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A randomized controlled trial of a seminar-based training on the accurate and general implementation of the practical functional assessment process

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A RANDOMIZED CONTROLLED TRIAL OF A SEMINAR-BASED TRAINING ON THE ACCURATE AND GENERAL IMPLEMENTATION OF THE PRACTICAL FUNCTIONAL ASSESSMENT PROCESS

By

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Abstract

General and long term outcomes of functional analysis training have not yet been reported. Within a randomized control trial, we trained 18 behavior analytic practitioners to design and conduct a practical functional assessment (PFA) of severe problem behavior, which relies on an interview and personalized analysis. Participants were randomly assigned to two groups, and those who experienced the seminar prior to conducting the process with a confederate demonstrated more PFA component skills than those who were provided the same materials but who did not experience the seminar (mean scores: 87%, 36% respectively). Participants who experienced the seminar also considered the training valuable and reported greater confidence in their ability to achieve control in an analysis. Several participants then conducted a PFA with a client who engaged in severe problem behavior. Results showed that their skills transferred to these authentic applications. Results suggest that a seminar-based training can increase practitioners' ability to functionally analyze problem behavior and leads to subsequent analytic activity.

Keywords: functional analysis, IISCA, problem behavior, RCT, staff training

A Randomized Controlled Trial of a Seminar-Based Training on the Accurate and General Implementation of the Practical Functional Assessment Process

Children and adolescents who engage in severe problem behavior (SPB) often cause disruption to the classroom environment and pose safety risks to themselves, other students, and staff. When confronted with SPB, it is a behavior analyst's ethical responsibility to conduct a functional behavior assessment (FBA) prior to implementing intervention (Professional and Ethical Compliance Code 3.01; Behavior Analyst Certification Board, 2016). In addition, when a student's problem behavior causes significant disruption to his or her access to the educational environment, the Individuals with Disabilities Act (IDEA) requires an FBA in order to design effective interventions (IDEA, 2004). A variety of FBA methods exist, and each provides practitioners with various levels of confidence in their identification of the variables that evoke and maintain problem behavior.

Functional behavior assessments exist on a continuum of scientific rigor, which includes indirect assessments such as interviews and record reviews; descriptive assessments such as observations of the target behavior in the context in which it typically occurs; and functional analyses (FAs) during which the relevant establishing operations (EOs) and consequences suspected to be influencing the target behavior are manipulated (Kratochwill & Shapiro, 2000). Given that FAs are the only method that experimentally manipulates variables suspected to influence behavior (see Beavers, Iwata, & Lerman, 2013; Hanley, 2012; Hanley, Iwata, & McCord, 2003, for reviews), it is important for behavior analysts to conduct them when assessing SPB. Furthermore, the likelihood of designing an efficacious treatment will be designed from indirect or descriptive assessment in the absence of an FA has not been

established. By contrast, FA has been shown to lead to differentially efficacious treatments (Iwata, Pace, Cowdery, & Miltenberger, 1994; Kahng, Iwata, & Lewin, 2002).

Despite this evidence, practitioners report an almost exclusive reliance on indirect and descriptive assessments when conducting FBAs of SBP in school and residential settings (Ellingson, Miltenberger, & Long, 1999; Oliver, Pratt, & Normand, 2015; Roscoe, Phillips, Kelly, Farber, & Dube, 2015). Ellingson et al. (1999) found that despite the majority of respondents reporting that FAs are the most useful tool for identifying the relevant variables required for effective treatment, behavioral interviews were the most commojnly reported FBA method. More recently, Roscoe et al. (2015) and Oliver et al. (2015) surveyed behavior analysts regarding FBA methods. Both studies are of particular interest given that over 100 studies describing FA methodology were published since the survey by Ellingson et al. (1999; see Beavers et al., 2013). Roscoe et al. surveyed 205 behavior analysts and, similar to Ellingson et al. (1999), the authors found that the majority of respondents (68%) considered FAs as the most informative type of FBA. Yet, Roscoe et al. found that 62% of respondents relied on descriptive assessments alone or in conjunction with indirect assessments; only 35% of respondents reported conducting FAs when assessing problem behavior. Oliver et al. (2015) reported data from 682 practitioners who responded to an online survey regarding FBA methods. Respondents reported to use indirect and descriptive assessments most often, and reported using FAs most infrequently.

The survey studies also asked behavior analysts why they relied more heavily on indirect and descriptive measures, rather than FAs. Respondents reported lack of time or suitable space/materials to conduct an analysis as reasons preventing them from conducting FAs with students who engaged in SPB (Oliver et al., 2015; Roscoe et al., 2015). Roscoe et al. also

reported that concerns of social unacceptability influenced respondents' use of FAs in their settings. In addition, some respondents reported a lack of training as a barrier to conducting FAs.

Although training was cited as a barrier to conducting FAs, multiple studies have evaluated models for training people, of varying employment and educational backgrounds, to conduct FAs. Several studies used variations of behavioral skills training (BST) to teach participants to implement conditions commonly associated with those of a traditional FA (e.g., attention, play, demand, tangible; Iwata, Dorsey, Slifer, Bauman, & Richman, 1982/1994) under simulated conditions (Alnemary, Wallace, Symon, & Barry, 2015; Chok, Shlesinger, Studer, & Bird, 2012; Iwata et al., 2000; Moore et al., 2002; Lambert, Bloom, Clay, Kunnavatana, & Collins, 2014; Moore & Fisher, 2007; Phillips & Mudford, 2008; Rispoli, Neely, Healy, & Gregori, 2016; Wallace, Doney, Mintz-Resudek, & Tarbox, 2004; Ward-Horner & Sturmey, 2012). In general, these studies incorporated reading material, lecture, video models, role-plays, and written quizzes as components within a training package and participants demonstrated improved performance when implementing FA conditions with a confederate client. Erbas, Tekin-Iftar, and Yucesoy (2006) also used BST to teach participants how to implement traditional FA conditions, however, they measured participants' performance with actual clients engaging in problem behavior prior to assessing their skills with confederates.

Several studies (Alnemary, Wallace, Alnemary, Gharapetian, & Yassine, 2017; Flynn & Lo, 2016; Griffith, Price, & Penrod, 2019; Kunnavatana, Bloom, Samaha, & Dayton, 2013; Lambert, Lloyd, Staubitz, Weaver, & Jennings, 2014; Rispoli, et al., 2015; Rispoli, Neely, Healy, & Gregori, 2016) have described training packages aimed at teaching people to conduct trial-based FAs (TBFAs; Bloom et al., 2011; Sigafoos & Saggers, 1995). Similar to the traditional FA training literature, these authors used components of BST to implement a TBFA with

confederate clients. Lambert, Bloom, Kunnavatana, Collins, and Clay (2013) described training practitioners to conduct TBFAs with actual clients, forgoing the typical approach of training under low-stakes conditions with confederate clients.

Some noteworthy contributions exist in the FA training literature. For example, some studies described how the training with confederate clients was extended to FA conditions with actual clients (Kunnavatana et al., 2013; Moore et al., 2002; Moore & Fisher, 2007; Rispoli et al., 2015; Wallace et al., 2004). Chok et al. (2012) trained participants to interpret FA graphs, respond to undifferentiated data, and select interventions that were appropriate given the identified function, demonstrating that behavior analysts can be trained to complete several aspects of an FA beyond implementing analysis conditions.

Despite the contributions described above, there remain limitations within the FA training literature. For instance, apart from Flynn & Lo (2016), no published study reports the analysis data from confederate or authentic (i.e., with real client) experiences. Therefore, the extent to which participants were able to achieve functional control in their analyses is unknown. In addition, even though several studies demonstrated that participants' skills transferred from confederate to authentic experiences, they failed to demonstrate that their participants could design and conduct an FA independent of researcher support. That is, during participants' experiences, researchers either provided instructions regarding which conditions to implement or provided feedback during and/or between brief sessions. Given that Oliver et al. (2015) and Roscoe et al. (2015) discovered limited use of FA in practice, practitioners' ability to *independently* design and conduct analyses that yield functional control is relevant. It may be the case that the surveys continue to reveal reliance on indirect and descriptive assessment methods

because practitioners have not been trained to independently conduct FAs that produce meaningful results.

In addition, fewer than half of the training studies reported on the social validity of their procedures or results. Furthermore, participants in Rispoli et al. (2015) commented that, although they considered the TBFA to be an acceptable form of behavioral assessment, they had concerns regarding the length of time required to conduct such an assessment. If participants credited the training packages for providing them with practical tools, they may be more likely to implement FAs when assessing problem behavior in the future. In the same regard, no previous FA training study reported on the extent to which participants use FA following their participation in the study.

Collectively, these training studies show that people of varying levels of experience can be trained to implement the conditions of a traditional FA or TBFA either with confederate clients or with actual clients given live and direct support from an experimenter. The BST methodology described in the literature provides a useful framework for teaching practitioners a variety of skills with respect to FA; however, conducting an FA as a part of a functional assessment is more complex than solely implementing conditions with integrity. Practitioners are required to gather relevant information, design conditions based on personalized EOs and reinforcers, and adjust the conditions based on the client's behavior all while attempting to safely achieve functional control over problem behavior. Furthermore, BST can be time-intensive, particularly when implemented in a one-on-one training arrangement, which limits its scalability.

In this study, we describe a seminar-based approach for imparting capacity to practitioners to conduct practical functional assessment (PFA). Seminar-based approaches are common when training large groups of practitioners; for instance, at the Association for

Behavior Analysis International 44^{5th} Annual Convention in 2019, seventeen 7-hour and fifty-eight 3-hour instructional workshops (n = 75) were scheduled resulting in a total of 293 continuing education units (CEUs) available for BCBAs (Association for Behavior Analysis International, 2020). At the 40th Annual Conference of the Berkshire Association for Behavior Analysis and Therapy in 2019, eighteen 3-hour and three 1.5 hour workshops (n = 21) were scheduled resulting in a total of 63 available CEUs (Berkshire Association for Behavior Analysis and Therapy, 2020). The PFA process includes an interview-informed synthesized contingency analysis (IISCA; Hanley, Jin, Vanselow, & Hanratty, 2014), an FA in which multiple suspected reinforcers and their respective EOs are synthesized in a single test condition while the same reinforcers are simultaneously and continuously available in an otherwise matched control condition. This approach to functional assessment included an open-ended interview with caregivers to identify individualized contingencies of reinforcement suspected to be maintaining problem behavior.

We elected to train practitioners on the PFA process because practitioners responsible for behavioral programming should be skilled in all components of FA including information gathering, analysis design, and analysis implementation. We decided to train capacity with IISCAs primarily because of the reliable social validation of the assessment process involving IISCAs (Beaulieu, Van Nostrand, Williams, & Herscovitch, 2018; Hanley et al., 2014; Jessel, Ingvarsson, Metras, Kirk, & Whipple, 2018; Santiago, Hanley, Moore, & Jin, S. 2016; Strand & Eldevik, 2017; Taylor, Phillips, & Gertzog, 2018) and because of the demonstrated treatment utility of the IISCA (Beaulieu et al., 2018; Chusid Rose & Beaulieu, 2019; Hanley et al., 2014; Herman, Healy, & Lydon, 2018; Jessel et al., 2018; Santiago et al., 2016; Slaton, Hanley, & Raftery, 2017; Strand & Eldevik, 2017; Taylor, et al., 2018).

It is possible that FAs are not being conducted either because they are not considered socially acceptable by BCBAs or their colleagues or because their conduct has not yielded socially meaningful outcomes for practicing BCBAs, or both. The purpose of the current project was to evaluate a model for training BCBAs, BCBA supervisees, ABA graduate students, and classroom staff to conduct functional assessments associated with strong social acceptability and treatment utility. PFAs may be more difficult to implement with integrity than traditional functional assessments and FAs because each IISCA is individualized from an open-ended interview. The integrity with which PFAs were implemented was evaluated and described in this study as well as the probability of a differentiated FA from the collaborative process. We considered the likelihood of our participants conducting FAs that yielded functional control important given the discrepancy between the FA training literature and the functional assessment survey studies. We report social validity data regarding the acceptability of the FA process with the practitioners who implemented the FAs in this study as well as data from FAs conducted following the completion of this study with students who engage in SPB. Finally, as an additional measure of social validity, we gathered reports regarding the extent to which analytic activity continued following the study.

