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Finding Reinforcers: Using behavior skills training over telehealth to instruct educators to perform preference assessments with students.

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Finding Reinforcers: Using behavior skills training over telehealth to instruct educators to perform preference assessments with students.

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Abstract

Future and current educators working with students in an early childhood education setting should use positive reinforcement for their students to increase behaviors. If proper assessment of student preferences is ignored reinforcers used in a classroom will prove to be insufficient. The present research sought to determine the feasibility of using behavioral skill training (BST) over a telehealth platform to teach paired stimulus preference assessments to educators. The feasibility of this platform is evident by the rapid skill acquisition and mastery of two preschool educators who accurately completed the component skill necessary to develop a preferential hierarchy. This paper will address the successes and limitations associated with a telehealth training platform. Discussed are also future replications needed to establish this format as one that is effective across populations.

Keywords: behavior skill training, preference assessment, reinforcement, educator training

Introduction

Supervision and Consultation

A Board-Certified Behavior Analyst (BCBA) is responsible for the supervision of others who perform behavioral interventions without constant supervision. A supervisee is anyone providing Applied Behavior Analysis (ABA) services to a client assigned by a BCBA to (BACB, 2014). The Behavior Analyst Certification Board (BACB) specifies in ethical code item 5.03a that a BCBA must only delegate tasks to a supervisee who "can reasonably be expected to perform competently, ethically, and safely" (BACB, 2014, p.14). To set up a supervisee to meet these qualifications for task delegation, the BCBA must set up a training procedure that is "behavior analytic in content, effectively and ethically designed" as well as designing a feedback and reinforcement system in a way that improves performance (BACB, 2014, p.14). A training procedure is described as behavior analytic when the evidence-based methods of ABA are used to develop and train supervisees. By following the BCBA ethical compliance code, the BCBA can ensure they are using instructional techniques that are behavior-analytic and effective in order to increase the supervisee's mastery of any appropriate skill.

Lerman et al. (2004) stated that with increased school enrollment of students with autism spectrum disorder and related conditions, the demand for teachers trained in ABA services is growing. Educators trained to deliver ABA services in their classrooms will act proactively to provide affective instruction and limit the occurrence of problem behaviors. Educators can hold teacher licensure or be in pursuit of teacher licensure. Educators may also not require licensure as a paraprofessional or teachers assistant. Degrees in education are correlated with teaching effectiveness (Chingos, 2011).

Research regularly identifies the correlation of "teacher effectiveness" as educators gain additional years of experience with the addition of on-the-job (Chingos, 2011, pg.449). Professional development activities may vary across teachers and paraprofessionals and the quality of such professional development is not consistent (McCulloh & Noonan, 2013). Paraprofessionals are non-licensed educators who typically work one-to-one with students to provide them with individualized instruction (McCulloh & Noonan, 2013). All educators need to be effectively trained and supported to implement evidence-based ABA practices to promote student learning when providing individual instruction (Brock & Carter, 2013). Behavior analysts must assure any supervisee including educators reach and maintain of mastery skills. This allows for the assure that individual instruction is implemented to fidelity by the educator responsible for its administration.

Behavior-analytic strategies are used across settings to teach educators how to perform ABA-based procedures. Vuran & Olçay (2012) used an on-the-job training to teach special education teachers to use simultaneous prompting during discrete trial training with their students. Bovi et al. (2017) used Behavior Skill Training (BST) with voice-over video modeling to teach educators to perform and score a multiple stimulus without replacement preference assessment. Lerman et al. (2004) demonstrated BST could be used to train educators to perform a number of ABA-based procedures.

Behavioral Skills Training

Behavioral skills training (BST) is used to teach a variety of skills and protocols to educators. BST is an instructional treatment package utilizing instruction, modeling, rehearsal, and feedback (i.e., positive and corrective feedback) to teach a new skill (DiGennaro Reed et al., 2018). This evidence-based practice is successful in training

educators on new skills such as discrete trial instruction, preference assessments, and more (Lerman et al., 2004). By using this staff training model, the BCBA can ensure educators' confidence and competence performing the skill and collect any associated data (Dibs et. al, 2007; Lavie, 2002). When educators have mastered a behavior analytic skills (e.g., preference assessments, discrete trial teaching, providing non contingent reinforcement), a BCBA can serve a wider range of classes and clients.

Positive Reinforcement

Positive reinforcement is a behavioral principle used to increase a target behavior. Positive reinforcement occurs when a stimulus presented immediately after a behavior increases the future frequency of that behavior occurring when placed under similar conditions (Cooper et al., 2007). Stimuli that may function as a reinforcer include social attention (e.g., high fives or verbal affirmations), a tangible (e.g., time playing with a toy, food), sensory stimuli (e.g., listening to a song), or escaping a situation. Some reinforcers may be similar across individuals, but the majority of their preferred reinforcers will be unique to the individual. Using stimuli that are nonpreferred for that individual may not increase the target behavior. Determining individually reinforcing stimuli requires learning about a student's interest and performing a preference assessment.

Preference Assessments

Preference assessments are procedures for determining an individual's preferential hierarchy of predetermined sets of stimuli (Deloperi et. al, 2015). Indirect assessments utilize a checklist or a Likert-type scale during an interview. Whereas a direct assessment method allows an individual the opportunity to interact with each stimulus. Single stimulus, paired-stimulus, and multiple-stimulus procedures are

approach-based preference assessments which use direct measures to determine an individual's preference. This type of approach-based preference assessment indicates the number of stimuli presented during each trial (Hagopian, et al, 2004).

Paired Stimulus Preference Assessments

A paired-stimulus procedure is conducted by presenting stimuli in pairs during each trial and allowing the individual to make a selection and interact with the item (Fisher et al., 1992). Presentation of paired stimuli utilizes alternating the location on the right or left to reduce side bias. Pairs are varied to determine which stimuli have preferential value more accurately. All selections are recorded on a data sheet to aid in creating the preferential hierarchy. Paired stimulus preference assessments are selected for students who may have difficulty choosing from more than two options of stimuli due to their level of functioning or their physical abilities (Hagopian et al., 2004). This procedure may be lengthy to administer, but the results provide a preference hierarchy that can predict reinforcer effectiveness from the assorted group of stimuli (Fisher et al., 1992, Hagopian et al., 2004; Ciccone et al., 2015). Ciccone et al. (2015) showed that clinicians were able to select reinforcing stimuli from a paired-stimulus preference assessment in order to increase responding in three individuals with Autism. Preference assessment methods have shown to yield similar effectiveness with the elderly, adolescents, preschoolers, and individuals with developmental disabilities (Pence et al., 2012).

Yielding effective results from any assessment requires effective training. Lavie and Sturmey (2002) used behavioral skills training (BST) to train educational staff to conduct paired stimulus preference assessments. They used a multiple baseline design

across three educators to teach how to conduct a paired stimulus preference assessment. Prior to intervention, staff reported difficulties identifying stimuli that functioned as reinforcers for their students. During baseline, the educators had all the materials necessary to conduct a paired stimulus preference assessment. They were told without any explanation to perform the assessment. After instruction using (BST), each participant was able to conduct the assessment with 100% accuracy, but they were not assessed on scoring the results of the preference assessment (Lavie & Sturmey, 2002. Future replications should include full training for conducting a paired stimulus preference assessment that also seeks to effectively train educators to score their assessment data.

Research Gaps

Currently, the 2020 global pandemic, COVID-19 has limited in-person training due to the potential risk of spreading the novel coronavirus. Telehealth services are implemented more frequently since the beginning of the pandemic outbreak to provide direct Applied Behavior Analysis (ABA) services to clients (Zoder-Martell et al., 2020). Research has yet to explore how effectively telehealth services aid in training educators to conduct ABA-based procedures, including preference assessments. Telehealth has the potential to provide professional development to educators virtually, but current data is lacking to justify its use in teaching educators to conduct assessments such as a paired stimulus preference assessment.

