second observer was trained on the data collection procedures and provided with the data sheets of the task analyses for each activity. The experimenter reviewed the task analyses with the second observer and explained how to score correct and incorrect participant responses. IOA was calculated using the interval-
by-interval method by dividing the number of agreements by the total of agreements and disagreements and multiplying by 100.

Procedural integrity data were taken for 30% of sessions across each condition for all participants. Data collection procedures were defined and listed for a second observer to determine whether or not a step was performed correctly. Procedural integrity was calculated by dividing the number of steps completed correctly by the total number of steps and multiplying by 100.

*Experimental Design*

A multiple baseline across leisure skills design was used to display the functional relationship that exists between video prompting and the changes in skill acquisition. There were three phases included in the design, including baseline, intervention, and maintenance. The shift from baseline to intervention occurred if the student demonstrated stable responding or a decrease in trend. But the shift from the next skill to intervention occurred if the skill in the intervention displayed at least three data points on an increasing trend and baseline was stable or decreasing. Once the skill was mastered, it was faded and intermittently probed to determine if skill was maintained. After five sessions, if the participant failed to acquire the skill, sessions were discontinued.

*Procedure:*

The participant did not have any prior knowledge or skills of the chosen activities derived from the leisure skills assessment survey. All sessions were run in the home. Parents were also in the home within arm’s reach of the participant to help with redirection and regain the participant’s focus if the researcher over the computer was unable to do so.
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**Conditions:**

*Baseline:* During baseline, the participant was given the instruction to complete the activity, had 15 seconds to begin the activity and 15 seconds to continue to the next step of the sequence of when the previous step was completed. If the participant did not engage in the activity, or performed it incorrectly, the response was interrupted by the parents removing the activity. Sessions were discontinued upon an error occurring (e.g., not responding within 15 seconds, not performing activity correctly).

*Training:* The materials needed for the activity were placed in front of the participant along with a timer. The video prompting clips were displayed on a computer screen visible to the participant using screen sharing on the Zoom video conferencing call. The instructor stated, “Watch this” prior to playing the video clip of the first step of the activity. After the video clip concluded, the instructor stated, “Now, you try to do it.” The participant had 15 seconds to complete the corresponding step of the activity. If the participant did not engage in the step or engaged in it incorrectly, the remote instructor stated, “Let’s watch the video again.” The instructor then replayed the video on the call for a second time. When the participant had completed the activity successfully, the timer was stopped, and praise was delivered as reinforcement. If the participant still did not complete the step correctly, the instructor moved onto the next step.

*Post Training:* Upon mastery of the selected leisure activities, participant was observed to evaluate maintenance. Just as baseline was run with no prompting, the post-training observation was conducted as a single opportunity probe. Video prompting was reintroduced if performance decreased below 80% for three consecutive sessions.
Post-Training Social Validity: Once the participant had reached 80% accuracy for all three tasks, a social validity component was conducted. This component tested for preference for leisure activities. This involved a concurrent arrangement using a table with one of the leisure activity’s materials on one table and another table with no materials. The student was positioned between the two tables and given a choice to “Pick one”. Data were collected for which table was chosen and each choice was given once. A social validity component was conducted for each one of the leisure activities taught. Additionally, a group social validity component was conducted as well in which the materials for each leisure skill taught was place on a different table and another table with no materials. The student was positioned between the four tables and given a choice to “Pick one”. Data were collected for which table was chosen and each choice was given once.
Results

**Video Prompting.** Figure 1 displays the percentage of steps completed correctly for Declan across watering plants, basketball, and arts and crafts. Declan’s performance was measured across baseline, video prompting and maintenance.

*Watering Plants.* For all five baseline sessions, Declan completed less than 68% of the steps of the plant watering activity. His responding was quite variable and ranged from 33% to 67%. However, following the implementation of video prompting, Declan showed an immediate increase in responding from baseline, performing 83% of the steps correctly. Following session 6, his performance increased to 100% and was maintained for the remainder of the study. Once Declan met mastery criteria, video prompting was removed and he maintained his performance at 100%, even after video prompting removal.

