A comparison of staff training procedures using Teacher Performance and Rate Accuracy (TPRA) and TPRA paired with video

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ABSTRACT

Repetitive, stereotypic behaviors often interfere with or replace appropriate toy play for children with autism spectrum disorders. In order to reduce and limit stereotypic behavior and increase appropriate play, toy conditioning procedures have been effective. It is imperative that staff working with children using toy conditioning procedures understand and have the ability to implement the strategy with fidelity. This study tested the effectiveness of two training and coaching models for teaching interventionist level staff to implement toy conditioning procedures. Six behavior interventionists delivering instruction to learners with autism in their homes were participants for this study. All participants were observed implementing toy conditioning procedures with a preschool aged child with autism while a supervisor recorded data using the TPRA (Teacher Performance and Rate Accuracy) on the child's appropriate play and the participant's correct implementation of reinforcement or correction procedures during 20 5-second intervals, using whole interval recording. Three of the participants were given feedback using data from the TPRA as a guide for coaching. Three additional participants were given feedback with TPRA and also observed themselves implementing the procedure on video. The study compared the effectiveness of feedback with the TPRA alone and feedback with TPRA paired with video coaching.

PARTICIPANTS

Participants: Six behavior interventionists employed by a non-public agency were participants for this study. Each interventionist was paired with a child participant. Interventionist staff were females in their 20s, holding a Bachelor's or Master's Degree in a special education related field. All staff received 40 hours of initial training prior to beginning independent service delivery with clients. The training included a combination of classroom lecture on the basics of Applied Behavior Analysis, data collection and graphing and program instruction as well as shadowing of senior staff implementing programs with clients. Interventionists chosen for this study demonstrated the need for improvement on the toy conditioning procedure. Each child additionally showed deficits in appropriate toy play during sessions. Child participants were boys, ages three to six and all had a diagnosis of autism. Performance data and feedback were collected and given by the interventionist's regular program supervisor.

SETTING

Instruction occurred in family homes during regular scheduled therapy sessions. Feedback and follow up for participants was given in the family homes during regular scheduled supervision sessions, or at the company office during supervision meetings with senior staff. Materials present during sessions were appropriate preschool toys, such as coloring books, puzzles, blocks and toy vehicles.

VARIABLES & MEASUREMENT

Dependent Variable:
Percentage of the instructor's appropriate consequence delivery

Independent Variable:
Feedback with TPRA or feedback with TPRA and video

Measurement: The Teacher Performance and Rate Accuracy (TPRA) was used in this study. The child's appropriate engagement with the toy or activity was recorded using whole interval recording of 5 second intervals during toy conditoning. If the child was engaged appropriately for the entire 5 second interval, he was scored a "+" or correct for the interval. The interventionist's appropriate use of consequence strategy (reinforcing appropriate behavior or correct non-engagement) was scored using partial interval recording. If the interventionist delivered a minimum of one act of reinforcement (reinforcing statement, tickle, back rub, high five, etc..) during any interval in which a child was fully engaged, she was scored as "R." If she corrected any errors or appropriately attempted to redirect engagement for any intervals the child was not engaged, she was scored a "C." Errors of the consequence delivery were scored as "R" or "C" and were circled to indicate that a reinforcer or correction should have occurred but did not, or were implemented incorrectly. Percentage of child engagement and instructor consequences were calculated for each set of trials by total number of correct responses by the total number of intervals and multiplied by 100.
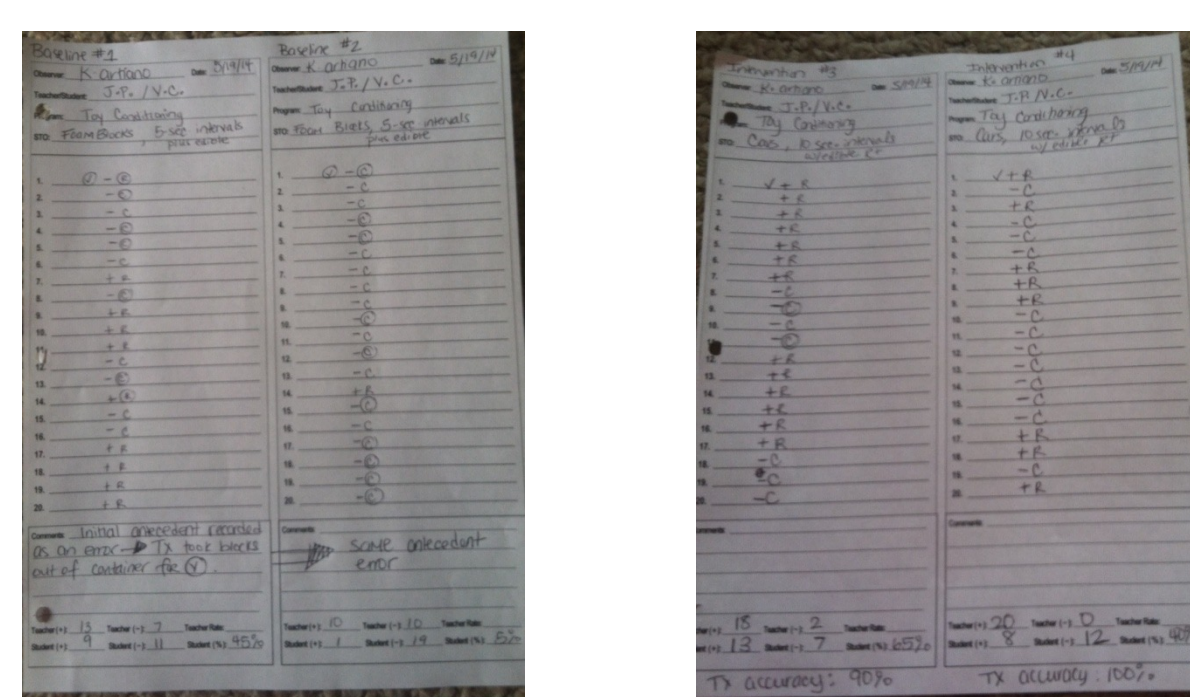
PROCEDURE

