Effects of Video Prompting and Activity Schedules on the Acquisition of Independent Living Skills of Students Who Are Deaf and Have Developmental Disabilities

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Abstract: The current study investigated whether four Deaf students with developmental disabilities could learn a chain of independent living skills and follow activity schedules using a combination of the two iPod Touch applications (apps): inPromptu and First Then Visual Schedule. Using a multiple probe across participants design, the study examined the effects of the intervention on skill acquisition and generalization to untrained independent living skills and novel sequences of activity schedules after the students mastered the use of the two iPod apps. Least-to-most prompting was used to teach the two iPod apps. The results showed all participants successfully acquired a variety of independent living skills using video prompting. Three of the four participants were able to follow varied and novel activity schedules after they were trained to follow the fixed order activity schedule. Multiple exemplars were needed for one participant to master varied and novel activity schedules. In addition, all participants successfully followed activity schedules in an untrained setting (e.g., school dorm). This study extended the current literature on video prompting and activity schedules by incorporating both approaches and testing their generalization effects. As such, the study provided new practices that may increase functional independence for Deaf students with developmental disabilities.

It is critical to teach students with disabilities independent living skills to increase their independence and autonomy. The empirical literature describes a variety of effective and validated instructional strategies to teach daily living skills to individuals with disabilities. One such strategy is video prompting. Video prompting begins by showing the learner a video clip of the first step in the task analysis sequence. After watching the video of the first step, the learner is given an opportunity to complete this step. The learner is then shown a video clip of the next step in the task analysis sequence, until all the steps in the target behavior have been shown and completed (Sigafoos et al., 2005). For students with developmental disabilities, who usually have attention and memory difficulties, video prompting is effective due to it only shows a short video clip of one step of the task before proceeding to the next step. A pool of previous research has shown that video prompting is an effective strategy to teach a variety of independent living skills and facilitates maintenance and generalization (Banda, Dogoe, & Matuszny, 2011).

Video prompting also has shown to be effective in teaching daily living skills to Deaf students. Cannella-Malone et al. (2011) used video prompting to teach one of the seven participants who was Deaf and had developmental disabilities. Without hearing the voice-over instructions, this participant demonstrated significant progress in learning the two daily living skills. The results showed video alone may be effective enough to teach skills, but this needs more investigation.

With the progression of technology, smaller and portable handheld devices have also been shown to be effective in teaching skills to students with disabilities. Using handheld devices also addresses the potential of teaching by having students self-navigate the device and learn from the video. For example, Cannella-
Malone, Brooks, and Tullis (2013) examined the effects of self-directed video prompting on teaching four adolescents of moderate to severe developmental disabilities to learn two daily living tasks. A system of most-to-least prompts was used to teach students to navigate an iPod app; finally the students used the app independently play video prompts and teach themselves how to vacuum. Two participants learned to navigate the app independently to teach themselves to vacuum, the other two participants made progress on learning how to navigate the app. The possibility of this type of powerful pocket size tool allows students to learn independently following the step-by-step video prompting instruction.

Activity schedules are another instructional tool that can be used to teach daily living skills. In activity schedules, pictures or words function as discriminative stimuli for a chain of behaviors (Wacker & Berg, 1983). They are usually presented in a book with a picture format in which each picture represents a different activity. The pictures are re-sequenced regularly in order for students to learn to complete tasks in different sequences (MacDuff, Krantz, & McClannahan, 1993). Activity schedules may be enhanced with computer supports when teaching functional skills to students with disabilities. Activity schedules provide visual supports, and computers can provide additional multimedia stimuli such as video and audio recordings (Stromer, Kimball, Kinney, & Taylor, 2006). Several previous research studies have shown the effectiveness of computer-based activity schedules (e.g., Cihak, Kessler, & Alberto, 2008; Van Laarhoven, Kraus, Karpman, Nizi, & Valentino, 2011).

