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Comparison of Three Video Perspectives When Using Video Prompting by Students with Moderate Intellectual Disability

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Abstract: The purpose of this study was to compare the effects of three video perspectives: point-of-view, scene view, and a combination of point-of-view and scene view on task completion by three young adults with moderate intellectual disability. The comparison was made, using an Adapted Alternating Treatments Design, across three sets of fundamentally different gift wrapping tasks as each of three students used step-by-step video prompting. Overall, results of the study showed minimal differences in performance across the three students regardless of the video perspective while a combination of point-of-view and scene view camera angle resulted in fewer errors by two of the three students.

Research strongly suggests that video technology is an effective means for enhancing academic, communication, employment, daily living, social, leisure, and transitioning skills for persons with intellectual disability and/or autism (Ayres & Langone, 2005; Banda, Dogoe, & Matuszny, 2011; Bellini & Akullian, 2007; Delano, 2007; Mason, Ganz, Parker, Burke, & Camargo, 2012; McCoy & Hermansen, 2007; Mechling, 2005; Rayner, Denholm, & Sigafoos, 2009; Shukla-Mehta, Miller, & Callahan, 2010). What appears to be missing in the literature is a clear delineation of what components of the actual videos lead to higher quality, more effective videos. As the use of video instruction increases in the field of special education it is important that guidelines be developed for those interested in creating their own videos for instruction. Production of quality videos, superior to those lacking key components, has implications for the level of effectiveness of the programs (Mechling, Ayres, Foster, & Bryant, in press; Rosenberg, Schwartz, & Davis, 2010). To this end, researchers recommend that further work be done to evaluate the features of custom-made programs that are most important in order to better inform decisions regarding their development (Ayres & Langone, 2007; Ramdoss et al., 2012).

Minimal work has been done to date to differentiate between video features that are critical for presenting information to the viewer. Most of the comparative work and analysis of video technology has focused on characteristics of the model – who is in the video - and whether there is a difference when a user views him or herself (video self-modeling) or another adult or peer in the video (Cihak & Schrader, 2008; Jones & Schwartz, 2004; Mason, Ganz et al., 2013; Sherer et al., 2001). Other studies, although limited in number, have compared the timing of the presentation of the video when using video modeling (Cannella-Malone et al., 2006; 2011; Mechling, Ayres, Bryant, & Foster, 2014; Sancho, Sidener, Reeve, & Sidener, 2010; Taber-Doughty, Patton, & Brennan, 2008). The difference in timing occurs through use of video modeling (video presented prior to the task); video prompting (video presented step by step as each step of a task is completed); simultaneous video modeling (video presented as the task is simultaneously being completed); and continuous video modeling

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(video presented continuously as the task is being completed).

Four studies were identified that compared actual features of video when creating recordings (Mechling & Collins, 2012; Smith, Ayres, Mechling, & Smith, 2013; Mechling, Bryant, Ayres, & Spencer, 2015; Mechling et al., in press). Two studies examined whether voice over directions (verbal cueing) were important when creating the videos (Mechling & Collins; Smith et al.), a third compared two means for presenting passage of time on video when items were cooking, soaking, or dissolving (Mechling, Bryant et al.), and the fourth compared the ability of students with a diagnosis of autism spectrum disorder and moderate intellectual disability to generalize performance of skills when using materials identical and different from those presented through video models (Mechling et al.).

Additional studies, although not comparative in nature, have examined point-of-view modeling when preparing videos in which the video is made from the perspective of the model in the video rather than showing the actual model (Mason, Davis, Boles, & Goodwyn, 2013; Shukla-Mehta et al., 2010). In contrast to recording an entire scene or person completing the task, when creating point-of-view videos, the camera is placed at or above the model's shoulder level when recording the step and showing only the model's hands (Mason et al., 2012). These videos can also be made so that the viewer has the perspective of performing the task such as walking down a grocery aisle (Mechling, 2004) or sidewalk (Mechling & Seid, 2011), or riding a bus (Mechling & O'Brien, 2010) without seeing any part of the person in the video or use of a model (Schreibman, Whalen, & Stahmer, 2000; Shipley-Benamou, Lutzker, & Taubman, 2002). Recording the task, showing only the model's hands or as if the viewer is performing the task, has been referred to as first-person perspective (Ayres & Langone, 2007) as well as point-of-view modeling (Mason, Davis et al., 2013; McCoy & Hermensen, 2007) and subjective point of view (McCoy & Hermensen). In contrast, recording the entire scene or model is referred to as scene view video modeling (Moore et al., 2013) or third-person perspective (Ayres & Langone, 2007) and the user acts as a spectator watching someone else.