Method

Participants

Eighteen staff from one specialized school for students with autism and other developmental disabilities who engage in problem behavior participated in this study. Staff were nominated for participation by their clinical supervisors. They ranged in experience with respect to designing and conducting FAs, their credentials with regard to board-certification in behavior analysis, and employment duration (see Table 1 for participant details).

Prior to random assignment to the waitlist control or experimental group, participants were matched based on three criteria: their experience designing and conducting FAs (e.g., traditional, trial-based, IISCA); their credential (BCBA; BCBA candidate waiting to take exam; ABA graduate student; or none); and their duration as an employee providing ABA services to children, teenagers, or adults with disabilities. We assigned participants points for each matching criteria. Regarding FA experience, two or more analyses = 2; one = 1; zero = 0; regarding BCBA status, BCBA = 2; candidate or graduate student = 1; none = 0; regarding employment duration, 1+ years = 1; 0-1 years = 0. FA experience and BCBA status were variables that we considered to more likely to influence performance positively. Therefore, we considered them primary matching criteria and weighted them more heavily than employment duration in our matching procedure. We ranked participants according to this combination of matching factors and each ranked dyad (e.g., 1 & 2, 2 & 3, 4 & 5…) were randomly assigned to groups (Table 1) using a randomizer application found at www.random.org.

Measurement

The PFA process was deconstructed into 22 component skills (see y-axis of Figure 2) and trained observers recorded data on each PFA component skill. The interviews and analyses were video recorded, and participant performance was evaluated using pencil and paper data collection post hoc. Each participants' analysis design was compared to an analysis design constructed by an expert (behavior analysis doctoral student with extensive experience designing, conducting, and interpreting FAs). The expert conducted an open-ended interview with the experimenter acting as a caregiver, and the resulting analysis design was used as a model for which to compare against participants' designs. Participants' analysis designs were rated for generic reliability with the expert. In other words, if the participant identified major

categories of reinforcement such as escape to tangibles or escape to mand compliance, the participant received full credit for that design. Specific reliability, such as escape from tangible particular task to a particular item or activity, was not required in order to receive full credit for the design.

Data collection. Observers blind to the matching and random assignment of participants scored the interview and analysis videos. The first author trained data collectors on operational definitions of component skills. Observers recorded data on each component skill as each opportunity occurred. Data collectors recorded whether each participant emitted the target component skill during each opportunity to do so. For each component that could occur more than once during the interview or analysis, such as reinforcing problem behavior during a test condition for 20-40 s or providing salient transitions between establishing operation (EO) and reinforcement (SR) intervals, participants received a performance occurrence percentage. For component skills with binary measures (e.g., begins analysis with control condition), participants were provided full credit or no credit depending on their performance. Component skills that were not occasioned during the PFA process (e.g., ignoring problem behavior in the control condition could only be measured if problem behavior occurred in the control condition), were omitted from the total PFA percentage correct score.

Using the % of occurrence scores recorded by the data collectors, the first author assigned either full, partial, or no credit to each participant's component skills. For skills demonstrated in 80% or more of opportunities, participants were given full credit for that component; for skills demonstrated between 30% and 79% of opportunities, participants were given partial credit for that component; for skills demonstrated between 0% and 29% of opportunities, participants were not given credit for that component. The first author then

calculated a total PFA percentage correct score was by assigning a numerical value to full, partial, and no credit component scores (see Himle, Miltenberger, Flessner, & Gatheridge, 2004). Fully demonstrated skills = 1; partially demonstrated skills = 0.5; skills not demonstrated at all = 0. The total PFA percent correct score was calculated by adding the total component scores and dividing by the number of PFA component skills (with the exception of any skills not expected to occur).

Interobserver agreement. Interobserver agreement (IOA) for interview and analysis component scores for confederate PFAs was assessed by having a second observer collect data on PFA component skills for two participants from the waitlist group and two participants from the experimental group and for one authentic PFA (22% of confederate PFAs; 25% of authentic PFAs). The second observer recorded whether each participant emitted the target component skill during each opportunity to do so, just as the primary data collector did. Agreement percentages were calculated by dividing the number of agreements by the total number of PFA skills multiplied by 100. IOA averaged 92% (range, 82% – 100%) across selected participants for the confederate PFAs (Nancy, 100%; Alissa, 95%; Adam, 91%; Cathy, 82%). IOA was 82% for the authentic PFA. IOA for the authentic IISCA data was calculated for one of the four of analyses (25%). The agreement percentage was calculated by dividing the total number of agreements regarding the occurrence or non-occurrence of problem behavior multiplied by 100. IOA was 100%.

Design

A post-test only group design (Campbell & Stanley, 1963, pp. 25-27) with pre-assignment matching then random assignment was used to evaluate the effects of the PFA training seminar on participants' implementation of the PFA process. The randomized, post-test

only design allows for detection of an effect of an independent variable while controlling for interactions between history and testing effects. This design was selected because we expected some learning to occur during the PFAs conducted with confederates should they have had experienced a baseline condition. Therefore, a pretest may have affected performance during post-tests. In addition, given the resources needed to conduct each confederate PFA (e.g., coming in before school, staying late after school, time away from other clinical responsibilities for both the participants and researchers), the post-test only design allowed the researchers to collect the necessary data for each participant in half the time it would have taken to administer a pretest to each participant.

Procedures

Participant shared experiences. Prior to the start of this study, we provided all potential participants with a document that described all stages of the experiment. We informed them that they would be randomly assigned to either the experimental or waitlist group and that they would conduct a functional assessment with a confederate client. They were all made aware of the chance that they would conduct the assessment without attending the seminar but, if that was the case, that they would attend the seminar following their assessment. After reviewing that document and consenting to participate, participants from both groups completed pre-matching questionnaires (5-10 min), either attended a attended a PFA seminar (3 hr) and conducted PFAs with confederate clients (10-40 min), or conducted PFAs with confederate clients (10-40 min) and then attended a PFA seminar (3 hr). Members of both groups received feedback on their performance (10-20 min) following their analysis implementation with confederate clients if they volunteered to implement a PFA with an actual client. Researchers followed identical interview and analysis scripts regardless of which group the participant was assigned. The PFA seminar

was identical in content and duration for both groups, with some differences noted based on participants' questions as the seminars progressed. The experiences for participants in the experimental group differed from the experiences for participants in the waitlist group only with regards to when they attended the PFA seminar. Those in the experimental group attended the seminar prior to conducting a PFA with a confederate client and those in the waitlist group attended the seminar after conducting a PFA with a confederate client.

PFA seminar. The independent variable in this study was a three-hour seminar, with one 15-min break embedded, presented to participants in the experimental group prior to their confederate PFA experience. The seminar, developed by the first and second authors and presented by the first author, was designed to provide participants with the skills required to conduct the open-ended interview, use the information gathered in the interview to design a safe, efficient analysis, and conduct the analysis. Participants were provided with a workbook, a pen, and blank paper to use for note taking if they chose to do so. Some sections of the workbook were prepopulated with information regarding how to conduct the IISCA and other sections were left blank to encourage participants to attend to the material being discussed (see Glodowski & Thompson, 2018, for a description of guided notes; Appendix D).

The seminar consisted of several components of BST including didactic instruction based on a PowerPoint presentation, video examples of trained experimenters implementing PFA component skills with real clients, active responding during which participants collaborated on mini assessments throughout the presentation, and discussion of four cases among participants. The seminar progressed from general discussion regarding FA safety and efficiency to description of and rationale for the PFA process to examples of how to make adjustments that may result in a greater level of control over problem behavior during an analysis. For instance,

the researcher discussed the importance of reinforcing non-dangerous of topographies of problem behavior that are likely members of the same response class as dangerous topographies (see Warner et al., 2020) to prevent the occurrence of dangerous behavior. In addition, participants were given a task analysis made up of each PFA component skill. Participants were encouraged, but not required to take notes or ask questions throughout the seminar.

Confederate PFAs. All participants conducted a confederate PFA with an experimenter acting as a caregiver during the interview and as a child engaging in problem behavior during the analysis. All interviews and analyses were conducted on the same day; some were conducted back-to-back with 10-20 min allocated for the design and others were conducted with several hours in between (e.g., interview at 7:30 am and design/analysis at 3:00 pm). During the interview, we gave all participants a writing utensil, a folder with the open-ended interview (Hanley, 2012), and blank pieces of paper. The experimenter told each participant, "This is your chance to get some information to conduct a functional analysis. Here are some materials to do that – you can choose to use them or not. If you prefer to use this time differently, you may. You can stop at any time." Participants were free to use the time as they pleased and the experimenter was instructed to terminate any interview that exceeded 60 minutes, however none did.

The experimenter was provided with a script that outlined several responses to each question on the interview. If the participant asked the question as written in the interview, the experimenter responded with answer A; if the participant asked a follow up question or inquired about additional detail, the experimenter responded with answer B; if the participant asked an additional question, the experimenter responded with answer C. In other words, each additional question asked by the participant resulted in more qualitatively rich detail regarding the child and/or the EOs and SRs influencing problem behavior. We chose to provide the researcher with a

script with several response options so that participants would be required to ask additional questions to gather all the information they needed. The experimenters were provided with the expert's analysis design and instructed to reference that design when unsure how to answer a participant's question. For example, if a participant asked a question about EOs and/or reinforcers that were not in the script, the researcher referenced the expert's analysis design and provided information such that the participant could achieve generic reliability with the expert.

During the design process, we gave participants a writing utensil and a folder with an analysis design form (developed for the PFA seminar; see Appendix E) and blank pieces of paper. The experimenter told the participant, "This is your time to design your conditions. Here are some materials to do that – you can choose to use them or not. Let me know when you are ready to proceed with the analysis." Participants were free to use the time as they pleased and the experimenter was instructed to terminate any design process that exceeded 20 minutes, however none did.

During the analysis, all participants were provided with a writing utensil, a clipboard, a data sheet, a timer, and a plastic storage bin with the following items: toy cars, crayons, coloring sheets, math worksheets, toothpaste, a toothbrush, puzzles, sight word flashcards, and math flashcards. The contents of the bin consisted of all SR and EO materials that the experimenters were instructed to divulge during the interview. In addition, there were several other reinforcers and EO materials included that were not suggested during the interview. The experimenter told the participant, "This is your time to conduct your analysis. Here are some materials to do that – you can choose to use them or not. You can terminate the analysis at any point. Please identify what you are doing by saying aloud the condition you are running. For example, you could say,

'Starting control condition,' before you start a control condition. Take 3-5 minutes to get set up and we will begin."

The researcher was provided with a description of how to behave during each condition depending on what the participant did. For example, if the participant refrained from implementing any EOs during the control condition, the researcher did not engage in any problem behavior. However, if the participant implemented any EO during the control condition, the researcher immediately engaged in the least dangerous topography of problem behavior reported to precede or co-occur with the dangerous topographies. If the participant reinforced that behavior, the researcher stopped engaging. If the participant did not reinforce that response, the researcher engaged in the next least-dangerous topography and continued up the response class hierarchy until the most concerning topography of behavior (i.e., self-injury). Unlike previous FA training studies, confederates engaged in problem behavior contingent on the participant implementing an EO instead of on a time-based schedule. We chose to engage in problem behavior contingent on EOs rather than on a time-based schedule to better emulate authentic FAs.

Social validity. After completion of the confederate PFAs, we asked each participant to rank their confidence in their ability to conduct a safe and efficient functional analysis. Participants were asked to rank their confidence and/or ability in different components of conducting a PFA from 1 (not at all) to 7 (very much so). See Table 2 for specific social validity statements.