It seems like video prompting and activity schedules are promising approaches to teach independent living skills to students with disabilities. Nevertheless, there are several areas that still need to be addressed. First, there is little research evidence showing that video prompting or activity schedules can be applied to students who are Deaf or hard of hearing. Second, no previous research was identified that combined video prompting and activity schedules to teach new skills. Third, there is a need for research to demonstrate the effects of using handheld devices to present activity schedules. Finally, most previous research investigated generalization effects across times, settings, and stimuli. It would be worthwhile to examine the generalization effects of video prompting and activity schedules to untrained behaviors and natural settings, such as the community and the home.

The current study extended previous research on video prompting to examine the effects of using the two iPod applications: inPromptu and First Then Visual Schedule, which incorporated the practices of video prompting and activity schedules. Research questions were: (a) After being trained on inPromptu, can Deaf students with developmental disabilities complete three cycles of navigating from the First Then Visual Schedule application to the correct inPromptu task and then back to First Then Visual Schedule?, (b) Can Deaf students with developmental disabilities follow a varied and novel activity schedule using First Then Visual Schedule in a new setting?, (c) Using inPromptu, can Deaf students with developmental disabilities complete the target skills correctly?, and (d) If Deaf students with developmental disabilities are unable to generalize to a varied and novel activity schedule, does multiple exemplar training increase the number of generalized responses?

Method

Participants

Two male and two female students with deafness and mild to moderate intellectual disabilities between the ages of 17 and 19 were selected and participated in this study. All students were in the same self-contained special education class, and attended school for the deaf in a metropolitan city. All students used American Sign Language (ASL) as their major communication approach. The participants were selected for this study due to their deficits in daily living skills. None of the participants had prior experiences using either video instruction or activity schedules. Table 1 provided the demographic and assessment scores for the four participants.

Setting

The study was conducted in a self-contained school for students who are deaf. All experi-
ment sessions took place in the area of school that corresponds to the independent living or vocational tasks selected for the students. For example, the instructional sessions for dust mopping occurred in the hallway of the high school locker area. For a few generalization probes, data were collected in the students’ dorm.

Task and Materials

The participants were initially tested to see if they had mastered any of the functional independent living skills that were included in the inPromptu app. The tasks were tested without the use of video prompting. After the initial pretesting, three skills were identified that all students had not reached the performance criterion: starting a washer, washing a window using a squeegee, and dust mopping hallway. These three tasks were selected as the training tasks. Different tasks were selected for each participant for generalization probes, such as: stacking chairs, making a Coney dog, making hot chocolate, etc.

Each training or generalization task needed different materials. For example, the materials for dust mopping were: a dust mop, debris, a broom, a dust pan, and a garbage can. The materials used for each task were prepared by the experimenter and placed in the location of each task, prior to each session.

A second generation iPod Touch was used as the self-prompting device. The target applications used in the study—inPromptu and First Then Visual Schedule—were placed on the home row of the screen. Video files were captured from a video camera and edited using iMovie software. Each step of the task analysis was filmed using a digital camera in another school setting. Therefore, the stimuli presented in the videos were not identical to the stimuli used for this study. All of the videos clips were filmed from the perspective of a spectator.

The iPod application (“app”), inPromptu, was used to present the video clips. It provided a template that embeds video clips into independent living/vocational tasks under specific categories. The category slide included all categories of the videotaped tasks. Tasks under each category were displayed as a list when the iPod is held vertically, and as an image on the sliding bar when held horizontally. When a user tapped on each step of the task, the video clip associated with each step was shown. To increase the ease of navigation through the apps, the steps within each task were numbered. When a user tapped on the home button at the lower left corner of the screen, this navigates up one level (see Figure 1).

First Then Visual Schedule is another iPod application that was used in this study. It was a customizable iPod application available from the iTunes App store. Users could record and upload images from a laptop or computer to the template to create a schedule. The app allowed users to create a new schedule, accessed a previously saved schedule, and edited the steps of a schedule (see Figure 2).