Of interest to the current study is the perspective of the video when presenting multi-step adaptive living skills such as personal care, daily living, recreational, and vocational skills while using video prompting for the timing of video presentation. Point-of-view modeling and video prompting have been used to teach cleaning sunglasses, putting on a wrist watch, and zipping a jacket (Norman, Collins, & Schuster, 2001); cooking (Bereznak, Ayres, Mechling, & Alexander, 2012; Graves, Collins, Schuster, & Kleinert, 2005; Sigafoos et al., 2005); washing dishes (Cannella-Malone et al., 2011; Sigafoos et al., 2007); doing laundry (Bereznak et al.; Cannella-Malone et al.; Horn et al., 2008); putting away groceries and table setting (Cannella-Malone et al., 2006), taking and printing digital photographs (Edrisinha, O'Reilly, Choi, Sigafoos, & Lancioni, 2011), and pedestrian skills (Mechling & Seid, 2011).

Scene view modeling and video prompting have been used to teach sweeping and washing tables (Cannella-Malone, Wheaton, Wu, Tullis, & Park, 2012); vacuuming and washing tables (Cannella-Malone, Brooks, & Tullis, 2013); setting a table (Goodson, Sigafoos, O'Reilly, Cannella, & Lancioni, 2007); job skills at an animal kennel (Van Laarhoven, Johnson, Van Laarhvoven-Myers, Grider, & Grider, 2009); and cooking (Payne, Cannella-Malone, Tullis, & Sabielny, 2012).

Further, some studies have included both point-of-view and scene view perspectives (wide and zoom angle) when creating different steps within video prompting programs. These video programs, combining perspectives, have been used to teach cooking skills (Johnson, Blood, Freeman, & Simmons, 2013; Mechling, Ayres, Foster, & Bryant, 2013; Mechling, Gast, & Fields, 2008; Mechling, Foster, & Ayres, 2013; Mechling, Gast, & Seid, 2009; 2010; Mechling & Stephens, 2009; Van Laarhoven, Kraus, Karpman, Nizzi, & Valentino, 2010; Van Laarhoven & Van Laarhoven-Myers, 2006); cleaning (Mechling, Foster et al.; Van Laarhoven & Van Laarhoven-Myers), folding towels (Mechling, Foster et al.; Van Laarhoven et al.; Van Laarhoven & Van Laarhoven-Myers), and painting, listening to music, and using a

camera to take photos (Chan, Lambdin, Van Laarhoven, & Johnson, 2013). In comparison to using only one type of perspective per video step, Mechling and Seid (2011) describe a combination of point-of-view and scene view perspective (zoomed in from a wide to a narrow focus) when creating video prompts for individual steps of the task analysis.

Of the number of studies evaluating different perspectives when creating the videos, only one study compared the effects of point-of-view and scene view perspectives to prompt multi-step task completion (Ayres & Langone, 2007). Results of the study, when working with four students with autism, showed no clear superiority of one type of video model over the other. The purpose of the current study was to advance the research being conducted on the feature components that should be included when creating video models and specifically to compare different camera angles (point-of-view, scene view, and combination of views) when creating video prompting programs for students with moderate intellectual disability. While seeing the entire model in the video may provide information to the learner when skills require entire physical movements of the body, zoom shots of the model's hands may help with minimizing distractions (Horn et al., 2008; Mason, Davis et al., 2013) and allow the learner to more closely examine the features of the task. The research objective of the current study was to compare the ability of students with moderate intellectual disability to complete fine motor tasks when presented with video models created using a point-of-view perspective (zoomed in on the materials); (b) scene view perspective (zoomed out from the materials); and (c) a combination of point-of-view and scene view perspectives (zooming in on the materials from far to near) during creation of each video step of the task analysis.