The aim of this study is to address the effectiveness of using telehealth to teach educators to conduct paired stimulus preference assessments by using BST. The following research questions guided this study:

1. To what effect can behavior skills training over a telehealth format be used to train educators to conduct a paired stimulus preference assessment to develop a reinforcement hierarchy in the natural setting?
2. Is telehealth an effective format for training educators to perform ABA-based procedures including preference assessments?
3. Does behavior skills training over telehealth result in preference assessment skills that maintain over time once intervention as ended?”

Literature Review

This literature review highlights how the current literature has addressed the use of Applied Behavior Analysis (ABA)-based procedures, behavioral skills training (BST), preference assessments, video modeling, and telehealth services. The studies included are all scholarly peer-reviewed articles. The researcher collected articles using Google Scholar, Association for Behavior Analysis International Journal publications, and the James Madison Library Catalog. Cooper et al. (2007) was utilized to develop definitions related to the topic. Keywords used while searching include behavior skill training, behavior skill training and paraprofessionals, training paraprofessionals, behavior skill training, preference assessments, and telehealth.

Training Educators in ABA-based Procedures

Training others to perform evidence-based, ABA procedures are one of the primary aspects of service delivery for BCBAs (Tomilson, 2018). BCBAs train educators using in person modes of instruction. BCBAs teach educators new skills to improve their classroom management, capability to support individual students, and increase the effectiveness of their content delivery. In-person training allows BCBAs to ensure educators can perform a new skill in their natural environment. Schepis et al. (2001) conducted a study using classroom-based and on-the-job training to increase educator usage of prompting strategies to engage students in embedded teaching opportunities. Classroom-based instruction allowed for the support staff to be able to learn how to use the skill and practice the skill appropriately in a contrived setting before using the skill with real students. When the support staff moved to the on-the-job training, trainer

observations provided feedback for using the new skill with their students in the natural setting (Schepis et al., 2001).

Educators trained to perform ABA-based procedures should see student improvement as a result of training. One of the goals of training educators is that the specific behaviors of the students they instruct change as a result of their improvement on the trained skill (Schepis et al., 2001). Dib and Sturmey (2007) effectively improved three teacher assistants' implementations of discrete-trial training to reduce their students' stereotypy. By training teacher-assistants to perform discrete-trial training, they acquired skills to create a "reinforcer rich environment" to strengthen the frequency of their students' incompatible behaviors and minimize the aversiveness of learning (Dib & Sturmey, 2007). Educators who are capable of altering the environment with ABA-based procedures impact the behaviors of the target students in intervention as well as their peers.

McCulloh and Noonan (2013) studied a viable and efficient alternative to typical in-person training methods. They used online self-paced training videos and a corresponding checklist to teach paraprofessionals who had no prior ABA-based training how to implement mand training in a public-school setting. As adults became more proficient in mand training procedures, the students had a functional increase in their production of mands. McCulloh and Noonan (2013) determined that self-paced video training methods were efficient for the individuals who volunteered to learn the new skill. For individuals who had issues accessing the materials due to technological and internet issues, it is uncertain how they would perform. Additional research is needed to support

the participants' current technological skillsets. This additional research would allow researchers to further examine the effectiveness of self-paced video training.

Marano et al. (2020) used a self-paced video module approach to teaching stimulus preference assessments to college graduates working with students with autism spectrum disorder (ASD). Video models depicted each step of the skill being performed accurately or inaccurately. Trainees were asked a series of questions that mimicked the feedback processes after watching the videos. (Marano et al., 2020). The final modules included novel videos for the trainees to observe. The graduate students identified if each step was completed accurately or inaccurately while viewing the videos. They responded with 100% accuracy before the training ceased. Follow-up probes indicated that the act of observing and scoring another person's performance generalized to the individual's implementation of the skill with 100% accuracy.

Behavior Skill Training

BST is an evidence-based practice utilizing a procedural treatment package to increase skill acquisition of the trainee (DiGennaro Reed et al., 2018; Parsons et al., 2013). The treatment package consists of the following components 1) instructions 2) modeling 3) rehearsal and 4) feedback. Trainer instructions for the skill, are typically written out and paired with a corresponding vocal explanation (DiGennaro Reed et al., 2018). After the trainer provides instructions, a model of the skill is shown to the trainee to depict how the skill is performed to mastery. Modeling is effectively implemented using either live examples or prerecorded video model (DiGennaro Reed et al., 2018). Trainees then have the opportunity to practice the given skill with a trainer present to make note of any steps performed correctly and any that require further practice. The

trainer must be able to view the rehearsal component so that they have objective comments to provide the trainee during feedback. Trainer feedback is given to the trainee in the form of behavior-specific positive statements and constructive comments on behavior-specific corrections. Trainers repeats the steps of BST as needed to until the trainee obtains mastery of the taught skill.

Lerman et al. (2004) conducted in-person training by using BST to teach educators to perform three types of preference assessments, three types of direct teaching methods, and incidental teaching. Educator used their own methods to determine the necessary information during baseline. The instructors taught teachers to conduct the evidence-based practices corresponding to a provides handout. Instructors observed the teachers as role played the skill until mastery was achieved. The instructors than observed the teachers performing the skills in their classrooms. Data shows the participating educators reached mastery during role-play sessions which effectively generalized to their classroom settings.

Preference Assessments

Stimulus preference assessments have shown to be effective in determining preferential stimuli for students with developmental disabilities or with other neurologically diverse individuals (Ciccone et al, 2015; Graff & Karsten, 2012; Hagopian et al., 2004; Hansard and Kazemi, 2018; Marano et al., 2020; Roscoe et al., 2008). The goal of preference assessments is to determine the stimuli that are of a high, medium, and low preference for an individual (Hagopian et al., 2004). By understanding the preferential order of stimuli, the assessor can identify an array of stimuli that are probable potent reinforcers. Preference assessments should be the "first step when developing

behavioral programs for increasing appropriate behaviors" (Roscoe et al., 2008, p. 249). Identifying preferential stimuli are important when using positive reinforcement procedures (Cooper et al., 2007). Ciccone et al. (2015) tested researchers' ability to select stimuli to be used in behavior treatment when given an ordered list of preferential stimuli. Selected high preference stimuli positively reinforced behavior, whereas the low preference stimuli minimally reinforced behavior.

Lavie and Sturmey (2002) successfully trained three assistant teachers at a school for children with Autism to conduct paired stimulus preference assessments to mastery within 80 min. Roscoe et al. (2008) assessed a rapid 80 min BST method to train newly hired registered behavior technicians (RBTs) to conduct both paired stimulus and multiple stimuli without replacement preference assessments. RBTs obtained mastery-level performance within only one training session (Roscoe et al., 2008). The researcher attributed their success to the use of feedback and role play practice but failed to assess generalization of mastery across individuals. By testing the effectiveness of such rapid training across individual researchers would be able to further the training method's utility. BST requires a long time to effectively train the novel skills to an individual. Current literature has continued to evaluate how to use BST in a more time and cost-effective format.

Video Modeling and Feedback in BST

In 2017, Bovi et al. conducted a multiple baseline design across two participants to teach school staff a 13-step task analysis for performing multiple stimuli without replacement preference assessments and how to score the results. The researchers utilized voice-over video models to explain the steps of the task analysis as they were being

performed. During the practice phase of the study, the participants interacted with simulated responses to replicate various ways a student may respond. Both participants showed increased success in implementing the preference assessment correctly after BST occurred. Additional trials with real students would be beneficial to identify participants' skill generalization.

Video modeling in recent literature explores how its usage can reduce the need for a BCBA to directly deliver in-person training. Deliperi et al. (2015) addressed the how early interventionists performed a paired stimulus preference assessment when video modeling with voice-over instruction (VMVO) was used. Early interventionists learned to give the paired stimulus preference assessment without trainer involvement during video modeling and without feedback. Results demonstrated durability 2 months post-follow up training (Deliperi et al., 2015). Graff and Karsten (2012) addressed how to train staff without having a BCBA present using enhanced instruction. The study used detailed, jargon-free instructions which included pictures, diagrams, and step-by-step examples (Graff & Karsten, 2012). The enhanced instructions proved to be effective in comparison to providing solely written instructions or instructions and datasheet pairs. These studies provided evidence that in some settings feedback may not be necessary. Further research is required to determine the specific training circumstances in which feedback is not necessary.