<table>
<thead>
<tr>
<th>Name</th>
<th>Age</th>
<th>Diagnoses</th>
<th>IQ</th>
<th>Communication</th>
<th>Daily Living</th>
<th>Socialization</th>
<th>Adaptive Behavior Composite</th>
</tr>
</thead>
<tbody>
<tr>
<td>Miya</td>
<td>19</td>
<td>Severe to profound hearing loss, borderline to mild MR</td>
<td>66</td>
<td>5–10</td>
<td>8–1</td>
<td>6–4</td>
<td>6–9</td>
</tr>
<tr>
<td>Aiden</td>
<td>17</td>
<td>Severe to profound hearing loss, borderline to mild MR</td>
<td>63</td>
<td>2–7</td>
<td>8–0</td>
<td>4–0</td>
<td>4–10</td>
</tr>
<tr>
<td>Dillen</td>
<td>18</td>
<td>Moderate to severe hearing loss, moderate MR</td>
<td>N/A</td>
<td>1–10</td>
<td>7–6</td>
<td>3–10</td>
<td>4–5</td>
</tr>
<tr>
<td>Jasmine</td>
<td>17</td>
<td>Severe to profound hearing loss, moderate MR</td>
<td>48</td>
<td>6–0</td>
<td>11–9</td>
<td>8–5</td>
<td>8–9</td>
</tr>
</tbody>
</table>
Dependent Variables

There were three dependent variables for this study. The first dependent variable measured was the percentage of independent correct navigation responses. Data were recorded using the task analysis for navigating between First Then Visual Schedule and inPromptu. An independent correct response was defined as the student navigating within and between the two iPod applications independently and correctly without any external prompts from the experimenter. The percentage correct was calculated by dividing the number of steps completed correctly in the task analyses by the total number of navigation steps and multiplying by 100.

The second dependent variable measured was the percentage of independent correct schedule following responses on fixed, varied and novel schedules. A fixed schedule was one in which the three activities to be completed were consistently ordered. A varied activity schedule was one in which the three activities to be completed were randomly ordered. A novel activity schedule was one in which the three activities to be completed were different from those used in the training and randomly ordered across sessions. An independent correct response was defined as the student initiating each activity in the order presented in the activity schedule. Initiation of a target task on an activity schedule was defined as selecting the correct task in inPromptu and going to the correct setting to perform the task. The percentage correct was calculated by dividing the number of activities completed correctly in the task analyses by the total number of activities and multiplying by 100.

The third dependent variable measured was the percentage of correct responses using video self-prompting. A correct response occurred when a student completed the step in the task correctly within 30s after watching the video prompt, or when a student completed the step correctly without watching the video prompt. The percent of correct responses was calculated by dividing the number of steps performed correctly by the total number of steps in the task and multiplying by 100.

Data Collection

Data were collected three to five times a week for each participant during designated sessions in the afternoon. One 15 to 30 min sessions was run individually with each participant per day. Using the task analyses, each step of the task was recorded as correct or incorrect on a session-by-session basis.
**Experimental Design**

A multiple probe across participants design (Horner & Baer, 1978) was used in this study. The study involved five conditions: (a) Base-line: application probes, schedule following probes, and pre-intervention generalization probes; (b) Intervention 1: application training, schedule training, and intermittent generalization probes; (c) Post-intervention generalization probes; (d) Intervention 2: multiple exemplar instruction with intermittent generalization probes; and (e) Maintenance probes. Multiple exemplar instruction was only implemented if the participant failed to reach the criterion on post generalization probes.

**Interobserver Agreement and Procedural Integrity**

Two independent observers collected data on the number of steps in the task analysis performed correctly during at least 21% of the sessions in each phase of the study (range 21–36%). Training was provided, including: explaining the task analysis for the task, providing the data sheets, explaining how responses are coded, and providing examples of correct and incorrect responses. The interobserver agreement (IOA) was documented on a trial-by-trial basis, and was calculated by dividing the number of agreements by the number of agreements plus disagreements and multiplying by 100. Average IOA for all participants was 99% (range 98–100%).