Method

Participants

Participants in the study were three young adult females, each with a diagnosis of a moderate intellectual disability. The three students attended a transition program through the local school system. Teresa and Lacy had attended the program for two years while it was Qianna's first year in the program which was located on a university campus and had a strong community-based emphasis. The three females were recommended by the school teaching staff as participants in the study which included wrapping and decorating gifts. Each possessed the fine motor skills to manipulate scotch tape, ribbon, and other small manipulatives used in the study. Each had prior experience using computer-based instruction, but Teresa was the only student who had previously used a touch screen.

Teresa was 20 years and 9 months old at the completion of the study and had a diagnosis of moderate intellectual disability and hemi-plegia cerebral palsy (full scale IQ score 45 on the Wechsler Intelligence Scale for Children – Fourth Edition: WISC-IV: Wechsler, 2003). She was independently employed at a hair salon where she helped with cleaning tasks and various errands required by the hair stylists. She was independent in all of her personal care needs, carried her own identification card, and traveled to familiar locations independently. She was described as being a leader among her female friends although she needed reminders not to dominate or "boss" other students. She was able to cook simple dishes such as toast, eggs, and microwave dishes. She was learning to prepare stove top meals such as pasta primavera. It was reported that on weekends and school vacations she used public transportation with a friend and she was learning new routes. Teresa read community information with assistance, but read store flyers and simple grocery lists independently. She had difficulty reading orally and using decoding skills although she could decode simple consonant-vowel-consonant words. She wrote basic demographical information and was learning to write her first and last name in cursive. She enjoyed going to parties, interacting with peers, and shopping.

Qianna was 19 years and 11 months old at the completion of the study and had a diagnosis of moderate intellectual disability (full scale IQ score 52 on the Stanford-Binet Intelligence Scale – Fifth Edition: Thorndike, Hagan, & Sattler, 1986; composite score 55 on

the Adaptive Behavior Assessment System – Second Edition: Harrison & Oakland, 2000). She spoke in complete sentences, but was sometimes difficult to understand due to her articulation. She was polite and worked well with others, but when upset she used profanity and told lies about other students' and adults' behaviors. She needed assistance with brushing her hair and reminders to adjust her clothing and complete grooming skills. She used a washer, dryer, microwave, and toaster independently and was learning to prepare oven and stove top recipes. She read on a third grade reading level and enjoyed reading out loud. She was working on orally answering comprehension questions as well as composing her responses in writing. She could write sentences using subjects, verbs, capitalization, and punctuation. Her needs included composing paragraphs with sentences that linked thoughts and topics. She used a calculator and could complete simple addition, subtraction, and multiplication problems. She counted simple coin combinations and her needs included paying with correct change or rounding up to larger coins. She enjoyed watching videos, participating in sports and board games, and hanging out with friends.

Lacy was 20 years and 11 months old at the completion of the study and had a diagnosis of moderate intellectual disability and ADHD (full scale IQ score 54 on the Wechsler Intelligence Scale for Children – Fourth Edition: WISC-IV: Wechsler, 2003; composite score 72 on the Adaptive Behavior Assessment System – Second Edition: Harrison & Oakland, 2000). Her behavior was positive and she was easily excited about new tasks and helping others. She required reminders to use a quiet voice and was working on interacting with peers, adults, and family members with appropriate greetings, speaking in an adult voice, and using effective means to deal with conflict. She was independent in caring for her personal needs, but needed reminders to complete some personal hygiene such as washing, combing, and brushing her hair. She prepared simple meals with familiar appliances and completed household chores. She was learning to prepare a full-course meal and incorporating healthy foods. She followed pedestrian safety skills and rode the campus shuttle independently. She was working on using city bus routes and transfers. She read restaurant menus, safety signs, grocery store signs, bus schedules, and simple recipes. She answered comprehension questions (who and what), but was working on referring back to the text for more complex questions such as where and when. She wrote grocery lists and basic demographic information. She counted coin combinations to pay for purchases, but frequently became nervous and handed money to the cashier without counting it. She enjoyed volunteering at a local activity center, playing basketball, working with children, and socializing with peers.