BASELINE

Participants were observed and videotaped running a toy conditioning procedure with their target students. TPRAs were used to score the child's appropriate engagement with toys or activities and the instructor's correct delivery of consequences.

INTERVENTION – FEEDBACK WITH TPRA OR TPRA AND VIDEO

After baseline was established, participants were given feedback on their performance during toy conditioning sessions. Half of the participants were asked by their supervisors to watch videos of themselves implementing the procedure with the focus child. They were coached while watching the video using the measures on the TPRA as a guide. The second half of the participants were not asked to watch videos of themselves following intervention and were merely given feedback using the TPRA as a guide. Statements given to interventionists during feedback sessions related directly to the scores on the TPRA, such as, "your child wasn't engaged with the toy, but you said 'good job,' anyway. Next time, be sure to attend to engagement and re-direct if necessary" or "Great job seeing that he was off task and getting him re-engaged!"

POST-INTEVENTION PROBE

After being given a feedback session, the interventionist was observed again implementing the toy conditioning procedure. Data was again collected using the same measurements as during baseline.

MAINTENANCE

For one participant, post-follow-up data collected. After she achieved mastery of skills during post-intervention, she was observed again two months later, with two different children, in their homes, to assess for skill maintenance.

RESULTS

TPRA paired with video condition:
Jane showed an average of correct use of consequences during 45% of opportunities during baseline. After intervention, she showed an immediate increase to 60% accuracy. She showed an increasing trend until she demonstrated 100% of consequences appropriately on her third opportunity. She continued to implement her consequences correctly 90-100% of sessions and carried this over into maintenance, when she was observed two months later and demonstrated 100% of skill use across four different toys. Kim showed an average of 48% correct consequence use in baseline and immediately showed 90-100% correct consequence use following intervention. Lily demonstrated an average of 10% correct use of consequences during sessions during baseline. After intervention, she continued to display extremely low use of skills, and used consequences correctly less than 5% of opportunities.

TPRA only condition:
During baseline, Terri demonstrated correct use of consequences an average of 73% of opportunities. Following intervention, she showed an initial improvement to 82%, then a decrease before demonstrating correct use of consequences 90 and 100% across two observations. During baseline, Stacy showed an average of 55% for consequence delivery, and following intervention, Stacy's student was hospitalized for illness and was not able to complete the study. During baseline, Elaine showed an average of 58% correct use of consequences. Following intervention, she initially used consequences 85% of opportunities, then had a slight decrease (not to baseline) to 70%, then scored 90 and 100% in her last two observations.

