Examining the Effects of Video Modeling and Prompts to Teach Activity Daily Living Skills to Young Adults with Autism Spectrum Disorder.

Method

Participants
Participants included two male adolescents 18 years of age diagnosed with Autism Spectrum Disorder (ASD). Participants were selected based upon age, diagnosis, the need to improve their activities of daily living skills and parental permission.

Setting
Participant's observations were conducted in their home setting. Observations took place in the natural environment where the tasks would be performed. Baseline and maintenance phases occurred in the participant's home environment.

Identified Activities of Daily Living Skills
Three tasks were identified for each young adult through a collaborative process involving their parents. These tasks included skills that the young adults were not able to perform independently or needed prompts to complete. The tasks identified for participant 1 were cooking, setting the table and folding jeans. For participant 2 the tasks identified were setting the table, cleaning the bathroom counter and sink, and cleaning the mirror. The participants were selected for the study because of the deficits in their daily living skills.

Materials
All videos were created using both the Apple iPad and Apple iPod. Three videos for each participant were created based on the targeted task. These videos were created from a "first-person" perspective. Through the eyes of the participants, the videos portrayed the arms and hands of the model performing the task (Bellini & Akullian, 2007). The entire task was filmed with a verbal description of each step as it was being performed.

Experimental Design: This study followed Kellems and Morningstar's (2012) multiple probe design across behaviors. For each participant one task was acquired before the next task was introduced. "When the young adult reached the criterion level on the first targeted behavior, the intervention was then introduced to the second target behavior while the third remained in baseline with data probes" (p. 158).

Dependent variable
The dependent variable was the percentage of steps performed correctly (using a task analysis). The task analysis recorded each step that was performed correctly or incorrectly during each session (Kellems and Morningstar, 2012).
        Interobserver agreement for Participant 1
Interobserver checks occurred during 100% of the baseline conditions, 50 % of the probe condition, and 24 % of the intervention condition. The overall mean was 99%. Agreement ranged from 95%-100%. IOA for prompt data during the intervention condition was 83% with a range of 50% to 100%.

Procedures

This study replicated similar methods by Kellems and Morningstar (2012) in which baseline data were collected from all participants. The intervention was introduced for the first task once a stable baseline was established for all tasks. Intervention for Task 2 after the participant demonstrated acquisition of the first task as determined by three consecutive stable data points at 100%. The same procedure was used for Task 3. Maintenance

      Prior to the intervention phase participants were taught how to access the videos from their iPad (Participant 1) and iPod (Participant 2). During the intervention phase one verbal prompt was given to the participant to watch the video of the targeted task on the device then to perform the task. An initial prompt was given to review the video from the previous step up until and including the step where the error occurred (i.e. "watch the video"). If errors continued, up to three prompts were given before moving on. Data was collected on the number of prompts given if the participant performed the step incorrectly more than one time.

Maintenance

Maintenance probes were conducted when Participant 1 demonstrated task acquisition for all three tasks. The Ipad was not used during the maintenance probe.

Table 1.
Participant 1: Task Analysis for Targeted Skills
Make Tortellini 1. Get large pot 2. Fill pot ½ water 3. Put pot on stove 4. Turn stove on high 5. Get strainer 6. Get plate 7. Get spoon 8. Get out measuring cup 9. Get out tortellini 10. Measure 2 cups of tortellini 11. Check to see water boil 12. Wait for water to boil 13. Add tortellini 14. Set timer 4 minutes 15. Stir 16. Turn off stove 17. Turn off timer 18. Take pot to sink 19. Drain 20. Put pot back on stove 21. Scoop onto plate 22. Get parmesan cheese

23. Sprinkle cheese

Set The Table
1. Take out 3 napkins
2. Fold napkin
3. Put napkin on table
4. Fold napkin
5. Put napkin on table
6. Fold napkin
7. Put napkin on table
8. Takes out 3 forks
9. Takes out 3 knives
10. Place fork and knife on table
11. Place fork and knife on table
12. Place fork and knife on table
13. Gets 2 water bottles from the refrigerator
14. Put 1 bottle on table
15. Put 1 bottle on table