Setting and Arrangement

All sessions took place in a university classroom in the building where the students' classroom was based. Two 6 ft. tables were pushed together lengthwise to hold the materials used for gift wrapping and the tablet PC used for delivering the video prompts. The tablet PC was positioned at the far right end of the tables with all of the materials positioned, in random order, to the left of the tablet PC. The student stood in front of the tables and to the left of the tablet PC when completing the gift wrapping tasks. Students could position themselves closer to the materials or pick up and move materials closer to the tablet PC and center of the table when wrapping the gifts. The instructor sat to the right of the tablet PC in order to provide assistance in advancing the PowerPoint slides if the program malfunctioned. When present, the reliability data collector sat behind the student and to the left of the table.

Materials and Equipment

Gift wrapping skills were used as the target tasks for the study (Stonecipher, Schuster, Collins, & Grisham-Brown, 1999) and required fine motor skills such as manipulating scotch tape, pulling the adhesive back off of ribbons, writing one's name, and inserting cards into envelopes. The three targeted gift wrapping tasks were: boxing and decorating gifts, wrapping and decorating gifts, and bagging and decorating gifts. Tasks required 6–8 clusters of steps (Table 1). Steps were clus-

TABLE 1

Steps for Gift Wrapping Tasks

Boxing and Decorating	*Wrapping and Decorating*	*Bagging and Decorating*
1. Open box	1. Unroll paper, put gift in middle of paper	1. Open bag
2. Hold tissue in left hand, hold tissue in rt hand, open tissue, put in box, push tissue down	2. Remove 4 pieces of tape and put tape on edge of table	2. Put one handful of shreds in the bag
3. Put gift in box	3. Fold over left edge of paper, fold over right edge of paper, put on tape	3. Put gift in bag
4. Fold left edge of tissue over gift, fold right edge of tissue over gift	4. Tuck and fold over left paper corner, tuck and fold over right paper corner, put on tape	4. Write name on yellow card, put card in envelope, put envelope in bag
5. Write name on green card, put card in envelope, put envelope in box	5. Turn box, tuck and fold over left paper corner, tuck and fold over right paper corner, put on tape	5. Put one handful of shreds in bag on top of gift
6. Close box, put side tabs in box, put red front tab in box	6. Turn box over	6. Squeeze birthday cake decoration clip, close bag handles, put clip on handles
7. Peel tab from ribbon, place ribbon on middle of box	7. Write name on small card, put card in envelope, put envelope on middle of box, put tape on envelope	
	8. Peel tab from bow, place bow on box beside envelope	

tered on the video clips to assist with the flow of task completion when using the start and stop method required of video prompting. The paper used to wrap the box was pre-cut and multiple examples were used for the bows across the gift box and wrapping the box task. Three different gift cards were used across the three gift wrapping tasks and students were required to sign their names on the specific card shown in the video.

Each step of the task analysis for each of the three gift wrapping tasks was filmed using a Sony HDR-CX160 Handycam. Each video clip included voiceover instructions, recorded by the camera operator, describing completion of the task step (i. e., "Put the sticky notes and pens in the bag"). For each step, three different video recordings were made: a) point-of-view (zoomed in on the materials and hands of the model); (b) scene view (zoomed out at a wide angle showing the materials, setting, and body of the model); and (c) combination of point-of-view and scene view (starting at a wide angle, showing the materials, setting, and body of the model, followed by using the zooming feature of the camera and finishing the video with the camera zoomed in on the materials and hands of the model). All videos, regardless of angle, were created with the camera positioned behind and above the shoulder level of the model.

All video prompts were converted and downloaded, one video per PowerPoint slide. Slides were then saved into nime different files, each file representing a different video perspectives for each of the three gift wrapping tasks. During the comparison phase of the study the video prompts were played on an ASUS Eee Slate EP121 tablet with Windows 7. The tablet had a 12.1 in. touch screen and was positioned vertically on the table using a folding stand. Students navigated between slides by touching an arrow (bottom right of each screen) with a stylus or finger which advanced the program to the next slide where the sub-

TABLE 2

Video Perspectives Across Gift Wrapping Tasks

	Teresa	*Qianna*	*Lacy*
Gift Box	CVM	VP	VM
Gift Wrap	VM	CVM	VP
Gift Bag	VP	VM	CVM

sequent task step video was programmed to play automatically.