Authentic PFAs. We invited all participants to participate in the authentic PFA portion of this study after they completed the confederate analysis portion and attended the seminar (waitlist group only). Two participants from the experimental group and two participants from

the waitlist group conducted a PFA with a client in their setting. The primary author met with each participant via phone for 10-20 min to review the video of their confederate PFA and provided feedback on any component skill not implemented fully during the process. Participant G_E conducted an authentic PFA with Hannah, an 8-year-old girl diagnosed with autism spectrum disorder who engaged in self-injury, property destruction, aggression, crying, and bolting. She communicated using an alternative and augmentative communication (AAC) device and liked to play with her iPad, music toys, and swings. Hannah was identified for participation in this study due to a recent increase in dangerous behavior resulting in the need for emergency physical restraint procedures to prevent injury to herself and her caregivers.

Participant C_E conducted an authentic PFA with Cam, a 19-year-old man diagnosed with autism spectrum disorder who engaged in aggression, property destruction, foot stomping, and yelling. He communicated vocally and enjoyed playing on his iPad while interacting with his teachers. Cam was identified for participation in this study because he had several inconclusive FAs and he continued to engage in dangerous problem behavior in his school and residence.

Participant F_W conducted an authentic PFA with Daniel, a 16-year-old young man diagnosed with autism spectrum disorder, attention-deficit/hyperactive disorder, intellectual disability, cerebral palsy, and Blount disease who engaged in head-directed self-injury, aggression, property destruction, and swearing. He communicated vocally and enjoyed playing with his toys including blocks and electronics while interacting with teachers. Daniel was identified for participation in this study because the severity of his problem behavior had caused injury to himself and staff members.

Participant I_W conducted an authentic PFA with Albert, a 15-year-old young man diagnosed with autism spectrum disorder who engaged in aggression, property destruction,

swearing, and vocal protests. He communicated vocally and his preferences included playing keyboard, taking photos/videos and talking about them with his teachers, and playing with toy bugs. Albert was identified for participation in this study because the severity of his aggression had recently led to his school district placing him out of district at a private school for children with autism and severe problem behavior.

During all authentic IISCAs, a researcher was present to film the analysis and provide guidance to the participant only if it appeared likely that dangerous problem behavior might occur due to participant error (e.g., escalating the EO too quickly, not reinforcing non-dangerous topographies). For example, if a participant had progressed an EO too quickly or withheld some reinforcers contingent on problem behavior during a test condition, the researcher would have prompted Lucy to follow the IISCA task analysis that she received during the PFA seminar. However, this did not occur for Lucy or any other participants. These four participants conducted all steps of the PFA process independently.

Follow up questionnaire. Ten months after attending the PFA seminar, we surveyed all participants in regard to their functional assessment practices since experiencing the training. We asked participants if they were currently in a position to initiate or implement functional analyses in their settings. We also asked participants how many functional analyses they had designed or conducted in their setting since attending the PFA seminar (this same question was asked prior to the training in the screening process, allowing for a comparison of responses).

Results

Confederate PFAs

Total PFA scores from each group are summarized in Figure 1. All PFA performance scores for those in the experimental group were higher than those in the waitlist group. A two-

tailed Mann-Whitney *U* statistic revealed that the PFA seminar led to a statistically significant difference with respect to the target PFA skills ($U = 0.0$, $p < .001$) suggesting the seminar was responsible for the improved performance conducting IISCAs. The between-groups effect size statistic describes a relatively large effect ($d = 3.49$).

Randomization of the matched pairs resulted in no difference in BCBA status across groups; however, the number of FAs conducted favored the waitlist group and the number of years of employment favored the experimental group. Furthermore, Pearson correlations (*r*), calculated for each matching factor and performance both within and across groups, revealed statistically insignificant correlations.

Participants in the waitlist group demonstrated fewer overall component skills of the PFA process than participants in the experimental group (see Figure 2). The mean total PFA score for participants in the waitlist group was 36% correct. By contrast, the mean total PFA score for participants in the experimental group was 87% correct. Within the waitlist group, participant C_W achieved the lowest overall PFA implementation score and participant F_W achieved the highest (7% correct and 71% correct, respectively). In general, participants in the waitlist group demonstrated a majority of the *interview* component skills at least partially. Only two participants, A_W and B_W, demonstrated each *design* component skill at least partially. The remaining participants omitted at least one design component skill. Performance during the *analysis*, however, varied among participants in the waitlist group. Participant F_W demonstrated most analysis component skills fully. A few participants B_W, D_W, and E_W – demonstrated some skills to proficiency. Others, A_W, C_W, G_W, H_W, and I_W, demonstrated few or no skills to proficiency.

By contrast, participants in the experimental group demonstrated relatively high levels of PFA component skills. Participant B_E achieved the lowest overall PFA implementation score and participant E_E achieved the highest (73% correct and 96% correct, respectively). In general, participants in the experimental group demonstrated a majority of interview component skills fully with one notable exception. Several participants received partial or no credit for asking follow-up questions, however, this did not appear to impact their ability to design and conduct their analysis. All participants in the experimental group demonstrated at least half of the design component skills fully, with four participants demonstrating all four design component skills fully[1].

Performance during the analysis was consistent across participants in the experimental group. Consistent errors were observed across participants with two component skills in particular. For example, several participants failed to reinforce the first instance of problem behavior and instead waited to reinforce a more dangerous topography (e.g., withheld reinforcers for whining but delivered them for physical aggression). In addition, five participants failed to provide reinforcement for 20-40 seconds contingent on problem behavior in a test condition with some participants reinforcing for less than 20 seconds and others reinforcing for longer than 40 seconds. However, despite these errors and with the exception of participant B_E, all participants in the experimental group achieved total PFA implementation scores of 80% correct or higher.

Social Validity

Immediately following their confederate PFA experiences, participants from both the waitlist and experimental group responded to a survey in which they ranked their confidence or ability to implement the PFA process on a scale from 1-7 (1 = not at all; 4 = unsure; 7 = very

[1] Design data for Henry were misplaced and not available for inclusion in the analysis.

much so). This question was an attempt to measure the meaningfulness of the outcomes (Wolf, 1978). Results from that survey are displayed in Table 2. Participants in both waitlist and experimental groups felt confident in their ability to gather information to design an ecologically relevant, safe, and socially acceptable FA. Participants in the waitlist group felt less confident in their ability to efficiently demonstrate control over problem behavior than participants in the experimental group. Most participants from the waitlist group did not respond to the question regarding the training they received regarding the PFA process. By contrast, the majority of participants in the experimental group reported that the training they received regarding the PFA process enhanced their ability to design, conduct, and interpret an FA.

A two-tailed Mann-Whitney *U* statistic, and a between-groups effect size statistic (*d*) are reported for the social validity measures. There was no statistically significant difference between participants' confidence in gathering relevant information to conduct an FA nor in their confidence in conducting an FA that would be safe and socially acceptable to the client's caregivers. The between-groups effect size statistic describes a relatively large effect in regard to participants' confidence in their ability to implement an efficient FA that yielded functional control and their interpretation of how their training enhanced their ability to design, conduct, and interpret an FA (d = 1.3 and 2.8, respectively).

Authentic PFAs

Participants' performances during their authentic PFAs are depicted in the final column on Figure 2. Their performance during the authentic PFA process was evaluated identically as it was during the confederate PFA experience. All participants demonstrated the majority of component PFA scores to proficiency; Participant G_E's total PFA score during her authentic PFA experience was 91%; Participant C_E's total PFA score during his authentic PFA experience was

96%; Participant F_W's total PFA score during her authentic PFA experience was 96%; Participant I_W's total PFA score during her authentic PFA experience was 100%.

The results from the authentic IISCAs are depicted in Figure 3. Hannah's caregiver reported that problem behavior was most likely to occur when her preferred toys and attention were removed and she was instructed to go to her table to engage in academic demand. During the control condition, Hannah was given continuous access to her preferred toys, attention from Participant G_E, and no demands were presented. During the test condition, Participant G_E terminated access to the preferred toys, removed her attention other than providing instructions, and instructed Hannah to transition to the worktable. Contingent on the occurrence of any problem behavior, Participant G_E removed all EOs and delivered access to the synthesized reinforcers. During the analysis, elevated rates of problem behavior were observed during the test condition and zero problem behavior was observed during the control conditions.

Cam's caregiver reported that problem behavior was most likely to occur when Cam had to relinquish his iPad, attention from his staff diminished, staff did not comply with his mands, and staff presented academic demands. During the control condition, Cam was given continuous access to his iPad, attention from Participant C_E in the form of mand compliance and discussion about his videos, and no demands were presented. During the test condition, Participant C_E removed the iPad, did not comply with Cam's mands, and provided instructions to complete an academic task. Contingent on the occurrence of any problem behavior reported to co-occur, Participant C_E removed all EOs and delivered access to the synthesized reinforcers. During the analysis, elevated rates of problem behavior were observed during the test condition and no problem behavior was observed during the control conditions.

Daniel's caregiver reported that problem behavior was most likely to occur when Daniel was instructed to stop playing with his toys without warning of the upcoming transition to a less-preferred activity. During the control condition, Daniel was allowed continuous access to his preferred toys and conversation about his favorite videos without any instruction to terminate playing and start a new task. During the test condition, Amy removed the preferred items from Daniel and prompted him to complete an academic task without any warning of the transition. Contingent on any problem behavior reported to co-occur, Participant F_W terminated all EOs and delivered access to the synthesized reinforcers. Amy decided to conduct two iterations of the IISCA due to no responding in the first iteration. In the second iteration, Participant F_W placed Daniel's preferred toys out of view during the test conditions. This change in EO presentation resulted in elevated rates of problem behavior in the test condition and no problem behavior in the control condition.

Albert's caregiver reported that problem behavior was most likely to occur when a teacher interrupted him playing with preferred toys, stopped providing him with attention relevant to those toys/activities, and instructed him to complete a difficult academic task. During the control condition, Albert was allowed to play with a variety of preferred toys including the keyboard, plastic bugs, and an iPad to use for taking pictures and videos. Participant I_W provided him with continuous attention related to those ongoing activities. During the test condition, Participant I_W instructed Albert to stop playing, relinquish his positive reinforcers, and complete a difficult academic task. In the first iteration, Participant I_W provided prompting to complete the task (data not shown). Despite designing these conditions based on caregiver report, the EOs were not strong enough to evoke problem behavior. Participant I_W independently altered the conditions and instructed Albert to relinquish his positive reinforcers and complete a difficult

academic task independently. Despite this change, Albert did not engage in any problem behavior during the analysis.

Follow-up Questionnaire

Twelve of eighteen participants, six from the experimental group and six from the waitlist group, returned the survey (67% return rate). All twelve respondents were working in positions in which they were able to initiate functional assessments either during clinical review or team meetings. Prior to attending the PFA seminar, 33% of respondents (n = 4) had reported that they designed and/or conducted a total of 8 FAs in their work history. Ten months after attending the PFA seminar, 100% of respondents (n = 12) had reported designing and/or conducting a total of 39 FAs representing almost a five-fold increase in the use of functional analysis among respondents (see Figure 4).

Discussion

The PFA seminar proved to be an effective and socially validated method for training behavior analytic practitioners to conduct a practical functional assessment process with confederate and some actual clients. In this study, we addressed several barriers preventing practitioners from using FA as identified by Oliver et al. (2015) and Roscoe et al., (2015). Survey respondents cited inadequate training, lack of time, and social acceptability of FA procedures as barriers to conducting FAs. The participants in the current study were adequately trained via seminar to conduct FAs efficiently (range: 10-40 min) and safely (e.g., minimal dangerous problem behavior occurred).

After attending the seminar, participants demonstrated the ability to gather information regarding a response class of problematic behaviors as well as the EOs and reinforcers suspected to be influencing problem behavior. They synthesized the information gathered during the

interview to design an ecologically relevant analysis with all members of the response class eligible for reinforcement during the test condition and all suspected reinforcers freely available during the control condition. Participants then conducted their confederate IISCAs and demonstrated control over problem behavior. The PFA seminar resulted in all but one participant in the experimental group demonstrating proficiency (i.e., at least 80% correct implementation) with the PFA process.