*Basketball.* During eight baseline sessions, Declan completed 67% of the basketball steps correctly. With the introduction of video prompting, Declan did not show an immediate increase as he stayed at 67% for session 9. However, Declan began performing all the steps of the leisure skill during session 10 and continued to do so for the remainder of the study. Once Declan met mastery criteria, video prompting was removed. He maintained the skill without the use of video prompting with a performance of 100% during maintenance.

*Arts and Crafts.* During eleven baseline sessions, Declan did not complete any of the arts and craft project steps correctly. However, following the implementation of video prompting, Declan showed an immediate increase in responding from baseline, performing 100% of the steps correctly and correct completion of all steps was maintained for the remainder of the study. Once Declan met mastery criteria, video prompting was removed. During maintenance, Declan’s performance stayed at 100% without the use of video prompting.
**Figure 1**

**Participant’s Performance for Each Skill**

*Note.* This figure displays the percentage of task analysis steps performed correctly across all three leisure skills for Declan.

**Social Validity.** The results for Declan’s social validity post training are displayed in Figure 2, 3, 4, and 5. When training concluded for each leisure skill, Declan was given the choice between engaging in the leisure activity or sitting at the table with no materials. A social validity component was conducted for each one of the leisure activities taught. Additionally, a group social validity component was conducted as well. When Declan was given the choice to water a
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plant or sit at the table, he chose to sit at the table (Figure 2). On the other hand, for the other two leisure skills when Declan was given the choice to play basketball or sit at the table, he chose to engage in the activity (Figure 3). and he did the same for arts and crafts (Figure 4). When a group social validity test was conducted, Declan was given a choice of all three activities as well as sitting at the table to do nothing (Figure 5). In the group social validity test, Declan choose to play basketball 100% of the time. Results indicate that basketball is a preferred leisure skill for Declan.

Figure 2

Solo social validity for watering a plant.

Note. This figure displays the percentage of time watering plants was selected.

Figure 3

Solo social validity for playing basketball.
Note. This figure displays the percentage of time basketball was selected.

**Figure 4**

Solo social validity for making an arts and crafts project.

Note. This figure displays the percentage of time arts and crafts was selected.
**Figure 5**

*Group social validity for all three leisure skills taught.*

*Note.* This figure displays the percentage of time an activity was selected.

**Interobserver agreement/Procedural integrity data.** IOA data as well as procedural integrity data were collected for 30% of sessions across each condition (on the participant’s engagement in the activity). An IOA score of 80% or greater is generally considered acceptable and in this case IOA was 92% and procedural integrity was 100% for session. Reliability for steps completed accurately was 92% and for social validity 100%.
Discussion

The results of this study indicated that video prompting was an effective method for teaching an adolescent with developmental disabilities to engage in a variety of leisure activities. The participant was able to grasp and perform the leisure skills through the use of video prompting. Additionally, the study examined the social validity for each activity to determine if each activity was preferred by the participant by the end of the study. The social validity component was conducted because it was important to determine if the participant enjoyed the leisure activities. Results of this study demonstrated that basketball was the most preferred out of the three skills taught.

This study extends upon the video prompting literature in a number of ways. In previous studies, leisure skills were taught to older populations (Edrisinha, O'Reilly, Young Choi, Sigafoos, & Lancioni, 2011), whereas in this study, leisure skills were taught to an adolescent (17 years old). The study further extends the literature by teaching multiple leisure skills whereas most of the previous research taught only one leisure skill (Edrisinha, O'Reilly, Young Choi, Sigafoos, & Lancioni, 2011). Teaching three skills instead of one was important as it demonstrated an efficient model for the use of video prompting, And lastly, this study extends the research by assessing the social validity of each one of the leisure activities. There has been no research on social validity measures done previously. Social validity refers to the satisfaction with each leisure activity. The social validity component was very important because the skills are only leisure skills if they are selected by choice. That being said, out of the three skills taught two were selected when given the choice, suggesting there was a preference for those activities.