Limitations of BST

Evidence-based practices have limitations under novel circumstances. Using BST with educators to complete ABA-based procedures requires a trainer to be present to deliver the instructional program with fidelity. The trainer's presence can limit the

available time left to train additional people or include additional skills ultimately bringing the cost-effectiveness of the training into question (Tomlinson, 2018). Access to in-person BST can be difficult in rural areas with limited trainers nearby (Tomlinson, 2018; Higgins et al., 2017). In order to disseminate evidence-based practices, we must evaluate ways to increase client access to trainings when in-person attendance is not a viable option. BST is an effective strategy for training individuals to perform new skills but we must evaluate how to make it more cost effective and more widely accessible. Researchers suggest self-training checklists and video modeling as viable options for learning skills without a trainer present, but those techniques only use components of BST, not the full training package (Deliperi et al., 2015; Graff & Karsten, 2012; Marano et al., 2020; McCulloh & Noonan, 2013).

Telehealth

Telehealth can be a way of addressing the limitations of BST. Tomlinson et al. (2017) defined telehealth as "the use of telecommunications and information technology to provide access to health (or behavioral health) assessment, diagnosis, intervention, consultation, supervision, education, and information across distance" (p. 173). The unique needs of the clients are oftentimes met using, any variation of audio, video, and digital formats (Higgins et al., 2017). Telehealth has the potential of being as high or low tech as the BCBA sees fit for their client and service delivery. "Bug-in-ear" training is an older form of telehealth utilizing a telephone that can be attached to a headphone set to allow the trainer to give feedback as the trainee is implementing an intervention (Zoder-Matrell et al., 2020). Recent technological advancements include slightly more costly

methods such as web cameras, Swivls, and telepresence robots in the delivery of ABA services (Zoder-Matrell et al., 2020).

Current telehealth service limitations within the field of ABA, are that of theoretical understanding rather than that of clinical utility. For instance, testing the effectiveness of telehealth outside of the United States of America is important for the field of ABA to make generalized statements, but its clinically utility in the United States is sound. Real-time video conferencing formats of telehealth are effective for delivering various health care services as well as ABA (Tomlinson et al., 2017).

Higgins et al. (2017) included a telehealth-based training method during the new hiring training process for three direct-care staff members. Training occurred in the same building in separate conference rooms. The trainer was virtually present in each room and shared documents simultaneously using Adobe Connect (8) (Higgins et al., 2017). The study simulated a true telehealth experience where not all individuals could be together in the same place at once. Ausenhus and Higgins (2019) trained newly hired clinical staff to perform multiple stimulus without replacement preference assessments with children with ASD while implementing real-time feedback over telehealth services. Trainers delivered all necessary materials for the video conference meetings. Real-time feedback was effective across participants with lasting effects post training. These studies found that telehealth was effective in implementing multicomponent training packages to train newly hired direct-care and clinical staff to implement a multiple stimulus without replacement preference assessment. Further research is needed to generalize this training method across trainees and procedures.

Research Gap

Current research supports the claim that BST is an effective procedure for training individuals to conduct preference assessments with students (Ausenhus and Higgins, 2019; Bovi et al., 2017; Deliperi et al., 2015; Lavie and Sturmey, 2002; Roscoe et al., 2008). Further research should focus on using multicomponent training packages such as BST to instruct trainees outside of a clinical setting. Research should also address the effectiveness these training packages when teaching additional ABA-based procedures. I plan to expand the research on preference assessments to determine the effectiveness of using telehealth services with a BST package to train educators to conduct a paired stimulus preference assessment.

Method

Sampling, Recruitment, and Participants

The demographic for this study was preschool educators who work with typically developing students ages 3-5. The researcher selected educators currently employed as lead or assistant teachers or participating in a university organized practicum experience. These educators had no prior experience learning or performing a paired stimulus preference assessment. To recruit participants, information was sent by the directors at pre-selected preschool centers to their educational staff. A mass email was sent to current pre-professional teachers at the university working with the target age group. Participation was voluntary, and they had the right to withdraw from the study at any point. The researcher recruited a total of six potential participants to account for potential attrition. Informed consent was only received from two educators. The researcher matched each participant to the inclusion criteria (see Appendix G). Criteria for participant inclusion were as follows: being an educator (licensed or non-licensed) working with preschool-age students, employed as a teacher or assistant at a local preschool or enrolled in a university organized preschool practicum. Potential participants also verified that they had no prior experience learning or performing a paired stimulus preference assessment and that they would not research the topic before the study. Participants were also required to have a signed informed consent form before they could proceed. The participants signed their initials on the inclusion criteria to verify the provided statements.

Setting

The researcher created a HIPAA-compliant WebEx link through James Madison University to ensure sessions could take place virtually. Training occurred in a private office or an early childhood education classroom after operational hours, with the trainer and the simulated confederate connected remotely from a home office in the same town. Confederates are individuals recruited by researchers to play the role of a child who matches the target demographic (Fazzio et al., 2009). The confederate was recruited by asking first-year graduate students involved in the university's applied behavior analysis program if they would be interested in volunteering their time. This recruitment process yielded two interested volunteers. One played the role of the confederate and one was trained as the second observer. Recording of all sessions occurred to allow for the second observer to score for interobserver agreement and procedural fidelity.

Materials

The researcher delivered the materials for the Paired Stimulus preference assessment to each participant's location. The materials included 5 tangible stimuli that varied across participants (toy car, tractor, fire truck, dinosaur, Spiderman, book, Pokémon, Fisher Price phone, and a gorilla) assessment instructions, and datasheets (see Appendices). The trainer sealed the package containing the training materials to ensure their novelty to the participant when training began. The participants provided any writing materials and a video and audio recording device such as a laptop, desktop, or tablet.

Dependent Variable, Response Measure, and Recording Procedure

The dependent variable was the percentage of accurately performed component skills used to administer a paired stimulus preference assessment. The researcher created a task analysis, outlining the paired stimulus preference assessment component skills. The research utilized the task analysis to record if each step of the paired stimulus preference assessment was completed independently on a session-by-session basis (see Appendix A). If the participant independently and correctly completed a component skill the researcher recorded this response with +. An incorrect completion or skipping a component skill was recorded as -. If the participant referred to the task analysis to complete the step, that was scored as p for a prompted response. The researcher summarized the data by dividing the number of component skills implemented independently by the total number of opportunities to implement each component skill and multiplying that number by 100 to obtain a percentage (Ausenhus & Higgins, 2019).

Interobserver Agreement

Interobserver agreement (IOA) was assessed by an additional graduate student familiar with the concepts of applied behavior analysis and data collection. All observations occurred in an office space in which the graduate student viewed the original copies of the videos to maintain confidentiality. The second observer independently scored an average of 30% of the video recorded sessions for interobserver agreement and procedural fidelity. These recorded sessions in which IOA took place included only baseline and intervention sessions. Therefore, IOA is calculated separately for both baseline and intervention for both participants. Before conducting IOA, the researcher and the second observer discussed the data collection procedures and the

researcher provided a behavioral definition of each component skill. The second observer was trained to score the videos to a mastery criterion of 90%. The second observer was naïve to the experimental conditions in place during the video. See Appendix E for the training procedures. The second observer scored the participant's behavior on whether their response to a component skill correctly matched its behavioral definition. The researcher determined IOA by calculating agreement by dividing the number of agreements for the session by the sum of the agreements and disagreements. After this calculation, the number was then multiplied by 100 to be converted into a percentage. The following formula was used to calculate the percentage (Cooper et al., 2007):

$$\frac{\text{Number of trials (skills) agreement}}{\text{Total number of trials (skills)}} \times 100 = \text{trial-by-trial IOA \%}$$

There was 100% agreement for JL's baseline sessions and 100% agreement for all of JL's intervention sessions. For KC there was a 92.85% agreement for baseline sessions and 100% agreement for all but one intervention session. Retraining the second observer would have been beneficial to reduce the slight presentation of disagreement.