Procedural integrity checks by an independent observer were collected for at least 29% of all sessions (range 21–36%). An independent observer recorded the occurrence and nonoccurrence of each procedural step on the procedural integrity checklist. Procedural integrity was calculated by dividing the number of correctly implemented steps by the total number of steps and multiplying by 100. Average IOA on procedural integrity measures was 99% (range 98–100%).

**Social Validity**

Informal interviews were conducted with the participants and the classroom teachers following the intervention. Nine questions that assessed the social acceptability of goals, procedures, and outcomes of the current study were asked during the student and teacher interview. Results showed the teachers perceived the current study as important, appropriate, and satisfactory. The students also agreed that they benefited from this study.

**Experimental Procedures**

Generalization probes occurred intermittently throughout the study to test whether the students generalized schedule following responses. During intervention sessions, three activities were included in an activity schedule in a consistent order. During generalization probes, the activity schedules were varied and novel. One generalization probe was conducted every three or four sessions. During generalization probe sessions, the participant was given an iPod Touch and told to complete the assigned tasks in the pre-arranged activity schedule sequence. During generalization sessions, participants were brought to the task setting one at a time, given the iPod Touch, asked to find the activity schedule, and initiate the activities. Generalization probe sessions were terminated if the participant (a) did not begin the first step of the first task within 30s, or (b) if upon completing a step the participant did not begin the next step within 30s. A session was designated as “completed” if the participant correctly performed all the steps. A few probes were also taken in the dorm to test for setting generalization. During all phases, the experimenter used an app Sign for me to deliver verbal direction to the participants.

**Baseline.** Participants were brought to the task setting one at a time, positioned in front of the task, and asked to find their activity schedule and complete the activities. The procedure of each baseline session was identical as the generalization probe session. Data were taken on the dependent measures of application navigation and schedule following for the training and generalization sets of schedules.

**Intervention 1: Navigation and schedule following training.** At the beginning of each session, a participant was given a turned-off iPod and told Complete your Schedule. Three activities were included in the schedule, and the order of the activities was consistent for each session: starting a washer, washing a window, and dust
mopping. During this condition, the participant was required to first navigate to First Then Visual Schedule and then find the first target task in inPromptu. The participant completed the target task using video self-prompting in inPromptu, and then navigated back to First Then Visual Schedule to identify the second target task. This process continued until the participant completed all three target tasks in the schedule. A least-to-most prompting procedure was used to teach the participants to use the combination of the two iPod Touch applications. The prompting hierarchy was: model, gesture, and physical guidance. Modeling involved the experimenter held another iPod and demonstrated the desired behavior of navigating the iPod. Gestural prompt involved the experimenter pointed to the picture or icon on an iPod. Physical guidance involved the experimenter physically holding the student’s finger to tap the desired icon or image on the iPod. If the participant failed to complete a step within 30s or completed it incorrectly, the trainer proceeded to prompt the participant with the appropriate prompt. The training continued until the student reached 100% accuracy with independent correct responses on schedule following, navigation, and overall skill acquisition for three consecutive sessions.

Post-intervention generalization probes. This condition was identical to the baseline condition except different activity schedule sequences with three different activities were used. The mastery criterion for generalization was 100% accuracy of independent correct responses on schedule following for both varied and novel schedules.

Intervention 2: Multiple exemplar training. This condition was implemented only if the participants did not successfully meet criterion for post-generalization probes. This condition was similar to the previous intervention condition except multiple exemplars were used. Multiple exemplar training refers to the instruction that incorporated a variety of stimuli, response variation, and topographies in natural settings (Cooper, Heron, & Heward, 2007). Instead of using the fixed three activities in the activity schedules, an additional three to six activities that were not used in the previous training condition were added into the activity schedules with random order. An activity schedule and video self-prompting were continuously used during this phase. The training continued until the students reached 100% accuracy on the generalized schedule following for novel schedules.