While video prompting can be an effective tool to teach leisure skills, specific prerequisite skills may be necessary, such as the ability to attend to a video model, follow one-step directions,
and imitation skills. The participant appeared to have all of these abilities. For example, Declan often copied other’s behavior and scripted lines from his favorite movies. He also attends to YouTube videos as he enjoys watching them and he listens carefully when being given a direction.

It is important to access and evaluate such prerequisite skills before using this tool. In fact, one could evaluate such skills by placing a video in front of a child to see if they will attend to it by looking at the screen and for how long as well as having your child imitate actions that another person performs (e.g., clapping hand, building a structure, etc.).

Limitations/Future Research

Although the results of the study indicates effectiveness, there a number of limitations that should be considered. First, the leisure activities selected for the study were chosen by parents, rather than by the participants. In allowing the parents to select the activities, there is the potential for slower acquisition if the skills are not preferred by the learner. This could have led to a leisure skill not being acquired as quickly and be less preferred. Future researchers may want to conduct a pre and post leisure skill assessment to determine preference as well as the shift in preference after the skill was taught. Future research could also compare acquisition of parent-selected and student-selected leisure skills.

A second limitation is the lack of generalization measurements. Given the limitations of the technology, it was not possible to determine the extent to which these acquired leisure skills would generalize. Future researchers may want to determine if participants can demonstrate the skill in other settings/rooms or with different materials.

A third and last limitation is the sample size. This study had only one participant and video prompting could not be applied across multiple students. Future research may want multiple participants to confirm the efficacy of video prompting as a tool to teach leisure skills.
Lastly, future researchers might want to use a more systematic way such as informal preference assessments to determine the selection of leisure skills that are being offered/taught. Additionally, future researchers might want to focus on replicating the study and evaluate the difference in skill acquisition based on each activity. That being said, one could take the rate of skill acquisition in an activity that requires repeated steps (e.g., making an arts and craft project-some steps the same) and compare it to one that includes a variety of steps (e.g., watering a plant-all steps different).

*Implications for Practice*

Despite the study having several limitations, this study also has several practical implications for teaching leisure skills for those with developmental disabilities. First, given the global pandemic and the use of digital technology in today’s world, using video prompting to teach leisure skills is more feasible than ever. As the COVID-19 crisis impacted the world, technology became the main platform of use. Video prompting is a low-cost teaching tool and easily available as majority of the world has some sort of electronic device, whether that be a phone, an iPad, and/or a computer. After leisure skills were chosen based on the assessment survey, task analyses were created, and videos were developed. The videos were very simple to create and took about 5 to 10 minutes to be made. Exporting each video to its own file made it easily accessible and simple to display to the participant.

Second, leisure skills are important because they bring about positive outcomes for those with developmental disabilities. They have the potential to increase opportunities for social interaction and communication (Jerome et al., 2007). Furthermore, they can enhance individual growth and evoke excitement (Wehman, 1997). After the conclusion of the study, Declan’s parents informed us that he continuously wanted to play basketball even when it was time to eat
dinner or go to the movies. In addition, leisure skills help fill up the time a child spends at home and in the process reducing the engagement in maladaptive behaviors. Instead, they engage in things that make their time meaningful (Solish et al., 2010),

Third, the social validity component in this investigation also represents an important extension to the literature. As leisure skills should be preferred, it is important to note that they are voluntarily selected. This component indicated that one activity encompassed the characteristics of what a leisure skill is really supposed to be. That being said, individuals with developmental disabilities should be exposed to various leisure skills, as leisure skills are supposed to be enjoyable and evoke excitement.

Overall, the current study represents an important contribution to existing literature. Video prompting is an accessible tool that can be used remotely and can be used to teach various skills. The results suggest that video prompting is an effective means to provide instruction. The participant acquired all three skills soon after video prompting was implemented. After all three skills were acquired, the participant was able to maintain the trained skill even after video prompting was removed. Many individuals with developmental disabilities have ritualistic and maladaptive behaviors as well as other special needs. This strategy was very useful as when parents were left with no supports during this pandemic. Teaching leisure skills provided the structure to an otherwise unstructured day and allowed individuals to feel less stress and better able to cope with their surroundings.
References


TEACHING LEISURE SKILLS USING VIDEO PROMPTING


Appendix A

Recruitment Flyer

Would you like to volunteer to have your child participate in a research study that will benefit you and your child’s life?