Several components of the PFA seminar likely contributed to its positive effects. The emphasis on role plays and active responding, for example, provided participants with multiple opportunities to practice and receive feedback. . It may have been the case that participants' performance was influenced by receiving direct feedback and by observing others receive feedback. Because the training was provided to a group, participants received feedback on their responses and observed other participants receive feedback. In addition, the video examples may have provided effective models of how to perform during a PFA. The effects of video modeling on staff skill acquisition is well documented (see Bovi, Vladescu, DeBar, Carroll, & Sarokoff, 2017 and Deliperi, Vladescu, Reeve, Reeve, & DeBar, 2015 for recent examples) and is likely to have contributed to participants' performances. A seminar-based approach to training staff to conduct FAs might not be as efficacious without all or some of these components.

This training in addition to feedback following implementation with a confederate also led to successful implementation of the PFA process with clients who engage in SPB. The interaction between the effects of the seminar and feedback are unknown from this study. Identifying the effects of a seminar experience on PFA implementation without any feedback would be important as many professionals who attend workshops and may not have the opportunity for feedback prior to implementation. Until that sort of study is conducted, our

recommendation at this point is for professionals to arrange for observation and feedback on their PFA implementation following workshop experiences.

During the authentic IISCAs, three out of four participants successfully evoked and reinforced non-dangerous topographies of problem behavior, preventing the occurrence of dangerous behaviors that were reported to be members of the same response class. This seems to be an important emphasis for PFA trainings given the strong support for this tactic shown in Warner et al. (2020). Given the variability of this tactic being implemented with confederate clients, this aspect of the seminar-based training probably should be strengthened in future applications.

Despite a wide variety of expertise and experience among participants in the experimental group, the PFA training resulted in greater reported confidence in conducting analyses that yield functional control. In fact, participants in both the experimental and waitlist groups reported using FA more often in their practice following the seminar. More specifically, all twelve participants who responded to the follow-up survey reported conducting FAs within 10 months of completing the study. This is contrasted with only one third of participants reporting FA activity prior to the PFA seminar. A limitation of the current study is that we did not demonstrate experimental control over the 39 future applications of FA reported by our survey respondents. Future research should push out the scheduling of the waitlist group's seminar experience by several months from that of the experimental group so that a more experimentally rigorous understanding of the general impact of the PFA seminar can be realized.

Future researchers might also consider how to augment the effects of the seminar for participants who do not demonstrate proficiency. Griffith et al. (2019) provided individualized instructions to participants who did not demonstrate proficiency following a self-instruction

package and small group training. It is possible that similar, individualized teaching would enhance participants' PFA skills. Future researchers might also consider using video modeling, similar to Moore & Fisher (2007), as a method for improving performance following the seminar. Participants who failed to meet criteria with a confederate might also benefit from more support during application with a client. Supported application with a real client would allow for the expert to provide coaching and feedback on all component skills. This support could be provided on-site or at a distance given the advances in telehealth technology (Peterson, Piazza, Luczynski, & Fisher, 2017; Wacker et al., 2013).

Another limitation of the current study was that we did not teach participants how to engage in the iterative process that is sometimes involved in PFAs. Three out of four authentic IISCAs were differentiated in the first iteration, which is consistent with previous studies replicating IISCAs in clinical settings (Jessel, Hanley, & Ghaemmaghami, 2016; Jessel et al., 2018). However, it is possible that Participant I_w would have achieved control over problem behavior with Albert had we spent more time discussing what to do when the first iteration does not result in a differentiated outcome. A refinement of the PFA component skills might include problem solving such that control over problem behavior is achieved.

Another next step for future research would be to evaluate the effects of a similar seminar on designing and implementing treatment based on the results of a PFA. A seminar might be a useful way to disseminate basic information about function-based treatments. Future researchers should consider evaluating the extent to which such a training might augment a collaborative implementation process in which experts consult to practitioners learning to implement interventions. Given the complex decision-making skills required to implement treatment

protocols that result in meaningful reductions in problem behavior, a seminar without supported application would likely not be an effective training method.

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Table 1

Participant Characteristics

	Waitlist Group				Experimental Group			
Pairing	Name *Matching Score*	FAs Designed and/or Conducted	BCBA Status	Employment Duration (years)	Name *Matching Score*	FAs Designed and/or Conducted	BCBA Status	Employment Duration (years)
A	Alissa *5*	4	BCBA	1+	Nancy *5*	2	BCBA	1+
B	Mary *4*	2	Candidate	1+	Sandy *4*	2	Candidate	1+
C	Jen *3*	2	Grad student	0-1	Henry* *4*	2	Grad student	1+
D	Adam *1*	0	Grad student	0-1	Cathy *1*	0	Grad student	0-1
E	Sue *1*	0	Grad student	0-1	Kevin *2*	0	Grad student	1+
F	Amy* *2*	0	Grad student	1+	Stacy *2*	0	Grad student	1+
G	Maddie *2*	0	Grad student	1+	Lucy* *1*	0	Grad student	0-1
H	Ashley *0*	0	None	0-1	Sheila *1*	0	None	1+
I	Kerri* *0*	0	None	0-1	Diane *1*	0	None	1+

Note: Participants displayed in order of ranked pairs. *Conducted authentic PFA.

Table 2
Social Validity

	Waitlist Group										Experimental Group										
Statement	A	B	C	D	E	F	G	H	I	Mode *range*	A	B	C	D	E	F	G	H	I	Mode *range*	*U* statistic *Effect size*
I felt confident in my ability to gather relevant information to design an ecologically relevant FA.	6	6	5	6	4	6	6	6	3	6 *3-6*	7	6		7	6	6	6	3	7	6 *3-7*	U = 20.5 *d = 0.62*
I felt confident that I could conduct an efficient FA that would yield sufficient functional control.	5	5	4	3	3	4	2	4	3	3, 4 *2-5*	6	6		5	6	5	5	2	6	6 *2-6*	U = 11.5 ***d* = 1.28**
I felt confident that I could conduct a safe FA that is socially acceptable to the client and his/her caregivers.	5	7	5.5	3	3	6	6	5	6	6 *3-7*	7	6		7	7	6	4	3	6	6, 7 *3-7*	U = 24 *d* = 0.41
The training I received regarding conducting PFAs enhanced my ability to design, conduct, and interpret an FA.			5	4	3	4	1	5		4, 5 *1-5*	7	7		7	7	7	6	7	6	7 *6-7*	**U = 0.0** ***d* = 2.76**

Note: 1= not at all; 4= unsure; 7= very much so; no text = no response. A two-tailed Mann-Whitney *U* statistic, and a between-groups effect size statistic (*d*) are reported. Statistically significant effects are in bold.

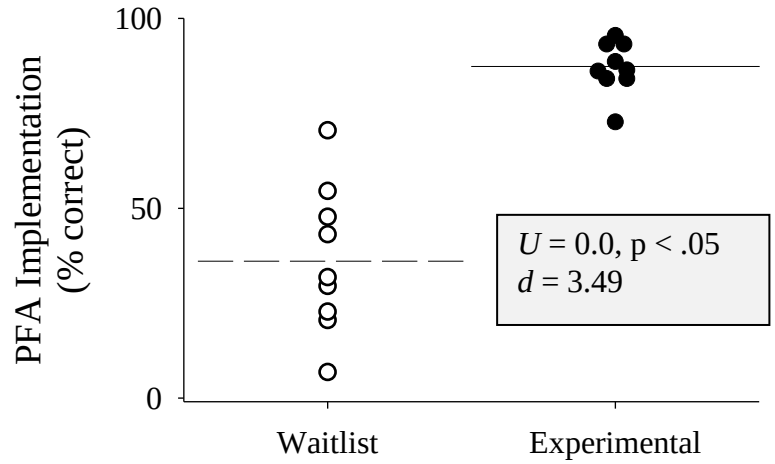


Figure 1. Total PFA implementation scores for waitlist and experimental group participants. Mean lines, a two-tailed Mann-Whitney *U* statistic, and a between-groups effect size statistic (*d*) are reported.

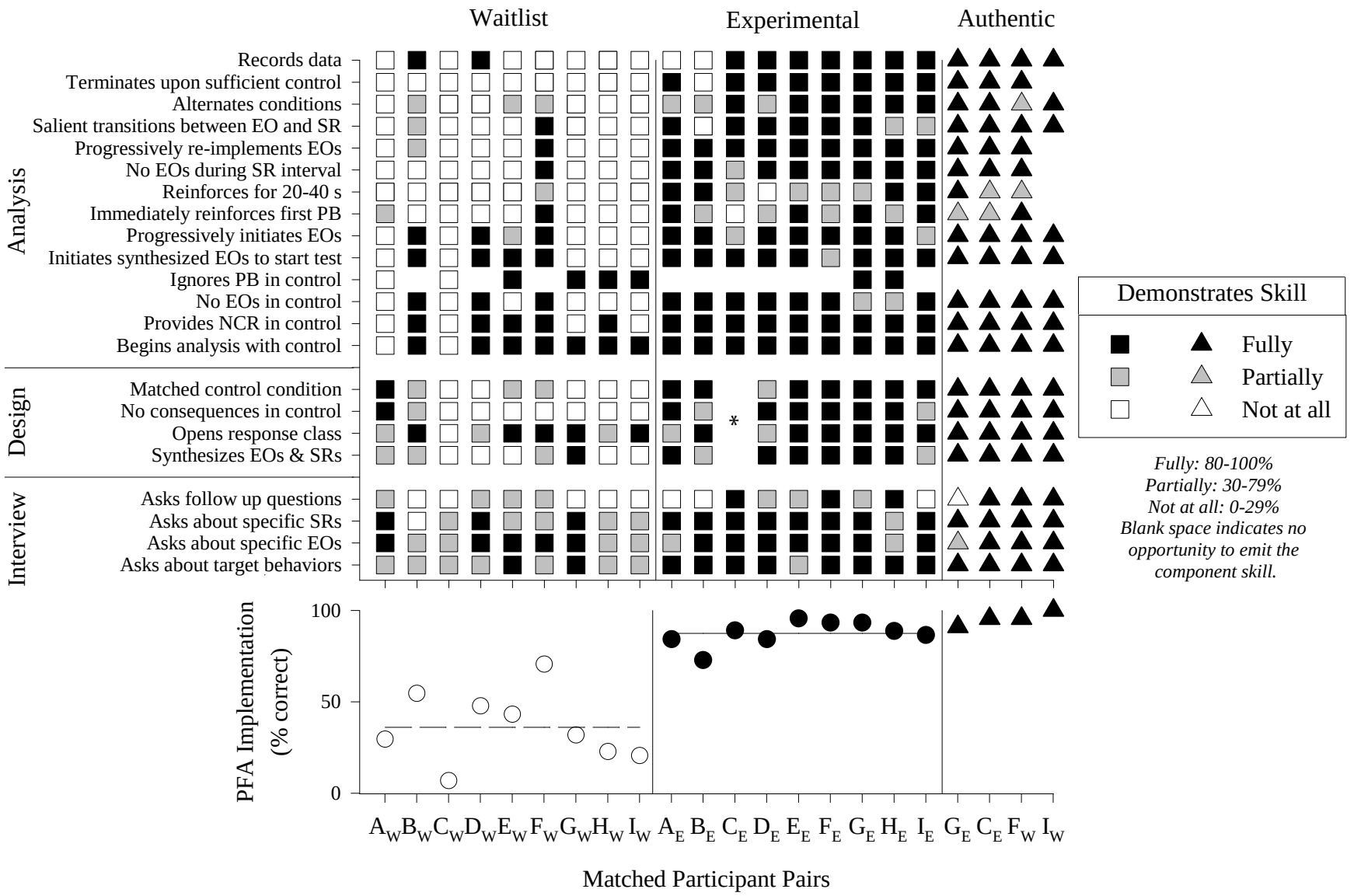


Figure 2. PFA component scores (top panel) and total PFA implementation scores (bottom panel) for participants in the waitlist group, experimental group, and with clients. Waitlist mean (36.1%) and experimental mean (87.4%) are represented in the bottom panel by the dashed and solid lines, respectively. Breaks in the data path represent no opportunity to observe the component skill. *Design data unavailable for participant C_E.