Procedural Fidelity

The researcher arranged for the collection of procedural fidelity data to ensure the baseline and BST sessions were implemented as intended. The procedural fidelity checklist provided (see Appendix B) was created as the researcher's guide for the study's implementation. The second observer collected data on the researcher's adherence to these procedures. Additionally, with consent from the participants the second observer was able to view the video footage of the training to collect procedural fidelity IOA on the researcher. The observer was trained in the process of data collection by viewing only

the researcher during a prerecorded session. The researcher and second observer scored the procedural fidelity for recording and then IOA was calculated. The second observer finished training when the two reached 100% IOA.

Procedural fidelity scoring occurred in person ensuring the video recording were not copied or distributed by the second observer. They observed 30% of recordings and took data on the researcher by checking off each step in the step completed that adhered to the checklist. The second observer then calculated the total percentage of adherence by dividing the correct number of steps completed by the total number of steps in the procedure. They then multiplied that number by 100 to receive a percentage of the correctly implemented procedural steps.

Procedural fidelity during baseline sessions for JL was 80%, with 100% agreement between the researcher and second observer. During JL's BST sessions procedural fidelity was 90.9% with 100% agreement between the researcher and second observer. During baseline trials for KC procedural fidelity was 60% with 100% agreement between the researcher and second observer. Procedural fidelity during KC's BST sessions were averaged at 90.9% with 100% agreement between the researcher and second observer. Complications involving the collection of procedural fidelity data are discussed in the limitation section of the discussion.

Social Validity

The researcher used consumer opinion to assess the social validity of the intervention by asking the participant to respond to a social validity questionnaire (Cooper et al., 2007). Participants responded to a modified version of the Intervention Rating Profile (Martens et al., 1985). This included their level of agreement to the

following type of questions using a Likert-type scale: (a) outcomes, (b) processes, and (c) goals. The questionnaire also included a place for the educator to make general comments related to the social validity of the study (see Appendix C).

Experimental Design

The researcher used a nonconcurrent multiple-baseline design across participants to evaluate the use of BST delivered over a HIPPA compliant video conferencing software to train educators to perform a paired stimulus (PS) preference assessment. The researcher selected this design to allow for baseline to begin at different times for each participant. A nonconcurrent multiple-baseline design allows for leniency during the COVID-19 pandemic as well as to provide greater flexibility for the schedules of participant who were currently employed teachers with various commitments.

Procedures

Baseline sessions took place during 5-10 min increments, 2-3 sessions per day. BST sessions occurred 1-2 times a day, 2-3 times a week for 30-45 min each. The researcher scheduled all the sessions at the end of the school day when the participant was no longer with students or other staff. The participant was expected to perform the 14 component skills during each session. All sessions occurred using a video telehealth video conferencing platform to allow the trainer, participant, and the simulated confederate to meet during the COVID-19 global pandemic. Confederates are individuals recruited by researchers to play the role of a child who matches the target demographic (Fazzio et al., 2009). The participants primarily worked with typically developing preschool students. Therefore, the trainer instructed the confederate to respond as a typically developing preschool-aged student. The confederate was consistent across

participants and all sessions. The researcher collected data as the participant and the confederate interacted. The sessions were recorded to be scored by the second observer at a later date.

Baseline

The study began by determining each participant's current skill level when conducting a paired stimulus preference assessment. Upon obtaining consent for each participant each individual also signed an inclusion criteria form (see appendix G). Participants had no background knowledge of any kind regarding paired stimulus preference assessments and agreed not to research the topic before the start of the study. This inclusion criterion allowed the researcher to determine their true skill level before behavior skill (BST) training occurred.

The researcher delivered the following materials to the participants; all relevant training stimuli, and datasheets. Participants could not access the instructions during this condition. The research instructed the participant to “figure out a ranking of preference of the items for this individual, when you’re finished let me know.” Participants conducted the preference assessment with the simulated live confederate trained to respond to the paired stimulus preference assessment prompting as a typically developing preschooler. The researcher recorded the individual’s independent responses that matched the task analysis to gauge their skill level before intervention occurred. A total of three sessions and/or stable responding prompted the researcher to begin the next condition. Interobserver agreement data were recorded on the participant’s performance as well as the researcher’s adherence to procedural fidelity.

Behavior Skill Training

Each participant went through BST to learn how to conduct a paired stimulus preference assessment**.** During this training, all materials were accessible. The researcher explained the instructions given to the individual in the form of a task analysis while specifying that these will be the exact behaviors, they should perform to conduct the assessment. The researcher then showed the participant a prerecorded video model for the skill of conducting a paired stimulus preference assessment**.** The participant then had a chance to practice the skill with a confederate that joined virtually using the same HIPAA compliant WebEx link. During this process, the participant practiced the component skills independently with the confederate responding as a typically developing student. Due to the limitations of the virtual platform, the confederate was not be able to physically hold the item. Instead, the confederate vocalized her choice and the participant pushed the items forward to simulate the act of giving it to the child confederate. While this practice occurred, the researcher watched the interaction and recorded the participant's instances of correct or incorrect component skill completion. The researcher gave the participant behavior-specific praise on the component skills completed correctly as well as constructive feedback on skills that were done incorrectly immediately following each intervention session. The participant then had the opportunity to practice the skill again. This process continued until the allotted time for the day's intervention (i.e., 45 min) elapsed, or if the individual had reached the mastery criteria of 92% correct responses for three consecutive sessions. Both participants required three nonconsecutive days of intervention to reach the mastery criteria. The number of sessions per day of intervention varied on the participant's preference for feedback and any other extraneous

variable that may have been available in their environment. The researcher determined the mastery criteria by allowing for one prompted or incorrect response in regard to the component skills (see Appendix A). A participant reached the mastery criteria by independently responding to 13 or more component skills, which equates to about 92%. Interobserver agreement data were recorded on the participant's performance as well as procedural fidelity.

Generalization and Maintenance

The researcher conducted a generalization probe involving a real student within three weekdays of the participant achieving mastery to ensure generalization across individuals. Probing with a real student allows the researcher to assess the generalization of the skill across individuals and situations. The researcher scheduled maintenance probes over WebEx with the confederate once a week for two weeks following the intervention to ensure skill acquisition over time. To protect the confidentiality of the students the researcher set up a time to observe the participant in their classroom conducting a PS preference assessment. Video recordings of these session were not taken to protect the confidentiality of the student assessed and their peers. Therefore, interobserver agreement was not calculated in the maintenance phase of the study.

Results

This study was guided by the research question *is telehealth an effective format for training educators to perform ABA-based procedures including preference assessments?* The researcher also studied the educators' performance conducting the preference assessment during generalization and maintenance probes. The focus while observing the educators was whether they could use the skill to develop a reinforcement hierarchy after the intervention ceased. This section provides a visual analysis of the baseline and intervention data as well as answers to the research questions.

Baseline

The baseline phase consisted of three data points before BST was implemented (See Figures 1 & 2). Participants JL and KC displayed stable and low levels of responding during baseline sessions. The researcher moved on to BST after three data points due to the immediate establishment of steady-state responding for both participants.

Behavior Skill Training

The researcher implemented a varied number of BST sessions according to the skill acquisition of the participation. This was determined by the mastery criteria. A participant reached the mastery by independently responding to 13 or more component skills, which equates to about 92%. Participant JL required 7 sessions before maintenance and generalization sessions were scheduled (see figure 1). Participant KC required a total of 5 sessions before maintenance and generalization sessions were scheduled (see Figure 2). The researcher graphed the percentage of independent responses of each participant which occurred before feedback was given. Each of these sessions were scored by

dividing the total number of steps completed independently by the number of steps that the participant had the opportunity of completing.