I am recruiting a small group of individuals to participant in a study that will teach leisure skills using video prompting.

If you are interested in having your child participate in this study or have any questions, feel free to contact me, Karishma Vaswani, at kdv10@scarletmail.rutgers.edu

Thank you!
Appendix B

Informal leisure skills assessment survey

<table>
<thead>
<tr>
<th>Activity</th>
<th>Interested in Doing</th>
<th>Comments/Questions/Concerns</th>
</tr>
</thead>
<tbody>
<tr>
<td>Watering plants</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Playing iPad Game</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Watching YouTube</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Building a structure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reading</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arts and Craft</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cooking</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Basketball</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Photography</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dancing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exercising</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dominos</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Ranking:** 1. __________________ 2. __________________ 3. __________________
Appendix C

Data Collection Data Sheet

<table>
<thead>
<tr>
<th>Activity: Steps Listed Below</th>
<th>Initial Presentation of Video Clip</th>
<th>2\textsuperscript{nd} Opportunity</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
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<tr>
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<td>-</td>
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<td>-</td>
</tr>
<tr>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
</tr>
</tbody>
</table>

# of Steps Completed Correctly: ___________________  % of Steps Completed Correctly: ___________________

*Data Sheets will be individualized to reflect participants' cases*
Appendix D

Social Validity Questionnaire

### Social Validity of Leisure Skills

<table>
<thead>
<tr>
<th>Activity</th>
<th>Activity Chosen</th>
<th>Comments/Questions/Concerns</th>
</tr>
</thead>
<tbody>
<tr>
<td>Watering plants</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Doing Nothing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Playing Basketball</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Doing Nothing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Making an Arts and Crafts Project</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Doing Nothing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Watering plants</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Playing Basketball</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Making an Arts and Crafts Project</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Doing Nothing</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
TEACHING LEISURE SKILLS USING VIDEO PROMPTING

Appendix E

Treatment Integrity Data Sheet

<table>
<thead>
<tr>
<th>Antecedent (Staff Behavior)</th>
<th>Was the antecedent implemented correctly? (+/-)</th>
<th>Behavior (Learner’s behavior/response)</th>
<th>Consequence (Staff Behavior)</th>
<th>Was the consequence implemented correctly?</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delivered the demand</td>
<td>+</td>
<td>Performed step correctly</td>
<td>Reinforce and move onto next step</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>Delivered the demand</td>
<td>+</td>
<td>Did not respond/responded incorrectly</td>
<td>Represent video</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>Represented video prompt</td>
<td>+</td>
<td>Performed step correctly</td>
<td>Reinforce and move onto next step</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>Represented video prompt</td>
<td>+</td>
<td>Did not respond/responded incorrectly</td>
<td>Move onto next step</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

# of Steps Completed Correctly: _______________  % of Steps Completed Correctly: _______________

Total Score: \( \frac{\text{[Total +]}}{\text{[Total +]} + \text{[Total -]}} \times 100\) =

*Data Sheets will be individualized to reflect participants’ cases*
Appendix F

Procedural Integrity Data Sheet

<table>
<thead>
<tr>
<th>Activity</th>
<th>Data +/- Per occurrence</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collects/sets out materials</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>Prepares data sheet</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>Sets timer</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>Establishes attending behavior from learner</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>Delivers correct instructions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provides reinforcement within 3-5 seconds</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>Data are collected after each step performed</td>
<td>+</td>
<td></td>
</tr>
</tbody>
</table>

# of Steps Completed Correctly: ____________  % of Steps Completed Correctly: ____________

Total Score: \[\frac{(Total +)}{(Total +) + (Total -)} \times 100\] =

*Data Sheets will be individualized to reflect participants’ cases*