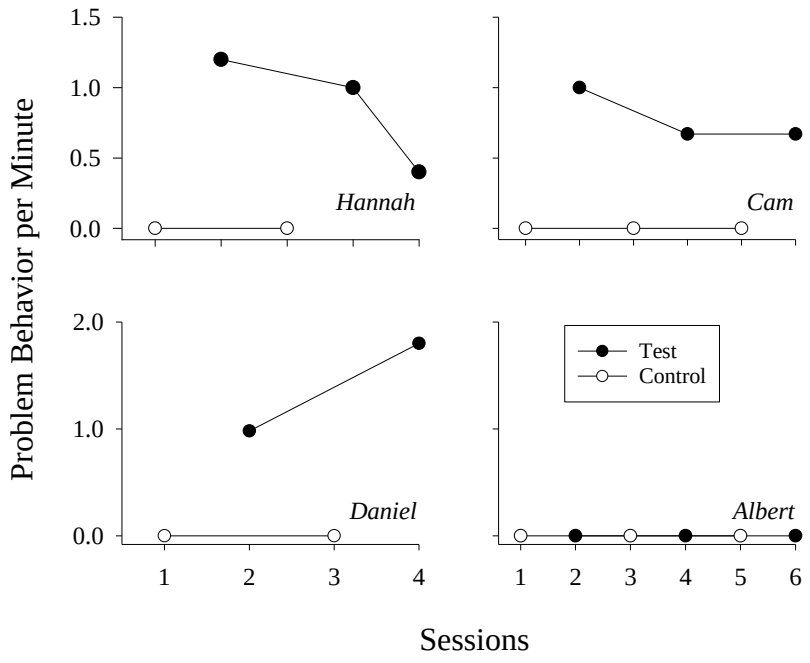


Figure 3. Results from G_E's authentic IISCA with Hannah, $C_{E's}$ authentic IISCA with Cam, F_W's authentic IISCA* with Daniel, and I_W's authentic IISCA* with Albert. *Data from final iterations presented.

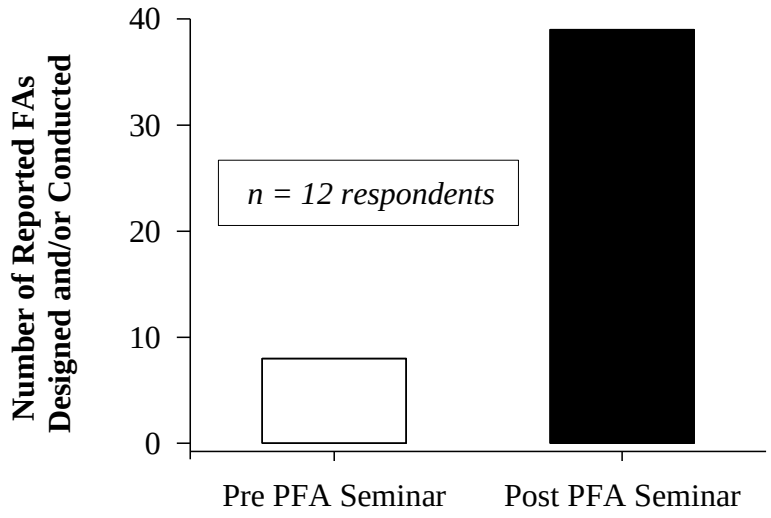


Figure 4. Results from the follow up survey distributed to all participants.

Appendix A: Pre-Matching Questionnaire

Functional Analysis Questionnaire Regarding Experience and Confidence

Name: _____ Job title: _____

Phone number: _____ Personal email address: _____

Thank you for agreeing to answer several questions about your experience as a clinician and your experience with conducting functional analyses. Please answer the questions honestly and provide as much detail as you can.

1. I am a (circle all that apply):

   BCBA BCaBA TeacherTA Grad Student Other:_____

   If you are a student of behavior analysis, are you currently receiving supervises hours towards your BCBA?

   Yes No N/A

2. How long have you been in the role you identified above?
   a. 0-1 year
   b. 1-3 years
   c. 3-5 years
   d. 5+ years

3. What is a functional analysis?

_____

_____

_____

4. How many functional analyses have you designed?
   a. 0
   b. 1-3
   c. 3-5
   d. 5+

5. How many functional analyses have you conducted?
   a. 0
   b. 1-3
   c. 3-5
   d. 5+

6. Do you feel confident in your ability to gather relevant information to design an ecologically-relevant functional analysis?

Not at all			Not Sure			Very much
1	2	3	4	5	6	7

Please elaborate.

5. Do you feel confident that you can conduct an efficient functional analysis that will yield sufficient functional control?

Not at all						Very much
			Not sure			
1	2	3	4	5	6	7

Please elaborate.

6. Do you feel confident that you can conduct a functional analysis considered safe and socially acceptable by the client and his/her caregivers?

Not at all			Not Sure			Very much
1	2	3	4	5	6	7

Please elaborate.

7. Do you feel confident that you can interpret data from a functional analysis and determine whether or not that analysis has resulted in sufficient functional control?

Not at all			Not Sure			Very much
1	2	3	4	5	6	7

Please elaborate.

8. Please tell us anything else about your experience with functional analyses that is important for you to share with us.

Appendix B: Follow Up Questionnaire

Name: _____ Job title: _____

Thank you for agreeing to answer several questions about your experience as a clinician and your experience with conducting functional analyses. Please answer the questions honestly and provide as much detail as you can.

4. I am a (circle all that apply):

BCBA BCaBA Teacher TA Grad Student
Other:_____

If you are a student of behavior analysis, are you currently receiving supervises hours towards your BCBA?

Yes No N/A

5. How long have you been in the role you identified above?
   a. 0-1 year
   b. 1-3 years
   c. 3-5 years
   d. 5+ years

6. Are you in a position to suggest, design, and/or conduct a functional analysis in your current position at case review meetings, clinical review meeting, or some other platform?

Suggest	Yes	No
Design	Yes	No
Conduct	Yes	No

Since you attended the workshop on the Practical Functional Assessment process in November/December 2018…

4. How many functional analyses have you suggested to your supervisor?
   a. 0
   b. 1-3
   c. 3-5
   d. 5+

5. How many functional analyses have you designed or helped to design?
   e. 0
   f. 1-3
   g. 3-5
   h. 5+

6. How many functional analyses have y conducted or helped to conduct?
   e. 0
   f. 1-3
   g. 3-5
   h. 5+

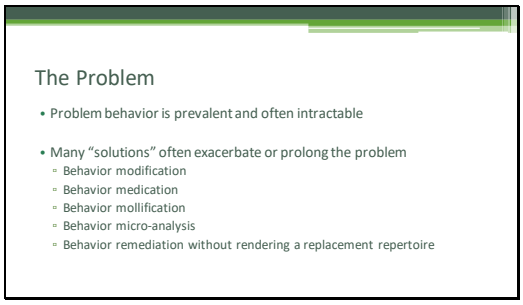
7. Of the _____ functional analyses I have participated in since the PFA workshop, _____ of them have been IISCAs.

8. Please describe any barriers you encounter in your efforts to efficiently and safely assess problem behavior with your clients:

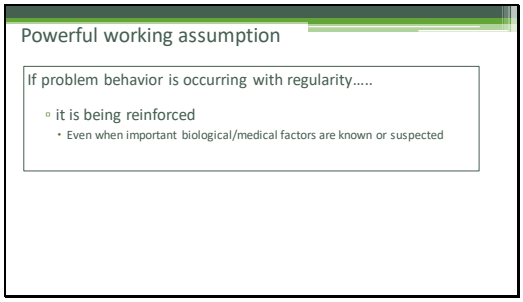
Appendix C: Seminar Presentation Slides

Slide 1

Slide 2



Slide 3



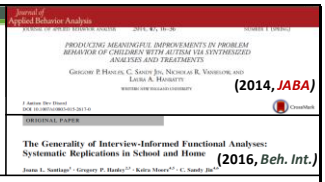
Slide 4

Today's Focus

- Practical functional assessment process
  - Safe
  - Fast
  - Effective
    - Has led to generalized and socially-validated reductions in problem behavior
      - *When used to inform a skill-based treatment process*

Slide 5

Effects deemed meaningful by parents and teachers following analysis and treatment involving synthesized reinforcement contingencies



(2014, *JABA*)

(2016, *Beh. Int.*)

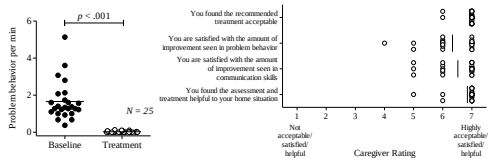
Similar effects reported in these—from other research groups

Strand & Eldevik (2017, *Beh. Int.*)
Herman, Healy, & Lydon (2018, Dev. Neuro.)
Jessel, Ingvarsson, Metras, Hillary, & Whipple (2018, *JABA*)
Beaulieu, Clausen, Williams, & Herscovitch (2018, *BAP*)
Taylor, Phillips, & Gertzog (2018, *Beh. Int.*)
Chusid & Beaulieu (2019, *JABA*)

Slide 6

Jessel, Ingvarsson, Metras, Hillary, & Whipple (2018, *JABA*)

Achieving Socially Significant Reductions in Problem Behavior following the Interview Informed Synthesized Contingency Analysis: A Summary of 25 Outpatient Applications



**Similar CCCSD evidence for any other functional assessment process does not exist.*

Slide 7

You should be Able to Answer These Questions

Among others (see Notebook)

- **What?**
  - What is a practical functional assessment (PFA) process?
  - What is an interview-informed synthesized contingency analysis (IISCA)?
- **Why?**
  - Why should I consider implementing the PFA process?
  - Why should I conduct an IISCA?
- **How?**
  - How do I implement the PFA process?
  - How do I implement the IISCA?
- **Which?**
  - Which parts of the PFA process are fundamental and which are negotiable (and adaptable)?
  - Which parts of the IISCA are fundamental and which are negotiable (and adaptable)?

Slide 8

What is a Practical Functional Assessment (PFA)?

- It is a process:
  - for gaining an understanding of some of the variables influencing the continued occurrence of problem behavior
  - to identify the reinforcing contingency that is responsible for the continued occurrence of problem behavior
  - to identify the events that reliably evoke problem behavior and the consequences that momentarily terminate the problem behavior while also strengthening its likelihood the next time the same events are experienced
  - to identify the establishing operations and reinforcers for problem behavior

Q1

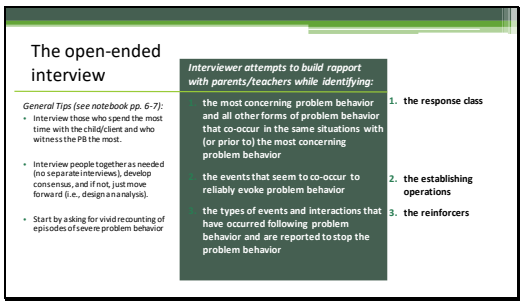
Slide 9

What is involved in a Practical Functional Assessment (PFA) process?

- An open-ended interview (always)
- An observation (sometimes)
- A functional analysis (always)
  - An IISCA

Q2

Slide 10



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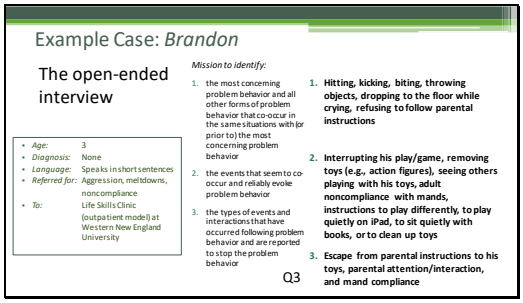

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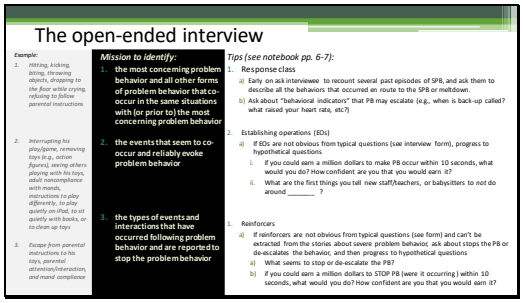


Slide 13

Analysis is then designed from the interview

An IISCA:

A type of functional analysis in which problem behavior sensitivity to a personalized and synthesized reinforcement contingency is evaluated ….