Participants required more opportunities for feedback during the first scheduled intervention session. Therefore, for data collection purposes the number of 30-45-minute sessions do not match up to the number of sessions in which data were taken and feedback was given. The first scheduled intervention session required more feedback and therefore multiple data collection sessions per one page of the assessment.

The segmentation of the first session looked different for each participant based on feedback delivery preference, which was determined by verbal report. Participant JL required frequent feedback after each set of 10 trials before she was able to report that she was comfortable conducting the assessment from start to finish. The first four data points represent the first day of telehealth BST in which JL practiced the assessment with the datasheet divided into four opportunities for behavior-specific feedback. Participant KC had a similar first session, but she only required the datasheet to be separated into two separate sessions and opportunities for feedback. The first round of feedback occurred after session 4. All subsequent trials show a high level of correct responding at 100% (See Figure 2). The participants were then both able to begin working towards mastery by performing at a steady state.

Generalization

During the generalization phase, the participants had the opportunity to select a learner of their choice that had consent and assent documents signed and filed with the researcher. Participant JL wanted to attempt conducting the paired stimulus preference assessment with two different learners while the researcher was available to observe.

Participants were prompted to select a learner who had a signed consent and assent form and could also “sit for the whole thing”. The study sought to identify if the skills could be generalized to the natural setting. To increase the likelihood of skill generalization the method of sequential modification was used to only change the setting where the skill would be performed (Stokes and Baer, 1977). This allowed for JL to complete the entire assessment before feedback was given in the natural setting. Participant KC however had a time constraint in her class schedule that restricted her to three out of the four sets of 10 trials. KC was instructed to put an X of the fourth box of the data sheet to indicate that she did not complete the fourth section of the process. She was then able to complete the assessment 100% correctly with the information collected.

Maintenance

Maintenance sessions were scheduled on the same day of the week once a week for two weeks upon the conclusion of the behavior skill training (BST) intervention. This was to allow the researcher to determine if mastery of the skills taught during the telehealth sessions were maintained overtime. Participants KC and JL maintained 100% mastery for conducting the paired stimulus preference assessment across both maintenance probes.

Research Questions

The researcher sought to determine if telehealth was an effective format for training educators to perform ABA-based procedures including preference assessments. BST implementation resulted in a steep change in the correct performance of the steps needed to perform a paired stimulus preference assessment. The two individual participants each learned the preference assessment to mastery and generalized the skill

to a novel setting and a novel individual. In order to claim this intervention to be effective a replication of the study should be done which includes three or more participants.

The research also sought to determine the feasibility and effectiveness of conducting a paired stimulus preference assessment after behavior skills training was complete. For an intervention to be effective it must also provide a socially significant change to the recipient. This intervention sought to teach educators to use paired stimulus preference assessments in a preschool setting by using behavior skills training. Participants were given an Intervention Rating Profile (see Appendix C) to determine the social significance of the intervention. Participant KC agreed that the addressed skill of determining preference is important enough to warrant the use of this intervention. They also agreed that most educators would find preference assessments suitable for understanding student interests. KC strongly agreed that they would be willing to use the skills taught using BST over telehealth in the classroom setting.

JL's response to the Intervention Rating Profile was requested by email and reminders were sent following up on the status of this information. JL's responses are not reported due to failure to return the form to the researcher.

The study also sought to determine to what effect can behavior skills training over a telehealth format be used to train educators to conduct a paired stimulus preference assessment to develop a reinforcement hierarchy in the natural setting? Generalization probes show that both early childhood educators were able to generalize their skills with 100% accuracy from a simulated preschool confederate to a real preschool student. Each participant performed at 92.85% or greater accuracy during both maintenance probes.

Therefore, this study shows that the delivery model is feasible and effective to allow for skill mastery and maintenance for the educators who participated in this study.

Discussion

The purpose of this study was to evaluate the effectiveness of using BST over telehealth to teach early childhood educators to conduct a paired stimulus preference assessment. The study utilized WebEx, a HIPAA-compliant video conferencing software to allow participants to engage in training from any location with an internet connection. The researcher sought to determine the feasibility and effectiveness of using telehealth to train educators to conduct paired stimulus preference assessments with a simulated confederate.

During baseline, the participants did not have access to the task analysis or the paired stimulus preference assessment form. With this restriction both participants still performed the same two steps correctly during each trial: “sit across from the learner” and “secure the individual's attention”. Both were automatically achieved through the constraints of a web camera setup. Therefore, each participant’s baseline data may have resulted in an artificially greater percentage of accurately performed component skills. Although it cannot be said with certainty that these skills were present during baseline, generalization probes showed that both participants accurately performed these two-component skills.

Both participants showed reductions in the accuracy of component skill completion during maintenance trials. When completing the component skill “give the learner 20-30 seconds to interact with the item” each participant gave the confederate an average interaction time shorter than 20 seconds. Although they did not demonstrate this skill during all maintenance sessions it did not affect their ability to create a reinforcement hierarchy. While collecting data and preparing the next set of stimuli it can

be hard to ensure that the right amount of time has elapsed without a timer. There is also the potential for extraneous variables to cause the educator to reduce or extend the amount of time the learner interacts with the stimuli. For instance, if another student needs adult assistance it may be more than likely that they will have to leave the learner with one stimulus for a longer amount of time. Also, during the generalization JL's trial, her select learner began giving the items back before she requested them. Future research should clarify the optimum length of time needed for a learner to engage with stimuli to produce accurate results. Practitioners should also clarify any criterion the participant must reach to warrant recording the component skill as accurate. For instance, when a participant must "give the learner 20-30 seconds to interact with the item" a criterion should state the percentage of all trials that this must occur in order to have accurately performed the component skill.

JL was also able to complete an additional two steps during baseline, "prepare the materials out of reach of the learner" and verbally "put the items in most to least selected order". Participants were instructed to obtain a pen, piece of paper, and the bag of toys provided by the researcher and keep the manila folder closed to ensure they could not view the materials early. Interactions with the confederate during baseline included presenting one item at a time and asking the learner about how they felt towards each toy. Participants determined a single item or a few preferred items but were unable to put all five stimuli in ranking order for the confederate.

When the intervention was implemented, participants demonstrated increasing accuracy across sessions. Both participants reached mastery in 10 or fewer sessions. BST sessions were initially completed in smaller chunks based on each participants'

preference for feedback. Therefore, each participants' responses of 100% were not counted towards mastery until the final three data points shown during each intervention phase (See Figures 1 and 2). This was because the participants did not have the opportunity to emit all responses before feedback occurred.

Limitations

One of the main limitations of this study is the format for collecting IOA data. All of the baseline and intervention sessions were recorded for asynchronous IOA data collection. The procedural fidelity checklist did not include a step for starting and ending the recording. The recording was frequently stopped then restarted. Sometimes this occurred before steps listed in the procedural fidelity checklist were completed, therefore the second observer was not able to code if the step occurred because it was not captured in the recording. This limitation in future telehealth studies can be addressed by gaining consent for the second observer to join specific sessions throughout the study.

Another limitation included the length of the paired stimulus preference form used. Based on both participant's anecdotal reports, the quantity of the stimuli combined with the number of 10 trial sets, caused participants to be worried about the duration of sessions. Additionally, in the initial BST sessions adaptations were needed to divide the paired stimulus preference assessment procedure into shorter practice sessions before feedback was given. Future research should study whether the use of a condensed preference assessment sheet containing fewer sets of trials used during training would generalize to the completion of a standard version in the generalization condition. This would allow for shorter duration practice sessions, thus allowing the participant to

receive more frequent behavior-specific praise. This would not affect the data collection as all the same steps will be performed with this change.