Experimental Design

An adapted alternating treatments design (AATD) replicated across three participants was used (Wolery, Gast, & Hammond, 2010) to evaluate the relationship between the independent variables (three camera angle perspectives) and the dependent variable (percentage of task steps completed independently). Using the AATD, three similar but functionally independent behaviors (three gift wrapping tasks) each received a different independent variable (video perspective) during the comparison condition. Effort was made to select three tasks that were of the same difficulty level in terms of the number of steps and fine motor requirements, yet fundamentally different and independent of each other. The three camera angle formats for presenting the video prompts were counterbalanced across the three gift wrapping tasks and three students to control for possible effects of task difficulty (Table 2). The order of presentation of the gift wrapping tasks was also counterbalanced across sessions to control for possible sequence effects.

The AATD included an initial baseline, comparison, return to baseline, and final treatment condition. The purpose of the baseline condition was to evaluate performance on each of the gift wrapping tasks across each student prior to introduction of the video prompting procedures. The comparison condition served to evaluate the three video perspectives and continued for a minimum of six sessions and until data across the three interventions were stable or met criterion levels of 100% correct performance for one session (Wolery et al., 2010). Baseline procedures were re-introduced to measure performance across the three gift wrapping tasks without video prompting followed by the final treatment condition in which all three video perspectives were applied to all gift wrapping tasks. This condition was included to evaluate performance on each task when differing video perspectives were applied in addition to those used during the comparison condition.

Response Definitions and Data Collection

The dependent variable in the study was the correct completion of the three gift wrapping tasks which was defined as the percentage of steps of each task analysis completed independently correct. To be scored as a correct response during baseline, the student had to initiate a step within 3 s of the task direction or completion of the previous step, and complete the step within 1 min after initiation. The same criteria were used during the comparison and final treatment conditions except that the initiation and response times were measured following the completion of the video prompt. Some steps were clustered together on separate video clips and all steps were required to be completed correctly in order for the "cluster" to be considered correct. Incorrect responses were defined across all conditions as: (a) failure to initiate a step within 3 s; (b) failure to complete a step within 1 min; (c) topographical error; and (d) sequence error (step performed correctly but not in the sequence defined by the task analysis). Errors were ignored and no corrections were made by the instructor for errors during any of the conditions except to remind the student to watch the video if needed.

Procedure

Initial baseline and return to baseline procedure. Students engaged in baseline probes for three consecutive sessions or until data stabilized with no improvement across the three gift wrapping tasks. During these sessions, students were individually taken to the university classroom, directed to the tables containing the task materials, and provided with the task direction, "wrap the gifts." Students were provided with the opportunity to wrap all three gifts during each session and to do so in any order. Correct steps were intermittently ver-

bally reinforced as well as efforts for attempting the tasks. Students were also verbally reinforced at the end of the session for their participation.

Comparison procedure. Students received video prompting instruction on an individual basis three mornings per week. Sessions were conducted identically to baseline sessions (all materials present on the tables) with the addition of the tablet PC being positioned at the end of the table and programmed to play the target video prompting program. Only one gift wrapping task was completed per session. The instructor provided the task direction, "watch the video and wrap the gift." During the first session, the student watched the first video clip, the video paused, and the instructor gave the verbal prompt, "do what he did on the video." For all subsequent sessions the instructor provided only the initial task direction to watch the video and wrap the gifts without the need for further direction. The instructor responded to correct and incorrect responses identically to baseline procedures and students were verbally reinforced at the end of each session for their participation.

Final treatment procedure. Sessions during the final treatment procedure were conducted identically to those used during the comparison condition with only one task being completed per session. During this condition each gift wrapping task was completed one time using each of the three different video perspectives (9 total sessions). Application of the treatment and tasks were alternated across sessions so that no treatments or tasks were completed consecutively across sessions.