--through repeated and direct observation of problem behavior during two conditions

--distinguished by the presence (test) and absence (control) of the reinforcement contingency suspected of influencing problem behavior

--in order to understand why problem behavior is occurring Q4

Sidebar: Is an IISCA a functional analysis?

Consider definition of a functional analysis of problem behavior

Repeated and direct observation of problem behavior under at least two conditions in which a variable suspected of being responsible for problem behavior is manipulated in order to understand why problem behavior is occurring (Hanley, Iwata, & McCord, 2003)

Slide 14

Example IISCA (*Brandon)*

Test condition: Emulates situation that reportedly occasion problem behavior

1) Progressively present the establishing operations (EOs):
   a) interrupt his play/game,
   b) remove the toys with which he is engaged,
   c) provide instructions to play differently or quietly on iPad, sit quietly with books, or clean up toys
   d) divert attention to another adult or to a different activity
   e) do no comply with his mands
2) Immediately terminate all EOs (provide putative reinforcers of escape to toys, attention, & mand compliance) following any attempt to hit, kick, bite, throw objects, drop to the floor and cry, or whine a protest:
   a) re-initiate interrupted play/game,
   b) re-issue the toys with which he is engaged,
   c) end instruction to play differently or quietly on iPad, sit quietly with books, or clean up toys
   d) provide undivided attention (be close, oriented, and available) and respond to bids for attention
   e) comply with all reasonable mands

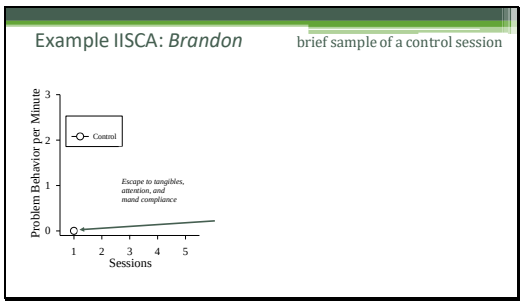
Slide 15

Example IISCA (*Brandon)*

Control condition:

1) Continuously provide putative reinforcers of escape from instructions to toys, attention, and mand compliance
   a) Provide access to many preferred toys and activities and allow his play with any
   b) Provide undivided attention (be close, oriented, and available) and respond to bids for attention
   c) comply with all reasonable mands
   d) With hold all instructions to play differently or quietly on iPad, sit quietly with books, or clean up toys
2) No change in interaction following any instance of problem behavior

Slide 16



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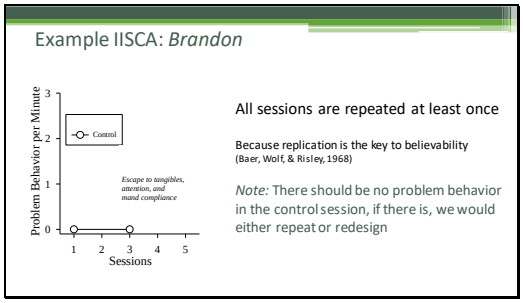

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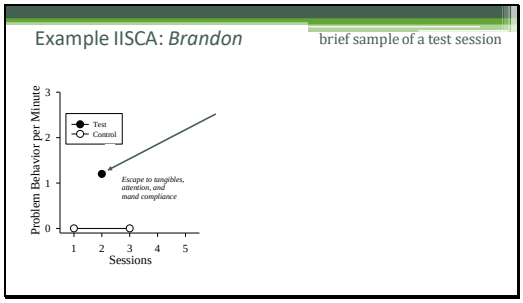

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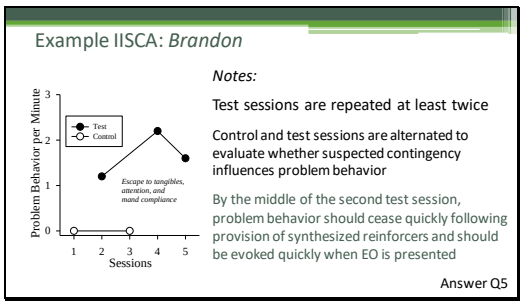

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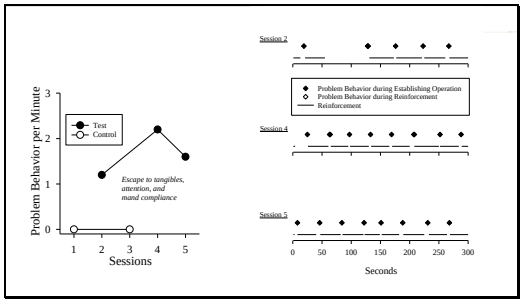

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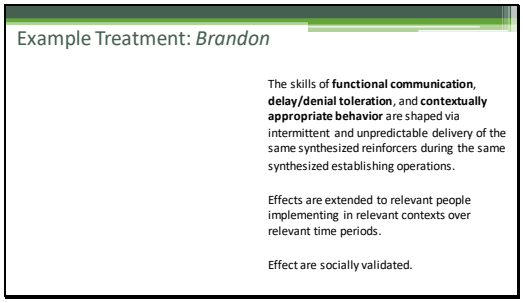

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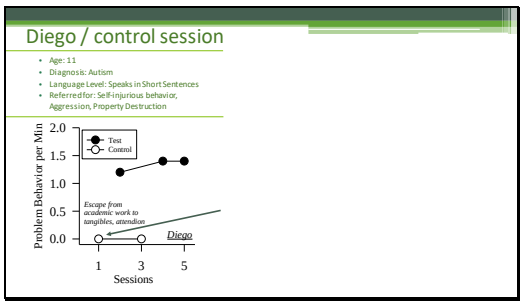

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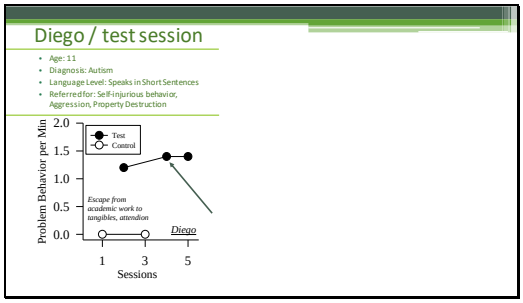

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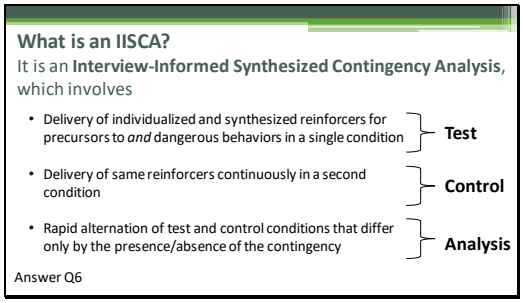

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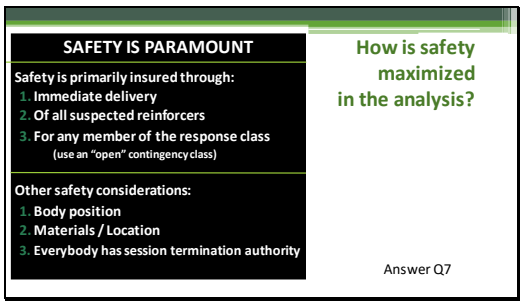

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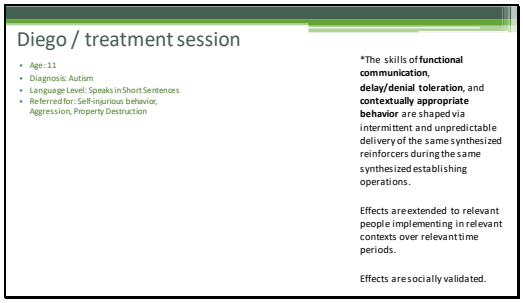

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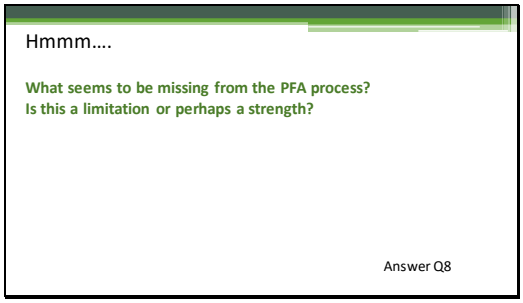

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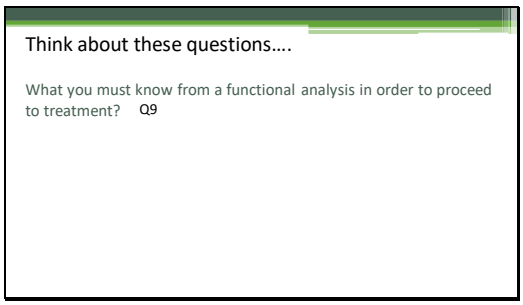

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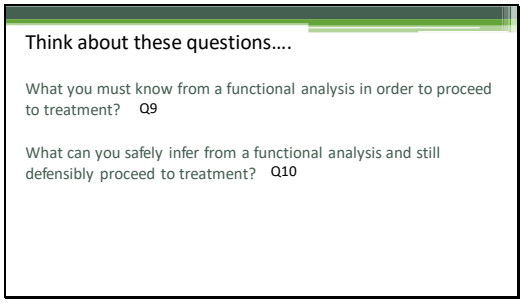

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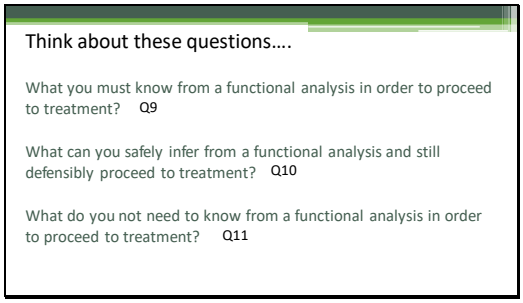


Slide 31

That which you should know from your functional analysis:

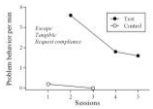
- ✓That you can reliably **turn problem behavior off** with the presentation of the reinforcers
- ✓That you can reliably **turn problem behavior on** with the presentation of the evocative events
- ✓And that the reinforcers and evocative events were identified by other people relevant to the behaver

Edit Answer to Q9

Slide 32

That which I can safely infer from my functional analysis:

✓**Response class membership**

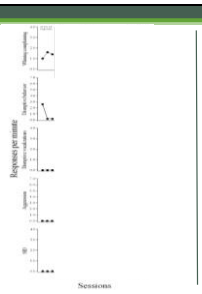


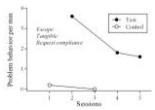
Problem Behaviors reported to co-occur (in order of concern)
A. SIB
B. Aggression
C. Disruptive Behavior
D. Disruptive vocalizations
E. Whining/complaining

Edit Answer to Q10

If control is shown over behavior E, for example, **and caregivers report that behavior A, B, C, D, & E co-occur in similar situations**, then we can infer that the reinforcers for behaviors A and E are the same

Slide 33





Problem Behaviors reported to co-occur (in order of concern)
A. SIB
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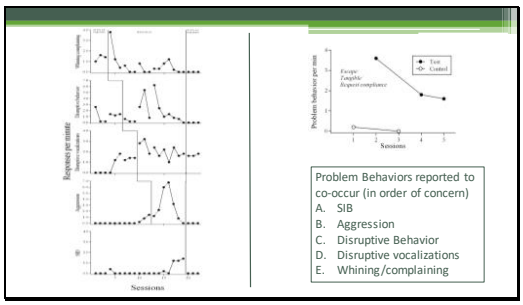
Slide 34



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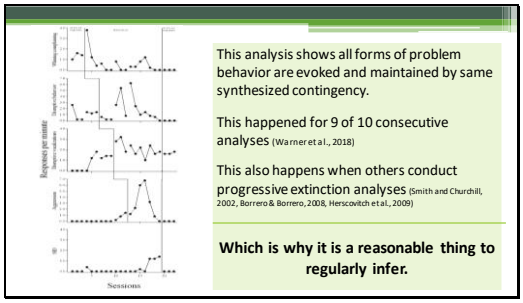