Fold Jeans
1. Takes jeans out of dryer and put in laundry basket
2. Carry basket to living room
3. Dump jeans out of basket
4. Pick up jeans
5. Hold up jeans with front facing participant
6. Fold in half the long way
7. Fold in half
8. Fold in half
9. Place jeans back in basket

Table 2.
Participant 2: Task Analysis for Targeted Skills

Set The Table
1. Get 4 plates (1, 2, 3, 4)
2. Carry to the table
3. Hold plates
4. Place each plate in front of seat
5. Count 4 napkins
6. Carry the napkins to the table
7. Place each napkin to the left side of plate
8. Open drawer and get 4 spoons
9. Place spoon on each napkin
10. Get 4 forks
11. Place fork net to each spoon
12. Get 4 knives

13. Place knives next to each fork
14. Close drawer
15. Get 4 cups
16. Carry cups to table
17. Place the cup to the right of the dish

Clean The Sink and Counter
1. Get multipurpose spray and cloth
2. Move items to top counter
3. Spray counter (1, 2)
4. Spray sink (1, 2)
5. Get cloth
6. Spray middle counter (1, 2)
7. Wipe counter (1, 2, 3, 4, 5, 6)
8. Wipe inside sink
9. Wipe outside sink
10. Wipe faucet
11. Wipe middle counter
12. Put items back
13. Wipe off top counter
14. Return materials

Clean The Mirror
1. Get glass cleaner and paper towels from closet
2. Measure paper towel against mirror and tear
3. Fold paper towel (across, across, down)
4. Spray mirror 4 times (1, 2, 3, 4)
5. Wipe left to right
6. Wipe down right to left
7. Continue to wipe mirror
8. Fold paper towel opposite way
9. Wipe mirror left to right
10. Wipe mirror down right to left
11. Continue to wipe mirror to bottom
12. Throw paper towel in trash
13. Return glass cleaner to closer

Results

Participant 1: Make Tortellini
Trails-to-criterion was 11 sessions. During baseline, *Participant 1* correctly completed an average of 4% (baseline was 4% for all 3 trials) of making the tortellini task analysis. When the iPad was introduced, the percentage of steps *Participant 1* completed increased to 100% with a range of 22%-100% and a mean of 71% over 11 sessions. The mean number of prompts was 3, ranging from 0-21 prompts. During maintenance, the score was 74%.

Participant 1: Set The Table

Trails-to-criterion was 5 sessions. During baseline, *Participant 1* correctly completed an average of 0% (baseline was 0% for all 3 trials) of setting the table task analysis. When the iPad was introduced, the percentage of steps *Participant 1* completed increased to 100% with a range of 61%-100% and a mean of 91% over 5 sessions. The mean number of prompts was .4, ranging from 0-2 prompts. During maintenance, the score was 72%.

Participant 1: Fold Jeans

Trails-to-criterion was 9 sessions. During baseline, *Participant 1* correctly completed an average of 0% (baseline was 0% for all 3 trials) of folding the jeans task analysis. When the iPad was introduced, the percentage of steps *Participant 1* completed increased to 100% with a range of 78%-100% and a mean of 94% over 9 sessions. The mean number of prompts was .2, ranging from 0-2 prompts.

Participant 2*: Set Table*

Trails-to-criterion was 11 sessions. During baseline, *Participant 2* correctly completed an average of 0% (baseline was 0% for all 3 trials) of making the tortellini task analysis. When the iPod was introduced, the percentage of steps *Participant 2* completed increased to 100% with a range of 47%-100% and a mean of 85% over 11 sessions. The mean number of prompts was 4, ranging from 0-13 prompts.

Participant 2: Clean Counter and Sink

Trails-to-criterion was ___ sessions. During baseline, *Participant 2* correctly completed an average of 0% (baseline was 0% for all 3 trials) of setting the table task analysis. When the iPod was introduced, the percentage of steps *Participant 2* completed increased to ____ with a range of ___-___% and a mean of ___% over ___ sessions. The mean number of prompts was ___, ranging from ____ prompts.