Social Validity

Informal interviews were conducted with students who were provided with an opportunity to answer questions that revolved around whether they enjoyed using the video prompts and whether the video prompts helped them with wrapping the gifts. Students were also questioned regarding their use of the newly acquired gift wrapping skills.

Inter-Observer Agreement and Procedural Reliability

Reliability data on the number of task steps performed correctly were collected by the second and third authors across 93.3% of all conditions (baseline: 83.3%, comparison: 100%, final treatment 100%). With the exception of one session for each task during the first baseline condition, two data collectors were present across all sessions with each participant.

Interobserver agreement on the steps performed correctly was calculated on a session-by-session basis for each student by dividing the number of agreements on each step by the number of agreements plus disagreements and multiplying by 100 (Ayres & Gast, 2010). Resulting mean inter-observer agreement ranged from 85.7–100% with a mean agreement of 98.6% across all conditions and students. Mean inter-observer agreement was 99% during the baseline condition (Teresa: 99%, Qianna: 100%, Lacy: 98.1%), 97.6% during the comparison condition (Teresa 98.4%, Qianna: 95.2%, Lacy: 99.2%), and 100% during the final treatment condition.

Procedural reliability data were collected simultaneously with inter-observer agreement on the following instructor behaviors: (a) materials positioned correctly on the table; (b) providing the correct video prompting perspective per session; (c) advancement of the slides in response to students touching the screen; and (d) providing no instructor prompts for step completion. Procedural fidelity was calculated by dividing the number of observed behaviors of the instructor by the number of planned behaviors and multiplying by 100 (Billingsley, White, & Munson, 1980). Results indicated 99.5% adherence to the procedures. The majority of the errors were related to the computer program failing to advance to the correct slide, video captions not playing immediately when the slide advanced, and the computer program skipping a slide if the student held her finger on the screen too long.

Results

Results of this study showed minimal differences in performance across the three stu-