Based on the Social Validity questionnaire Intervention Rating Profile (see Appendix C) KC expressed additional concerns about how this intervention would prove to be more difficult to be done at home for individuals with limited internet capabilities. This study had an alternative location plan set in place for individuals who had limited internet in their homes. This plan included staying at the educator's school or using a room in the university building during intervention times. Although this solved the internet concern it did not address the social significance of working parents being able to participate from home while still attending to their children. Future research should seek out more rural educators and offer more inclusive ways of accessing telehealth options from home such as temporary lent-out WIFI hotspots.

An additional limitation to this study is the number of participants involved in the study. The intended quantity of participants was three to five individuals. This goal was set to determine if the findings held true across individuals across school locations with varying time commitments, years of experience, and any other variables that make each educator unique. The total number of potential participants was six educators. Three educators decided not to continue with the research study due to reasons such as other time commitments and hesitations about being video record. One additional potential participant simply failed to meet all the inclusion criteria due to her location being too far for an in-person generalization observation. The researcher was unable to consent the three participants necessary to establish experimental control and determine the effectiveness the intervention. However, this intervention was still a feasible option for

the two educators who participated in the study. Therefore, due to the small sample size, replications and additional extensions of this research should be conducted to establish its effectiveness. Future extensions should recruit participants with novel characteristics to determine if the results can be generalized across populations. Novel characteristics may include but are not limited to; educators who teach in novel different levels, hold different teaching licenses, or who have been in the field for a specific length of time.

During generalization probes, educators were instructed to select an individual who had a consent form on file with the researcher. The student selected did not have to meet any other qualifications such as gender, race, disability status, IQ, or any other specific characteristics. The educators were instead prompted to select a child that they felt could sit through the complete paired stimulus preference assessment in one 20-30 minute session. Each participant selected students who they thought could complete the assessment in one session so the researcher could observe the session. Each student was able to sit through multiple sets of trials, as their educators administered the assessment. Future research should test the educators' ability to generalize the skill across multiple unique learners.

Recommendations for Practitioners

Preference assessments are important to conduct routinely to determine how preferences have changed. BCBAs are often in charge of supervising multiple educators in implementing behavior analytic services. By training educators to complete preference assessments to mastery, BCBAs can spend more billable time addressing the needs of other clients and stakeholders, while routinely monitoring educators' performance

conducting stimulus preference assessments to ensure for maintenance and fidelity of implementation.

With varying school schedules, calendars, and a limited number of professional development days, behavior analytic trainings for evidence-based practices such as preference assessments need to be fit in when they are convenient for the educators. The purpose of telehealth in this research application and in practice is to make applied behavior analytic services more accessible to clients and stakeholders. Therefore, practitioners must be flexible with their time when providing interventions. This may include pausing the intervention to allow for the participant to take care of their child's needs, scheduling around busy evening routines and rescheduling for unanticipated technical issues. Researchers involved in telehealth trainings must ensure they schedule more sessions with participants than they predict is needed. This is to make certain that the participant has enough sessions scheduled to meet the mastery criteria regardless of extraneous variable that cause sessions to be cancelled.

Figure 1: Participant JL

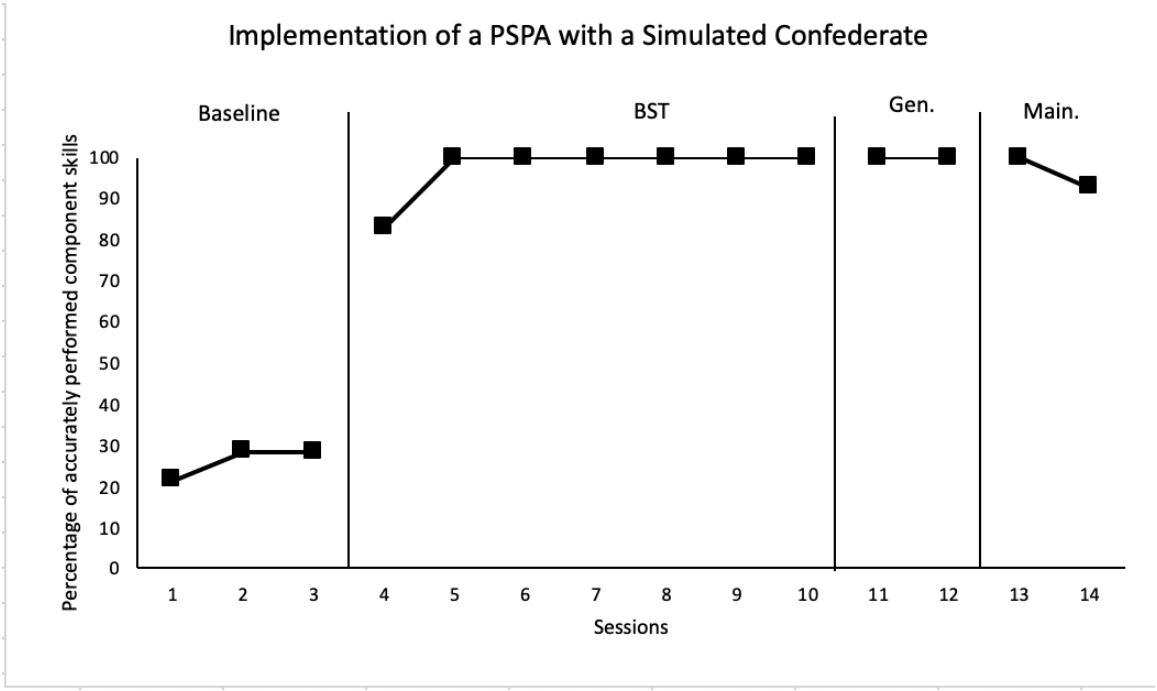
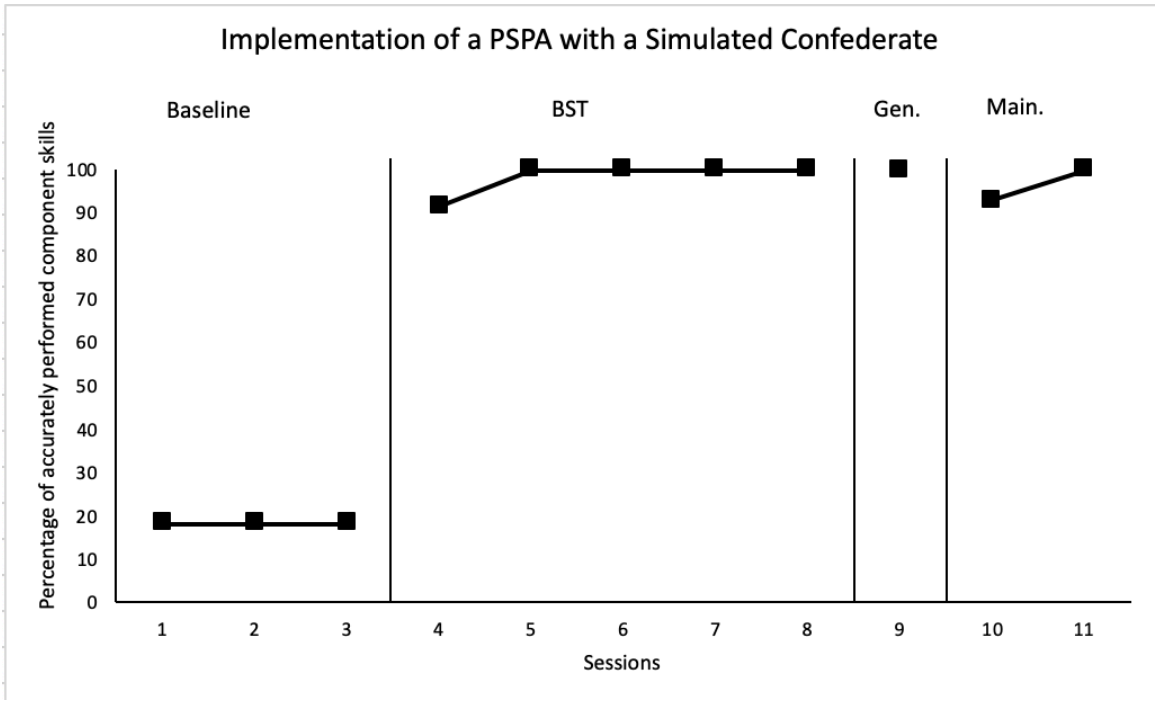