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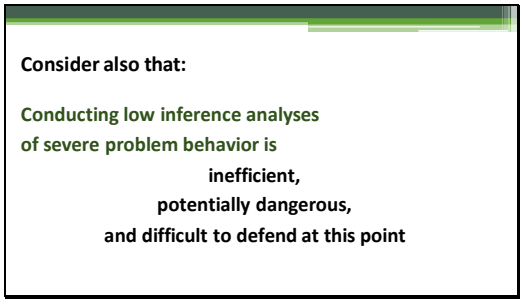

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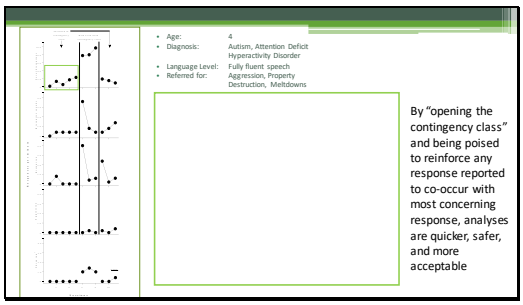

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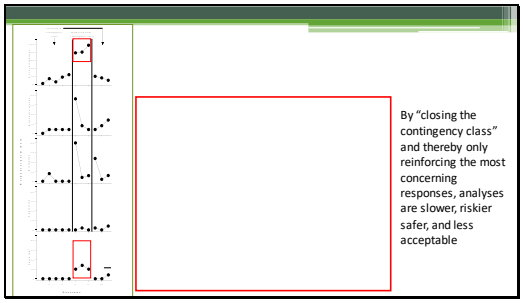

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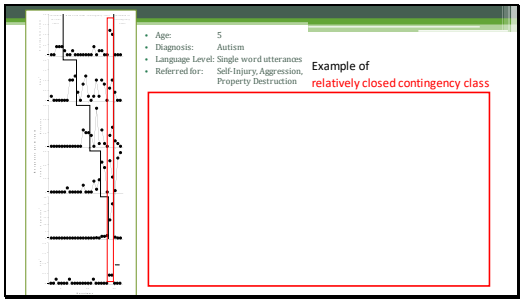

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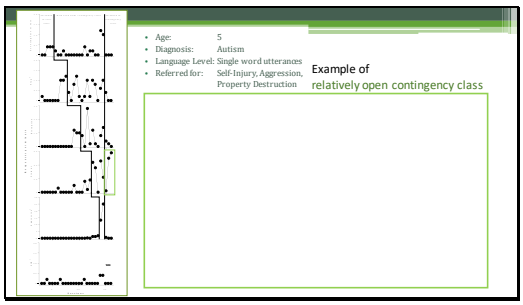


Slide 41

That which you do not need to know from your functional analysis:

- ✓The operant function of each problem behavior type
- ✓Whether problem behavior is maintained by positive *or* negative reinforcement
- ✓Whether one of the synthesized reinforcers is a "true" reinforcer *or* merely a "false positive"
- ✓Whether you can neatly compartmentalize the operation in the analysis into a tidy generic class of reinforcement

(e.g., social positive, social negative, attn, tang, esc, etc.)

Edit Answer to Q11

Slide 42

A point to consider…

High rates in tests sessions of functional analyses are not to be celebrated

Slide 43

The reinforcement contingency seems obvious from interview and observation, should you still conduct an IISCA? Yes!

1. Because it allows for a **scientific confirmation** of the hypothesis developed from interviews and observation
2. Because an IISCA's test condition provides a **baseline** of directly observed and measured problem behavior from which to evaluate treatment
3. Because an IISCA's test condition provides a **properly motivating context** from which the skills of functional communication, delay/denial toleration, and contextually appropriate behavior can be safely and quickly shaped

Q12 But, how?

Slide 44

The IISCA Task Analysis

Gain Assent

Implement CONTROL session first

If zero PB in control, conduct TEST session next

Analyze as you conduct sessions; be responsive to the data

Slide 45

The IISCA Task Analysis see Q13

1) Begin analysis contingent on assent from client and terminate session if assent is revoked
2) Begin analysis with **control** condition
3) Provide continuous access to synthesized SRs during control
   - e.g., allow escape, provide preferred materials, be available, and follows child's lead
4) Refrain from implementing any potential EOs for problem behavior during control
5) Ignore problem behavior if it occurs during control condition

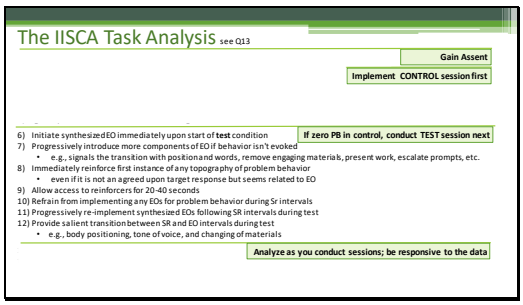
Gain Assent

Implement CONTROL session first

If zero PB in control, conduct TEST session next

Analyze as you conduct sessions; be responsive to the data

Slide 46



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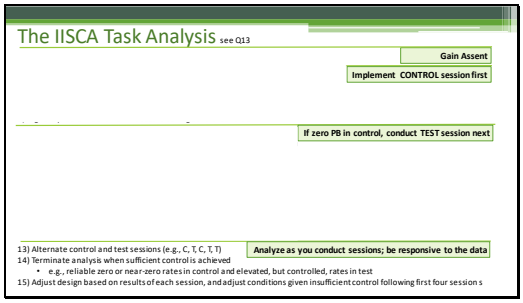

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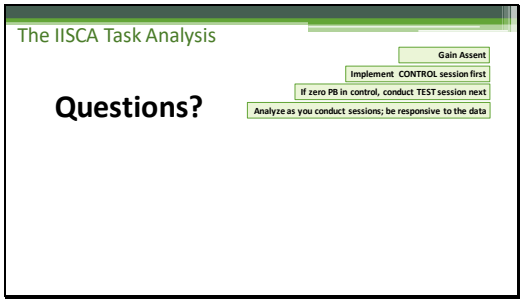

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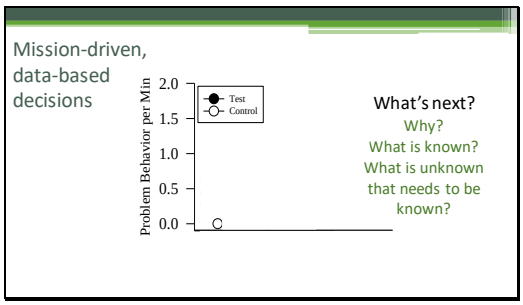

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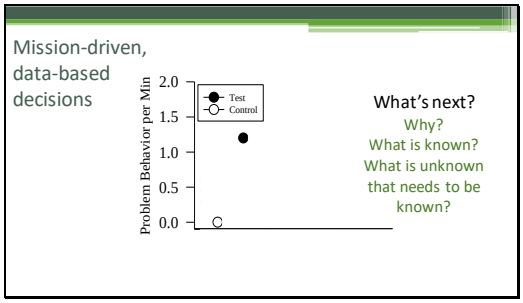

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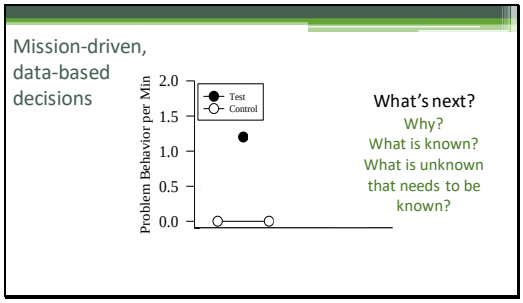

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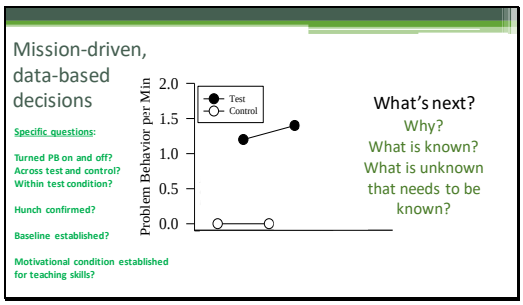

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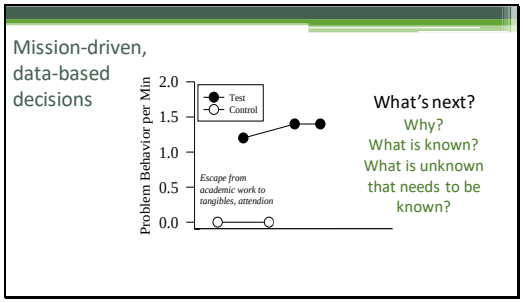

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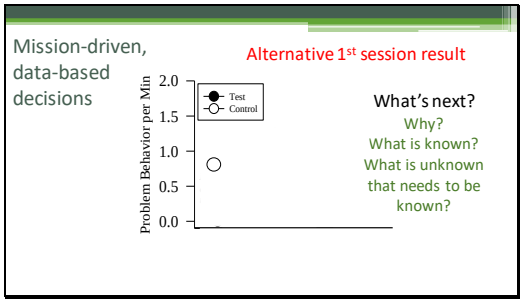
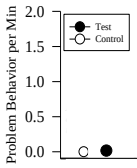


Slide 55

Mission-driven, data-based decisions

Alternative second session result



What's next?

Why?

What is known?

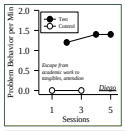
What is unknown that needs to be known?

Slide 56

Interpreting graphs and writing conclusions

Functional control of problem behavior by the interview-informed and synthesized contingency was demonstrated in the analysis.

Diego's problem behavior was sensitive to the synthesized reinforcement contingency that involved escape from academics to access tangibles and adult attention.



Swiping academic materials was shown to be **evoked by terminating the preferred activity of reading books with his teacher and being instructed to complete academic work** and **reinforced by the termination of the same work and access to the activity of reading books with his teacher and the teacher complying with his requests during this reading activity.** Because self-injurious behavior, aggression, and property destruction were reported to co-occur in similar situations, it is **reasonable that these problem behaviors are also sensitive to this same synthesized reinforcement contingency.**

Q14

But, WTF? What's the function? What's the true function? Is it escape or tangibles or both or .... Which box do I check? What about false positives!?

Have to forgo your need to know these things, understanding them as accidental commitments which are rarely understood and when these understandings have been sought, socially valid outcomes have not been achieved.

Slide 57

Is the PFA process most applicable in clinics, homes, specialized programs, or public schools? Yes.

Is the process more appropriate for severe (dangerous) problem behavior or is it better suited for emerging problem behavior? Yes.

Is this process suitable for children on the autism spectrum or not on the autism spectrum? Yes.

Is the process more appropriate for children with language or without language? Yes.

On the Generality of the PFA Process....