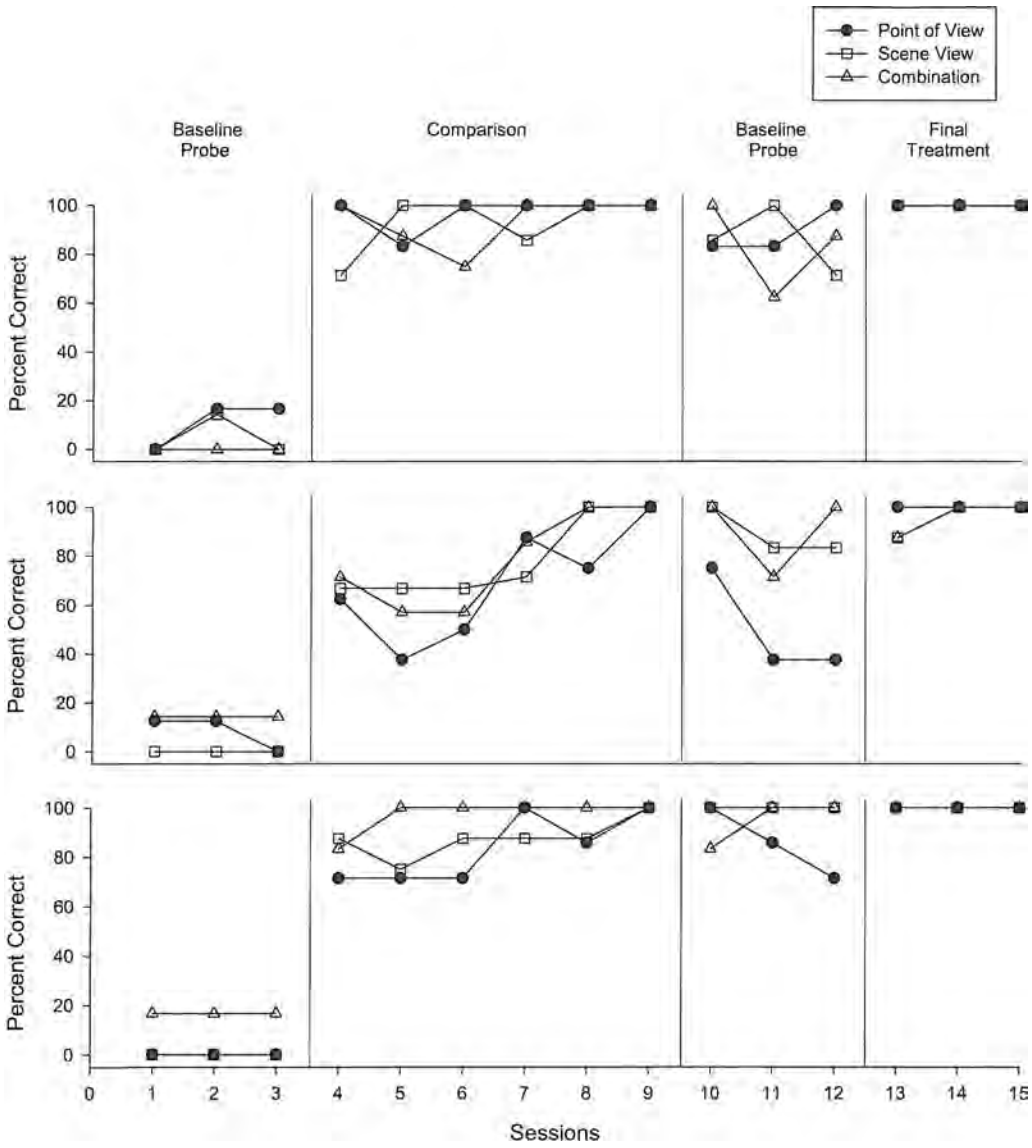

Figure 1. Percentage of task steps completed for each student across three video perspectives: point-of-view (closed circle); scene view (open squares); combination of point-of-view and scene view (open triangles). Baseline data represent performance with the corresponding tasks used by each student under the three video conditions, no video perspectives used during baseline.

dents regardless of the video perspective used (point-of-view, scene view, combination of point-of-view and scene view) with overlapping data across the three interventions and students. Each student reached criteria, 100% for one session, within six sessions when using all three video perspective interventions (Figure 1). Teresa reached criteria with both the point-of-view and combination video perspectives on the first session of intervention and with the scene view video perspective on the second session. Although she demonstrated criteria levels with all three procedures on her fifth session, the predetermined procedure was set to continue intervention with each procedure for a minimum of six sessions.

TABLE 3

Percentage of Errors under Each Intervention and Across Gift Wrapping Tasks

	Teresa		*Qianna*		*Lacy*		*All Students*	
	Comparison	*Final Treatment*	*Comparison*	*Final Treatment*	*Comparison*	*Final Treatment*	*Comparison*	*Final Treatment*
Point-of-view	2.8	0	35.4	0	16.7	0	19.8	0
Scene view	7.1	0	19.4	4.8	12.5	0	12.7	1.6
Combination	6.3	0	2.1	4.8	2.8	0	10.3	1.6
Gift box	7.1	0	2.1	0	16.7	0	15.1	0
Gift wrap	6.3	0	35.4	.83	12.5	0	18.1	2.8
Gift bag	2.8	0	19.4	0	2.8	0	8.3	0

Qianna reached criteria with scene view and combination video perspectives on Session 5 and with the point-of-view procedure on her sixth session. Lacy reached criteria with the combination procedure on Session 2 and maintained her level of performance across the remaining sessions. She reached criteria with the point-of-view procedure on session four and with the scene view procedure on Session 6.

When the video prompts were removed, students' performances varied with some indications of difficulty when performing the gift wrapping tasks. Teresa completed each task at 100% correct for one session, but when wrapping the gift her performance dropped to 62.5% correct on her second session. Lacy also completed each of the three tasks at 100% correct, making no errors for wrapping the gift and making errors for only one session when using the gift bag task. Her performance, when using the gift box, dropped to 71.4% correct. Qianna demonstrated more variability across the three tasks when the video prompts were removed, however she did complete the gift box and gift bag tasks with 100% accuracy for at least one session. She had difficulty wrapping the gift when using the wrapping paper and completed only 37.5% of the steps correctly across two sessions.