Figure 2: Participant KC



Appendix A

Preference Assessment Task Analysis

PS Preference Assessment Task Analysis

How Perform a Paired Stimulus Preference Assessment

1. Prepare materials out of reach of the learner.
2. Write in the items you're using in the top left of the paper.
3. Sit across from the learner.
4. Secure the individuals attention.
5. Place two items (following the order on the data sheet) in between you and the learner.
    a. (Blocking the individual from touching an item if needed)
6. Give a direction: "pick one" "which one do you want" "which one is better".
    a. (block items if they reach for both) give the direction again
7. Take away the unchosen item.
8. Give the learner 20-30 secs to interact with the item.
9. Record the learners selection while they are interacting with the item.
10. Request for the item: "Time to pick a new toy" "time is up, I have more toys to show you" "hand the toy to me".
11. Place the next pair according to the data sheet
    a. If the previously selected item in the next pair place it on the opposite side (Right-> Left)
12. Repeat steps 3-8
    a. until all the pairs have been presented according to the data sheet
13. Count how many times each item was selected been
14. Put the items in most to least selected order.

Appendix B

Procedural Fidelity Checklist

Procedural Fidelity Checklist

Observer Initials:	Date:	Definition of terms
Baseline: ☐ Secure the participant's attention. ☐ Introduce the confederate. ☐ Introduce the task "You have a box of materials provided, figure out a ranking of preference for the items given for this individual. When you are finished, let me know." ☐ Observe and record the participant's independent responses. ☐ Thank the participant and confederate for their time.		Participant: The individual who has provided written consent to have their behavior observed and recorded. Confederate: The individual who is trained to respond like a preschool-aged child.
Percentage Completed		

Procedural Fidelity Checklist

Observer Initials:	Date:	Definition of terms
BST: ☐ Secure the participant's attention. ☐ Prompt the participant to take out the TA, and data sheets. ☐ Verbally go over the TA and data sheet. ☐ Show examples video models of individual performing PS preference assessments ☐ Provide participant with a time to ask questions ☐ Prompt participant to practice with the confederate ☐ Turn off camera ☐ Observe and record the participant's independent responses. ☐ Turn on camera ☐ Share behavior specific feedback with participant ☐ Provide a second opportunity for the participant to practice.		• Participant: The individual who has provided written consent to have their behavior observed and recorded. • Confederate: The individual who is trained to respond like a preschool-aged child. • Task analysis (TA): a list of step by step instructions on how to complete a skill. • Data sheet: where confederate responses are recorded. • Behavior specific feedback: feedback that addresses the steps in a skill that were performed correctly and specific examples of how the participant can improve.
Percentage Completed:		

Appendix C

Intervention Rating Profile

Intervention Rating Profile

The purpose of this questionnaire is to obtain information that will aid in the selection of educator training interventions. These interventions will be used with educators of preschool-aged children to aid classroom management. Please circle the number which best describes your agreement or disagreement with each statement.

	Strongly Disagree	Disagree	Neutral/ Undecide	Agree	Strongly Agree
1. Behavior Skill Training (BST) would be an acceptable intervention for staff training.	1	2	3	4	5
2. Most educators would find BST over telehealth an appropriate intervention for training staff to perform a number of skills.	1	2	3	4	5
3. BST over telehealth would prove effective in training new skills.	1	2	3	4	5
4. I would suggest the use of BST over telehealth to other educators.	1	2	3	4	5
5. The addressed skill of determining preference is important enough to warrant the use of this intervention.	1	2	3	4	5
6. Most educators would find preference assessments suitable for understanding student interests.	1	2	3	4	5
7. I would be willing to use the skills taught using BST over telehealth in the classroom setting.	1	2	3	4	5
8. BST would *not* result in negative side effects for the educator participating.	1	2	3	4	5
9. BST over telehealth would be appropriate for a variety of educators.	1	2	3	4	5
10. BST over telehealth is consistent with other trainings I've done.	1	2	3	4	5
11. BST was a fair way to learn a new skill.	1	2	3	4	5
12. BST over telehealth is reasonable for learning a new skill.	1	2	3	4	5
13. I liked the procedures used in this intervention.	1	2	3	4	5
14. BST over telehealth was a good way to handle training during COVID.	1	2	3	4	5
15. Overall, BST over telehealth would be beneficial for the educators.	1	2	3	4	5

General Comments: _____

_____

Adapted from Martens et al., 1985

Appendix D

Participant Data Sheets

Participant #:
Observer:
Circle one: Baseline or BST

Steps	Date: Session #:	Date: Session #:	Date: Session #:
Prepare materials out of reach of the learner.			
Write in the items you're using in the top left of the paper.			
Sit across from the learner.			
Secure the individuals attention.			
Place two items (following the order on the data sheet) in between you and the learner.			
Give a direction: "pick one" "which one do you want" "which one is better".			
Take away the unchosen item.			
Give the learner 20-30 secs to interact with the item.			
Record the learner's selection while they are interacting with the item.			
Request for the item: "Time to pick a new toy" "time is up, I have more toys to show you" "hand the toy to me".			
Place the next pair (according to the data sheet) in between you and the learner.			
Repeat steps 3-8			
Count how many times each item was selected been			
Put the items in most to least selected order.			
Percentage of steps completed independently			

Independent: +, Incorrect: -, prompted: p

Appendix E

Procedural Fidelity for Second Observer Training

Procedural Fidelity Checklist		
Observer Initials:	Date:	Definition of terms Participant: The individual who has provided written consent to have their behavior observed and recorded. Researcher: The person in charge of the creation and implementation of the study. Second Observer: The individual that has a background in data collection and has agreed to volunteer their time to ensure the fidelity of the study. Interobserver agreement (IOA): The percentage of agreement between the data collected of the same event by two people.
Second observer training ☐ Give the observer the participant data sheet ☐ Explain that each step is a component skill the participant must exhibit. ☐ Read each step aloud. ☐ The researcher and the second observer watch a prerecorded video of a PS preference while taking data using the participant data sheet. ☐ Compare the data taken by the second observer and the researcher. ☐ If IOA is less than 90% watch the video again clarifying the step(s) that were not agreed upon. If IOA is 90% or higher training is complete.		
Percentage Completed		

Appendix F

Participant Preference Assessment Data Sheet

Paired Stimulus Preference Assessment
(5 items)

Item A: ____________________
Item B: ____________________
Item C: ____________________
Item D: ____________________
Item E: ____________________

Item A selected: _____ times
Item B selected: _____ times
Item C selected: _____ times
Item D selected: _____ times
Item E selected: _____ times

Date:		
Child:		
Teacher:		
Trial #	**Item selection**	
1.	A	B
2.	C	A
3.	A	D
4.	E	A
5.	B	C
6.	D	B
7.	B	E
8.	C	D
9.	E	C
10.	D	E

Date:		
Child:		
Teacher:		
Trial #	**Item selection**	
1.	A	B
2.	C	A
3.	A	D
4.	E	A
5.	B	C
6.	D	B
7.	B	E
8.	C	D
9.	E	C
10.	D	E

Date:		
Child:		
Teacher:		
Trial #	**Item selection**	
1.	A	B
2.	C	A
3.	A	D
4.	E	A
5.	B	C
6.	D	B
7.	B	E
8.	C	D
9.	E	C
10.	D	E

Date:		
Child:		
Teacher:		
Trial #	**Item selection**	
1.	A	B
2.	C	A
3.	A	D
4.	E	A
5.	B	C
6.	D	B
7.	B	E
8.	C	D
9.	E	C
10.	D	E

Highest preferred items (selected highest number of times):

#1

Moderately preferred items (selected moderate number of times):

#2 #3 #4

Lowest preferred items (selected fewest number of times):

#5

Adapted From Chazin, K.T., & Ledford, J.R. (2016)

Appendix G

Participant Inclusion Criteria

Participants Inclusion Criteria	
Initials of Participant:	Date:
☐ I am an educator (licensed or non-licensed) that works with preschool-aged students. ☐ I am employed as a teacher/assistant at a local community preschool. (or) I am enrolled in a university organized preschool practicum. ☐ I have no prior experience learning or performing a paired stimulus preference assessment. ☐ I will not research paired stimulus preference assessments before the study begins. ☐ I have signed the informed consent to participate in this study.	
Signed initials of the participant:	

References

Ausenhus, J.A., Higgins, W.J. (2019). An evaluation of real-time feedback delivered via telehealth: training staff to conduct preference assessments. *Behavior Analysis Practice* 12**,** 643–648. https://doi.org/10.1007/s40617-018-00326-1

Board Certified Behavior Analyst. (2014, August 7). *Professional and Ethical Compliance Code for Behavior Analysts*. Behavior Analyst Certification Board. https://www.bacb.com/wp-content/uploads/2020/05/BACB-Compliance-Code-english_190318.pdf.