Maintenance probes. Maintenance probes were conducted between 2 and 4 weeks after the intervention for Miya, Aiden, and Jasmine. For Dillen, a 1-week maintenance probe was conducted. The procedures of the maintenance probe sessions were the same as the previous baseline phase.

Results

Navigation

Miya. Overall percent correct data for Miya are presented in the top panel of Figure 3. During baseline, Miya completed 2% of the navigation steps correctly. During intervention 1, she performed an average of 98.6% (range 94–100%) of the navigation steps correctly. Overall, her average correct navigation performance for the varied schedule school probe, varied schedule dorm probe, novel schedule school probe, and novel schedule dorm probe was: 99%, 100%, 93%, and 92%.

Aiden. Overall percent correct data for Aiden are presented in the second tier of Figure 3. During baseline, Aiden completed 2% of the navigation steps correctly. During intervention 1, he performed an average of 99% (range 96–100%) of the navigation steps correctly. Overall, his average correct navigation performance for the varied schedule school probe, varied schedule dorm probe, novel schedule school probe, and novel schedule dorm probe was: 99%, 100%, 93%, and 96%.

Dillen. Overall percent correct data for Dillen are presented in the third tier of Figure 3. During baseline, Dillen completed 2% of the navigation steps correctly. During intervention 1, he performed an average of 98% (range 91–100%) of the navigation steps correctly. He only performed 67% accuracy for the novel schedule school probe. During generalization probes condition, he performed 94% of the steps correctly for the varied schedule probe. During multiple exemplar training phase, he performed an average of 97.8% (range 96–99%) of the navigation steps correctly for novel schedule school probes,
and maintain at 93% accuracy for the varied schedule dorm probe. Overall percent correct data for Jasmine are presented in the bottom panel.
of Figure 3. During baseline, Jasmine completed 2% of the navigation steps correctly. During Intervention 1, she performed an average of 98% (range 91–100%) of the navigation steps correctly for the training schedule. Overall, her average correct navigation performance for the varied schedule school probe, varied schedule dorm probe, novel schedule school probe, and novel schedule dorm probe was: 100%, 100%, 94.5%, and 94%.

**Schedule Following**

**Miya.** Overall percent correct data for Miya are presented in the top panel of Figure 4. During baseline, Miya did not follow any of the activities assigned in the schedule correctly. During Intervention 1, she followed fixed schedules and novel schedules at 100% accuracy, but only 33% accuracy for the varied schedules. During the generalization probes phase, she followed schedules at 100% accuracy for both the varied and the novel schedule probes both in the school and in the dorm, and maintained her performance up to 4 weeks.

**Aiden.** Overall percent correct data for Aiden are presented in the second tier of Figure 4. During baseline, Aiden did not follow any of the activities assigned in the schedule correctly. During Intervention 1, he followed fixed, varied, and novel schedules at 100% accuracy. During the generalization probes phase, he also followed schedules at 100% accuracy both in the school and in the dorm, and maintained his performance.

**Dillen.** Overall percent correct data for Dillen are presented in the third tier of Figure 4. During baseline, Dillen did not follow any of the activities assigned in the schedule correctly. During Intervention 1, he followed the fixed schedules at 100% accuracy for most of the sessions. His varied schedule following gradually increased from 33% to 100% accuracy. He performed 67% accuracy for novel schedule following. During the generalization probes phase, he followed the varied schedule at 33% accuracy, and therefore needed multiple exemplar training. He reached mastery criterion within five sessions. After training, he maintained his performance at 100% accuracy for the varied schedule probe conducted in the dorm up to one week.