While each student showed some decreases in performance when video prompting was removed, all three students performed at criteria levels during the final treatment condition using each of the video perspectives across all three gift wrapping tasks.

Efficiency Data

Data were collected on the percent of errors to complete each task under the three video perspectives during the comparison and final treatment conditions (Table 3). Overall, sessions whereby a combination camera angle was used (zooming in on the materials from far to near), resulted in fewer errors. Qianna had the most difficulty using video prompting during the comparison condition, but she committed the least amount of errors when using the combination perspective (2.1%). Likewise, Lacy committed the least amount of errors when using the combination perspective (2.8%). Teresa committed the least amount of errors among the three students and performed best, in terms of errors, when using the point-of-view perspective. In the final treatment condition, in which the three different video perspectives were used with all three gift wrapping tasks, Teresa and Lacy made no errors while Qianna only committed one error when using the scene view and combination perspectives.

Social Validity

All students stated that they enjoyed using video prompting and that it helped them wrap the gifts. Teresa said that it helped her to "know what to do." At the beginning of the study the students reported that they did not help wrap gifts at home and at the end of the study each reported that she felt her gift wrapping skills had improved. Lacy reported that she was going to help her mother wrap Christ-

mas gifts this year and at the end of the study, Teresa reported that she had helped her mother wrap a gift.

Discussion

Similar to the results in the Ayres and Langone (2007) study when comparing point-of-view and scene view video modeling, results of the current study did not provide a clear indication of superiority of one video perspective over the other. Students reached criteria levels with all of the video interventions as indicated in the figure. Measures of efficiency in Table 3 show that task completion when using the combination (far to near) video perspective was more efficient for two of the three students (fewer errors).

Efficiency measures indicate a small difference in favor of zooming from a wide angle (full view of the model) to a zoom shot of the model's hands. This may indicate that when completing fine motor tasks, such as those used in the study, participants may find it helpful to first see the entire scene of the task followed by a close-up perspective of the intricate steps of the task. However, it should be recognized that the tasks used were all fine motor in nature and further studies will be needed with tasks requiring other behaviors such as those using gross motor and communication skills, both discrete and multi-step in nature. In a recent study comparing gross and fine motor task performance by students with moderate intellectual disability and autism, Mechling and Swindle (2013) used scene view (entire body of an adult) when video recording gross motor skills and zoomed in on the hands and upper body of the model (point-of-view) when video recording fine motor tasks. From their procedures, it still remains unclear whether one camera perspective is more effective with gross motor tasks since only one angle (scene view) was used. Likewise, Mechling, Ayres, Purrazzella, and Purrazzella (2012) used both point-of-view and scene view perspectives when comparing fine and gross motor task completion by adults with moderate intellectual disabilities, but both perspectives were used with each type of task.

One limitation of the current study may have been in the selection and equating of the gift wrapping tasks. Effort was made to select three gift wrapping tasks that were functionally independent and analysis of the three gift wrapping tasks in Table 2 shows that each student made errors across the different types of gifts. However, Teresa and Lacy made minimal errors when using the gift bag which may indicate that this task, with fewer steps, may have been simpler to perform. In particular, Qianna's data may have influenced the overall efficiency data as she committed 35.4% of her errors when the camera perspective was zoomed in on the materials for the wrapping gift task. It is possible that the camera angle was not the reason for her level of performance, but instead her difficulty with using the wrapping paper may have affected her performance. This notion is supported by the data when the video prompts were removed and her task performance was lower when using the wrapping paper.

While the results of this study add to previous research supporting use of video prompting, regardless of the video perspective, more work remains to be done to tease out the individual video variables that are critical when developing instructional videos. Features such as the person in the video, video perspective, use of audio, as well as material and equipment types used in the video, are some of the identified variables which have been researched and which warrant further evaluation. It appears that the field is still not in a position to make clear recommendations on the critical characteristics that make a superior video. Once these critical characteristics are identified, then creators of instructional videos can use them in isolation or combine the most salient features into each video program in an effort to create the most effective and efficient means of video instruction. Although these features may vary according to the task and level of disability of the user, it is likely that critical video features will be consistent across many of these variables and one crucial way to determine this is through comparative studies such as the one conducted in the current study.

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