Bovi, G. M. D., Vladescu, J. C., Debar, R. M., Carroll, R. A., & Sarokoff, R. A. (2016). Using video modeling with voice-over instruction to train public school staff to implement a preference assessment. *Behavior Analysis in Practice*, *10*(1), 72–76. https://doi.org/10.1007/s40617-016-0135-y

Brock, M. E., & Carter, E. W. (2013). A systematic review of paraprofessional-delivered instruction to improve outcomes for students with intellectual and developmental disabilities. *Research and Practice for Persons with Severe Disabilities*, *38*, 211–221. https://doi.org/10.1177/154079691303800401

Chazin, K.T., & Ledford, J.R. (2016). Paired stimulus preference assessment. In *Evidence-based instructional practices for young children with autism and other disabilities.* Retrieved from http://ebip.vkcsites.org/paired-stimulus

Ciccone, F. J., Graff, R. B., & Ahearn, W. H. (2015). Increasing the efficiency of paired-stimulus preference assessments by identifying categories of preference. *Journal Of Applied Behavior Analysis*, *48*(1), 221–226. https://doi.org/10.1002/jaba.190

Cooper, J. O., Heron, T. E., & Heward, W. L. (2007). *Applied Behavior Analysis* (2nd ed.). Upper Saddle River, N.J.: Pearson/Merrill-Prentice Hall.

Deliperi, P., Vladescu, J. C., Reeve, K. F., Reeve, S. A., & DeBar, R. M. (2015). Training staff to implement a paired-stimulus preference assessment using video modeling with voiceover instruction. *Behavioral Interventions, 30*(4), 314–332. https://doi.org/10.1002/bin.1421

Dib, N., & Sturmey, P. (2007). Reducing student stereotypy by improving teachers' implementation of discrete-trial teaching. *Journal Of Applied Behavior Analysis*, *40*(2), 339–343. https://doi.org/10.1901/jaba.2007.52-06

DiGennaro Reed, F. D., Blackman, A. L., Erath, T. G., Brand, D., & Novak, M. D. (2018). Guidelines for using behavioral skills training to provide teacher support. *TEACHING Exceptional Children*, *50*(6), 373–380. https://doi.org/10.1177/0040059918777241

Fazzio, D., Martin, G. L., Arnal, L., & Yu, D. C. (2009). Instructing university students to conduct discrete-trials teaching with children with autism [Abstract]. *Research in Autism Spectrum Disorders, 3*(1), 57-66. doi:10.1016/j.rasd.2008.04.002

Fisher, W. W., Piazza, C. C., Bowman, L. G., Hagopian, L. P., Owens, J. C., & Slevin, I. (1992). A comparison of two approaches for identifying reinforcers for persons with severe and pro- found disabilities. *Journal of Applied Behavior Analysis*, *25*, 491-498.

Graff, R. B., & Karsten, A. M. (2012). Evaluation of a self-instruction package for conducting stimulus preference assessments. *Journal Of Applied Behavior Analysis*, *45*(1), 69–82. https://doi.org/10.1901/jaba.2012.45-69

Hagopian, L. P., Long, E. S., & Rush, K. S. (2004). Preference assessment procedures for individuals with developmental disabilities. *Behavior Modification*, *28*(5), 668–677. https://doi.org/10.1177/0145445503259836

Hansard, C., & Kazemi, E. (2018). Evaluation of video self-instruction for implementing paired-stimulus preference assessments. *Journal Of Applied Behavior Analysis*, *51*(3), 675–680. https://doi.org/10.1002/jaba.476

Higgins, W. J., Luczynski, K. C., Carroll, R. A., Fisher, W. W., & Mudford, O. C. (2017). Evaluation of a telehealth training package to remotely train staff to conduct a preference assessment. *Journal Of Applied Behavior Analysis*, *50*(2), 238–251. https://doi.org/10.1002/jaba.370

Lavie, T. & Sturmey, P. (2002). Training staff to conduct a paired-stimulus preference assessment. *Journal of Applied Behavior Analysis*, *35*(2), 209–211. https://doi.org/10.1901/jaba.2002.35-209

Lerman, D. C., Vorndran, C. M., Contrucci Kuhn, L. A., & Contrucci Kuhn, S. (2004). *School Psychology Review*, *33*(4), 510–526. https://doi.org/https://doi.org/10.1080/02796015.2004.12086265

Marano, K. E., Vladescu, J. C., Reeve, K. F., & DiGennaro Reed, F. (2020). Effect of conducting behavioral observations and ratings on staff implementation of a paired-stimulus preference assessment. *Journal of Applied Behavior Analysis, 53*(1), 296-304. doi:10.1002/jaba.584

Martens, B., Witt, J., Elliott, S., & Darveaux, D. (1985). Teacher judgments concerning the acceptability of school-based interventions. *Professional Psychology: Research and Practice, 16*, 191-198.

McCulloch, E. B., & Noonan, M. (2013). Impact of online training videos on the implementation of mand training by three elementary school paraprofessionals. *Education and Training in Autism and Developmental Disabilities, 48*(1), 132-141. doi:https://www.jstor.org/stable/23879892

Parsons, M. B., Rollyson, J. H., & Reid, D. H. (2013). Teaching practitioners to conduct behavioral skills training: a pyramidal approach for training multiple human service staff. *Behavior Analysis In Practice*, *6*(2), 4–16. https://doi.org/10.1007/BF03391798

Roscoe, E. M., & Fisher, W. W. (2008). Evaluation of an efficient method for training staff to implement stimulus preference assessments. *Journal Of Applied Behavior Analysis*, *41*(2), 249–254. https://doi.org/10.1901/jaba.2008.41-249

Schepis, M. M., Reid, D. H., Ownbey, J., & Parsons, M. B. (2001). Training support staff to embed teaching within natural routines of young children with disabilities in an inclusive preschool. *Journal Of Applied Behavior Analysis*, *34*(3), 313–327. https://doi.org/10.1901/jaba.2001.34-313

Stokes TF, Baer DM. An implicit technology of generalization. *Journal of Applied Behavior Analysis.* 1977;10(2):349–367. doi: 10.1901/jaba.1977.10-349.

Tomlinson, S.R.L., Gore, N. & McGill, P. Training individuals to implement applied behavior analytic procedures via telehealth: a systematic review of the literature. *Journal of Behavioral Education,* **27,** 172–222 (2018). https://doi.org/10.1007/s10864-018-9292-0

Vuran, S., & Olçay, S. (2012). On-the-job training of special education staff: Teaching the simultaneous prompting strategies. *Educational Sciences: Theory and Practice,* 12(3), 2101-2110.

Zoder-Martell, K., Markelz, A., Floress, M. T., Skriba, H. A., & Sayyah, L. E. N. (2020). Technology to facilitate telehealth in applied behavior analysis. https://doi.org/10.31234/osf.io/nz5s7