**Skill Acquisition**

**Miya.** Overall percent correct data for Miya are presented in the top panel of Figure 5. During baseline, Miya failed to complete any of the steps correctly using the iPod applications to start a washer, wash a window, or use a dust mop. She performed an average of 98.6% (range 93–100%) of the steps correctly during Intervention 1. Overall, her average correct performance in completing all the steps for the varied schedule school probe, varied schedule dorm probe, novel schedule school probe, and novel schedule dorm probe was: 100%, 96.5%, 84%, and 84%.

**Aiden.** Overall percent correct data for Aiden are presented in the second tier of Figure 5. During baseline, Aiden failed to complete any of the steps correctly. During Intervention 1, he performed an average of 99% (range 95–100%) of the steps correctly. Overall, his average correct performance in completing all the steps for the varied schedule school probe, varied schedule dorm probe, novel schedule school probe, and novel schedule dorm probe was: 99%, 100%, 91%, and 93.5%.

**Dillen.** Overall percent correct data for Dillen are presented in the third tier of Figure 5. During baseline, Dillen failed to complete any of the steps correctly. During Intervention 1, he performed an average of 94.8% (range 86–100%) of the steps correctly. Overall, his average correct performance in completing all the steps for the varied schedule school probe, varied schedule dorm probe, novel schedule school probe, and novel schedule dorm probe was: 97.5%, 90%, and 94%.
**Jasmine.** Overall percent correct data for Jasmine are presented in the bottom panel of Figure 5. During baseline, Jasmine failed to complete any of the steps correctly using the iPod applications. During Intervention 1, she performed an average of 97.2% (range 90–100%) of the steps correctly. Overall, her average correct performance in completing all steps.
the steps for the varied schedule school probe, varied schedule dorm probe, novel schedule school probe, and novel schedule dorm probe was: 100%, 99%, 77.5%, and 85.5%.

Figure 5. Percentage of correct responses using video self-prompting on overall skill acquisition for Miya, Aiden, Dillen, and Jasmine.
Discussion

The current study examined the ability of students who are Deaf and have developmental disabilities to follow an activity schedule and learn independent living skills using two iPod applications, First Then Visual Schedule and inPromptu. All participants successfully acquired a variety of independent living skills using video prompting. Three of the four participants were able to follow varied and novel activity schedules, after they learned to follow a fixed ordered activity schedules. All participants were able to follow novel activity schedules for a minimum of one week, and one participant was able to follow the schedule for 4 weeks. Multiple exemplars were needed for one participant to master the varied and novel activity schedules. Finally, all participants successfully generalized using schedules to an untrained setting (e.g., school dorm).

Using least-to-most prompting, all four participants learned to navigate between First Then Visual Schedule and inPromptu. This finding was consistent with Kagohara (2011) and Le Grice and Blampied (1997), showing that least-to-most prompting is an effective strategy to teach the use of video devices. Least-to-most prompting transfers stimulus control from the experimenter’s prompts to the natural stimulus presenting in an environment (Cooper et al., 2007). All participants were able to generalize navigation responses to the use of varied schedules. However, their navigation performance for novel schedules was lower than on varied schedules. It was may be that all participants had already been trained on navigating between First Then Visual Schedule and inPromptu and then watching the inPromptu videos for the training tasks. Therefore, the participants were less likely to skip the videos, because they could either independently perform the step or easily find the video clips they needed to watch. However, when the participants attempted to complete the activities in the novel schedules, they sometimes did not navigate to the videos or, even if they navigated to the video they did not watch it, which caused errors in performance.