LITERATURE REVIEW

•Stereotypic behavior and passive behavior may be serving a play function for children on the autism spectrum (Greer and Ross, 2008; Nuzzolo-Gomez, et al., 2002)
•Toy conditioning procedures have been successful in reducing stereotypy in individuals with autism (Greer, et al., 1985; Nuzzolo-Gomez, et al, 2002).
•The TPRA (Teacher Performance Rate and Accuracy form) has been studied for its effectiveness at increasing skills in staff and students. Rate and accuracy feedback given to staff on their instruction with students with disabilities has been shown to increase teacher performance and student learning (Ingham and Greer, 1992).
•Feedback has been shown to improve teacher performance and learning opportunities for students (Hall, et al., 2010).
•Modeling and Video Feedback have been effective at improving staff implementation of Pivotal Response Training techniques (Robinson, 2011).
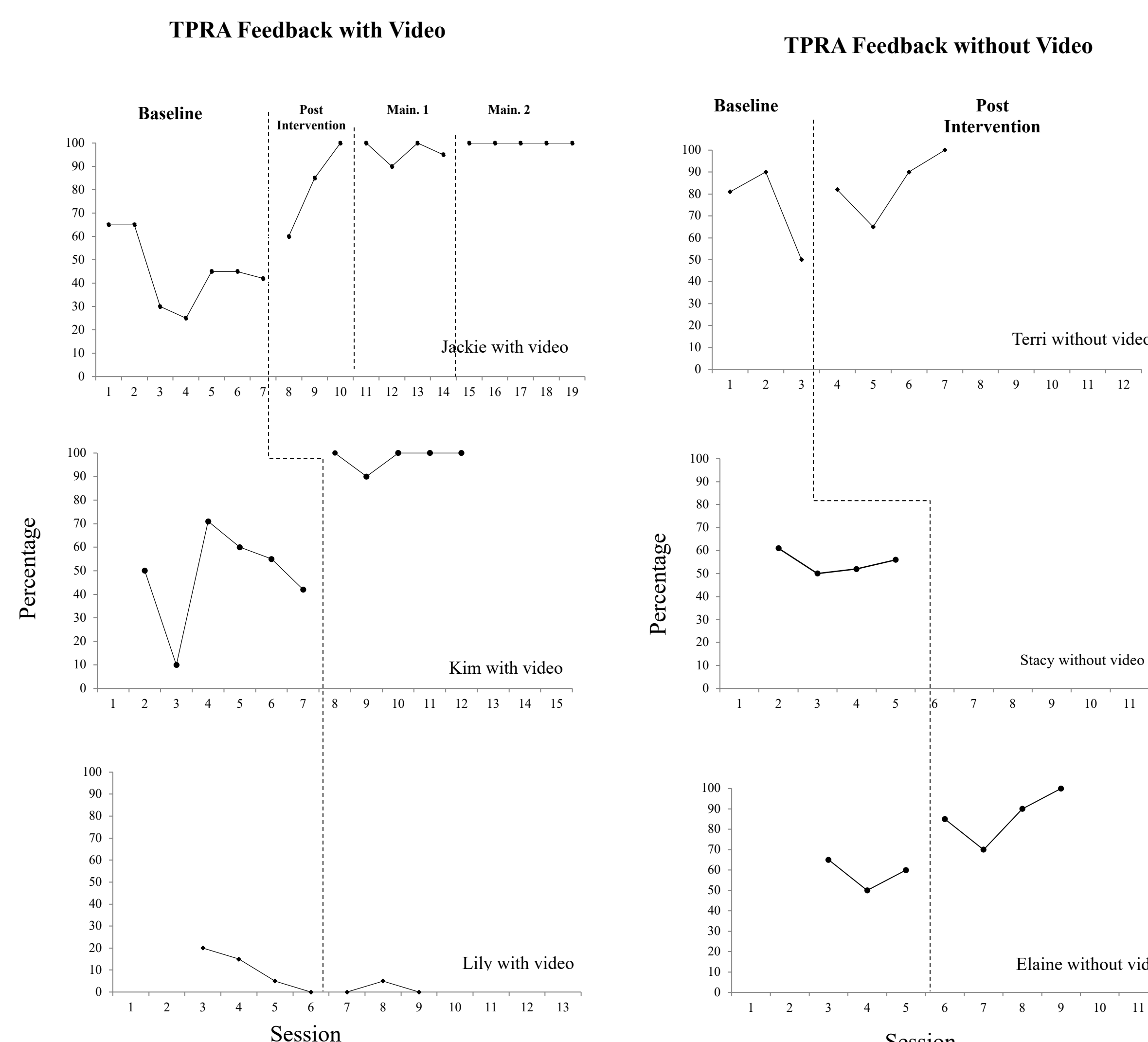
CALIBRATION AND AGREEMENT

Prior to collecting TPRA data on interventionist performance, supervisors reviewed videos of toy conditioning procedures until a minimum of 85% agreement was achieved. Strategies for data collection were discussed, as well as how to interpret appropriate reinforcements or corrections during the toy conditioning procedures. IOA was additionally collected for two of the six participants during baseline and was a minimum of 87% agreement.

DISCUSSION

For two of the three participants who viewed videos of themselves while they were provided feedback using the TPRA completed by their supervisor, there was a noticeable increase in appropriate use of reinforcement or corrections during sessions while running the toy conditioning procedure. The first participant, Jane, was scored at 100% over several observations and carried her skills over into a maintenance period as well, continuing to demonstrate appropriate skill use after 2 months of being given no specific feedback on her toy conditioning performance with a TPRA. The third participant, Lily, in the video setting showed no change in her performance and her appropriate use of reinforcement and corrections remained low after intervention. For two of the three participants who received feedback from their supervisors with TPRA only, 100% correct use of consequence during the toy conditioning procedure was achieved. Results indicate that using TPRA feedback either paired with video, or on its own may be effective feedback strategies to use for staff training purposes and program supervision for implementation of a toy conditioning procedure. Limitations of this study include the interventionist who was unable to complete the study due to severe illness of her student and lack of follow up maintenance data for all but one participant. Continued research on this topic with more participants across age groups of students is recommended. Further research on TPRA and its effectiveness at improving staff skills across programs would be important as well.

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