For three of the four participants, they were able to follow varied and novel activity schedules after learning to follow a fixed, ordered schedule. Dillen learned to follow varied and novel schedules only after he received multiple exemplar training. The findings of this study did not fully replicate those obtained from some of the previous research. Minarovic and Bambara (2007), for example, suggested that generalization to a new sequence activity schedule did not occur for their participants until training was implemented on two or more varied sequence schedules. Other researchers have suggested that some students were able to follow novel schedules only after being trained on a consistently ordered schedule (Blum-Dimaya, Reeve, Reeve, & Hoch, 2010; Spriggs, Gast, & Ayres, 2007). For Dillen, prior to receiving multiple exemplar training, he memorized the order of the fixed schedules. Therefore, when the varied schedule generalization probes were conducted, he correctly navigated to the First Then Visual Schedule but did not follow the orders assigned in the schedule. It appears that some individual differences may exist in the students’ abilities to generalize schedule following behaviors. Minarovic and Bambara (2007) indicated that their participants did not generalize schedule following behaviors until they were trained to follow varied schedules, and that those participants who did not have prior experience following picture prompts, consistently required external prompts from adults. It may be possible that the ability to discriminate between pictures and/or following picture prompts are prerequisite skills for generalized schedule following behaviors, and Dillen missed such repertoires. The results of this study also showed that generalized schedule following occurred regardless of settings. This may be due to the incorporation of self-management (e.g., self-prompting) that mediated generalized behavior change (Cooper et al., 2007).

Using inPromptu and least-to-most prompting, all participants learned the three target tasks in the fixed activity schedule. Using inPromptu without the experimenter’s feedback, all participants were able to complete the generalization tasks with at least 60% accuracy. The videos in inPromptu were filmed in another school; thereby the stimuli presented in the video were different from the stimuli used in the instructional setting. Nevertheless, watching a video model that did not incorporate the common stimuli used in the instruc-
tional setting still produced desirable skill acquisition in this study. It was possible that the actions performed by the video model and the responses required to be performed during training were functionally similar, and therefore resulted in successful imitation responses. Furthermore, the results of this study supported previous findings in that the auditory prompts may not be necessary when using video prompting to teach daily living skills (Slobodzian, 2009).

There were several limitations of this study that warrant discussion and need to be addressed in future research. First, in this study, the baseline probes were conducted using the single opportunity method. In other words, the probe session was discontinued if the participant made an error on a step, or did not perform a step correctly within the predetermined time. The remaining steps in the task were marked as incorrect (Snell & Brown, 2006). This method may have underestimated the participant’s actual performance. It may be possible that the participant could already perform the component steps of a task but was not given the opportunity to perform each step.

Second, using inPromptu, categories and video clips can only be added or deleted by an application administrator. In this study, some steps of a task in inPromptu did not correspond to the steps to be performed in the instructional setting. However, because the experimenter could not edit the video clips, the participants were taught to skip those unnecessary clips. This problem might cause confusion for the participants and may have indirectly resulted in navigation errors.

Third, because of the experimenter’s presence during each session of the study, the positive results of this study may not result from the participants’ self-prompting alone. The experimenter’s eye contact, facial expressions, or gestures may have affected the participants and caused subtle degrees of behavior change. The experimenter neither controlled for these types of sporadic nonverbal reinforcements, nor faded out her presence during the study.

There are some possible additional lines to be pursued in future research. First, with the advancement of technology, it may be useful to combine the capabilities of First Then Visual Schedule and inPromptu into one application, which would decrease the need to pre-teach the students to match the picture in First Then Visual Schedule to the task in inPromptu. Second, future research might incorporate other self-management strategies within the intervention used in this study. For example, using self-monitoring, inPromptu may develop its capabilities to let the participant check off each step after a step is completed. Finally, to be able to increase the generality of the study outcomes, future research should expand the current investigation to (a) a different population, (b) other complex daily living or vocational skills, (c) other trainers such as parents or job coaches, and (d) other settings such as home, work sites or the community.

In summary, the current study showed training the students to navigate the two iPod applications resulted in generalization to novel schedule following and skill acquisition in both the instructional and untrained settings. The findings of this study provided valuable contributions with respect to the use of high-tech devices to teach independent living or vocational skills to Deaf students with developmental disabilities.

References


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