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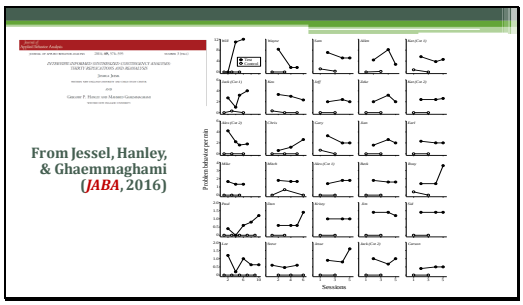

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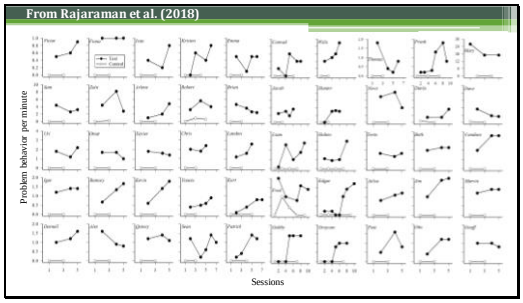

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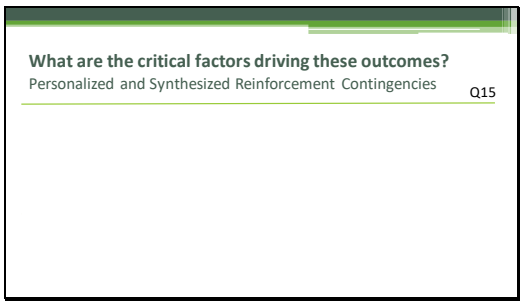

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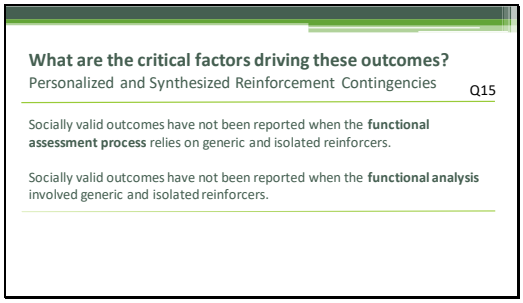

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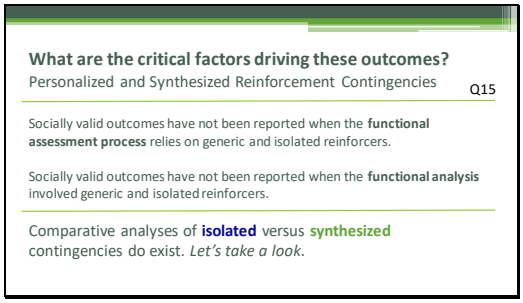


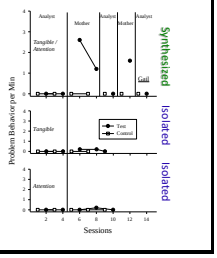
Slide 64

From Hanley et al. 2014, *JABA*

Case Example
Gail, 3 yo, dx: PDD-NOS
Setting: Clinic

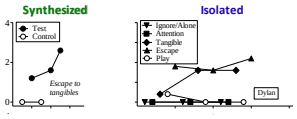
Isolated contingencies sometimes do not control behavior whereas synthesized contingencies do.

This is not a paradox, just a classic example of an interaction without main effects



Slide 65

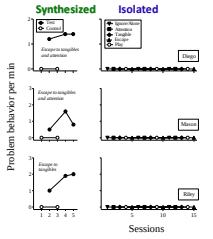
Analysis Comparison (Slaton et al., 2017, *JABA*)



Sometimes both synthesized and isolated reinforcement contingencies influence problem behavior (and sometimes yield the same conclusion)

Slide 66

Analysis Comparison (Slaton et al., 2017, *JABA*)



But our analyses show, more often, that synthesized reinforcement contingencies influence problem behavior whereas isolated ones do not

Whole contingencies have properties that sometimes cannot be found in the parts of the contingency

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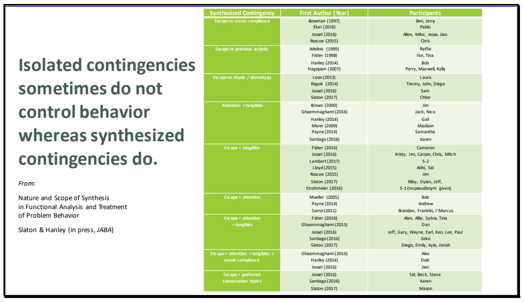

Synthesized Contingency	First Author (Year)	Participants
Escape to mand compliance	Bowman (1997)	Ben, Jerry
	Eluri (2016)	Pablo
	Jessel (2016)	Allen, Mike, Jesse, Jian
	Roscoe (2015)	Chris
Escape to previous activity	Adelinis (1999)	Raffie
	Fisher (1998)	Ike, Tina
	Hanley (2014)	Bob
	Hagopian (2007)	Perry, Maxwell, Kelly
Escape to rituals / stereotypy	Leon (2013)	Laura
	Rispoli (2014)	Timmy, John, Diego
	Jessel (2016)	Sam
	Slaton (2017)	Chloe
Attention + tangibles	Brown (2000)	Jim
	Ghaemmaghami (2016)	Jack, Nico
	Hanley (2014)	Gail
	Mann (2009)	Madison
	Payne (2014)	Samantha
	Santiago (2016)	Karen
Escape + tangibles	Fisher (2016)	Cameron
	Jessel (2016)	Kristy, Jim, Carson, Chris, Mitch
	Lambert (2017)	S-2
	Lloyd (2015)	Abhi, Sid
	Roscoe (2015)	Jim
	Slaton (2017)	Riley, Dylan, Jeff,
	Strohmeier (2016)	S-1 (no pseudonym given)
Escape + attention	Mueller (2005)	Bob
	Payne (2014)	Andrew
	Sarno (2011)	Brandon, Franklin, J'Marcus
Escape + attention + tangibles	Fisher (2016)	Alan, Allie, Sylvia, Tina
	Ghaemmaghami (2015)	Dan
	Jessel (2016)	Jeff, Gary, Wayne, Earl, Keo, Lee, Paul
	Santiago (2016)	Zeke
	Slaton (2017)	Diego, Emily, Kyle, Jonah
Escape + attention + tangibles + mand compliance	Ghaemmaghami (2016)	Alex
	Hanley (2014)	Dale
	Jessel (2016)	Jian
Escape + preferred conversation topics	Jessel (2016)	Sid, Beck, Steve
	Santiago (2016)	Karen
	Slaton (2017)	Mason

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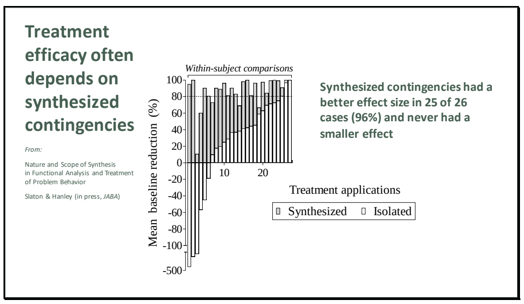

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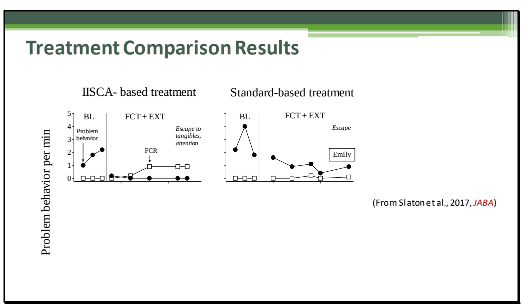


Slide 70

Why should you consider implementing the PFA process?

Q16

Slide 71

Why should you consider implementing the PFA process?

1. **Because it has been shown to:** See pages 13-14 of notebook
   - be a safe, fast, and effective process for showing control of problem behavior with an ecologically relevant reinforcement contingency
     - by at least 10 different research groups, across 16 different studies, involving over 80 participants
   - lead to large reductions in problem behavior when results inform a skill-based Rx
     - by at least 8 different research groups, across 14 different studies, involving over 50 participants
   - lead to socially validated reductions in problem behavior when informed-Rx is implemented by relevant people in relevant contexts over relatively long time periods
     - by at least 7 different research groups, across 9 different studies, involving over 40 participants
2. **Because no other process has been shown to be nearly as effective**
3. **Because at least 13 comparative studies show the superior effects of personalized and synthesized contingencies, the core elements of the PFA process; no studies have even been published that show inferior effects**

Q16

Slide 72

New (empirically driven) **Assumptions *to Consider***

1. **Multiple establishing operations are usually influencing problem behavior and doing so simultaneously**
2. **Multiple reinforcers simultaneously maintain most problem behavior** i.e., problem behavior is multiply controlled and usually controlled by at least escape to tangibles, attention, & either sensory reinforcers, mand compliance, or both
   - *Checking the generic box will do little good for the child/client*
   - *The key is to determine the details within the generic categories that are relevant to each person*
3. **Most problem behavior emitted by the same person is sensitive to the *same synthesized reinforcement contingency***

Q17

Slide 73

Limits of the PFA process and the IISCA

- IISCA successful on first iteration only 75-80% of the time
- General and durable elimination of severe problem behavior is still elusive for many following a successful IISCA
  - Developing a replacement repertoire requires time, expertise, or at least expert supervision, and the ability to problem solve problems as skills are being developed
  - Transferring control from one or a few people and one or a few contexts to all people and all contexts is still a major challenge
- Need more follow up data collected an articulation of successful processes when general and durable elimination of severe problem behavior is not achieved

Slide 74

Interview

Fundamentals	Negotiables	Preferences
That an interview be conducted with someone who has seen the problem behavior occur repeatedly		
	Who is interviewed	Parents, Para-pros, direct care staff
	How many are interviewed	2 people who know the child is best, 1 is fine, more than 3 may be take too much time and be more difficult to design an analysis from
	Who does interview	BCBA is preferred so response class, EOs, and SRs can be gleaned from stories, but being a BCBA is not necessary to conduct an interview of this sort
	Administration format	Face-to-face probably best, but not necessary
	Where / when	Where ver; best if interviewee's attention is undivided

Q18-19

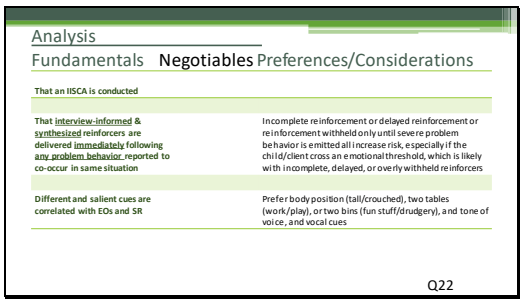
Slide 75

Observation

Fundamentals	Negotiables	Preferences/Considerations
None (observation is not required)		
	Parent / Teacher observation	Preferred prompt for observation is to say follow the child's lead for about half of the time; the other half of the time take over and instruct the child to do things that are typically asked in this context
	How long	Prefer to keep it short at 10 min
	Criteria to move to analysis	Strong preference for none; design analysis from interview while making modifications from that learned in observation if anything learned

Q20-21

Slide 76



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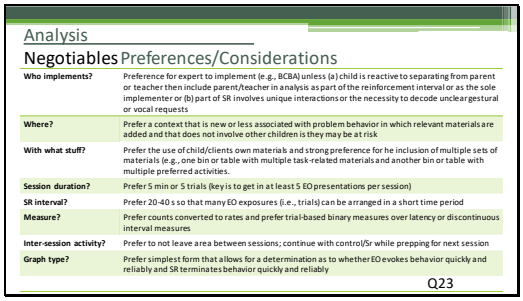

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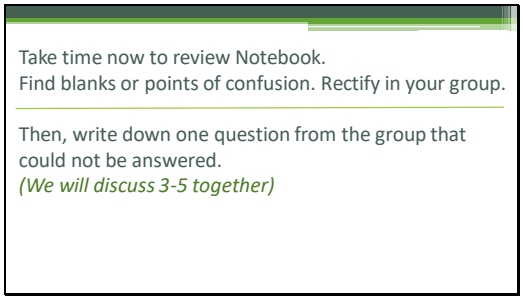

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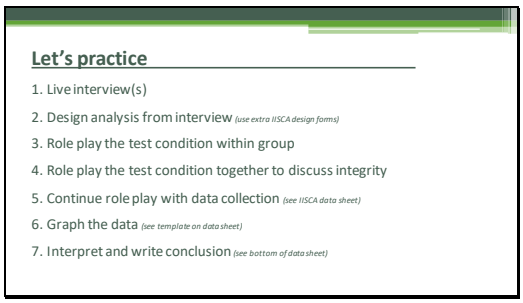

Let's practice
1. Live interview(s)
2. Design analysis from interview (use extra IISCA design forms)
3. Role play the test condition within group
4. Role play the test condition together to discuss integrity
5. Continue role play with data collection (see IISCA data sheet)
6. Graph the data (see template on data sheet)
7. Interpret and write conclusion (see bottom of data sheet)

Appendix D: PFA Workbook (Experimental Group)

Practical Functional Assessment Notebook (Revised: September, 2018)

Developed by Gregory P. Hanley, Ph.D., BCBA-D and Cory Whelan, M.A., CCC-SLP/BCBA, LABA

Thanks for attending this workshop!

At the end of the workshop, you should be able to answers to these questions:

- **What?**
  - What is a practical functional assessment (PFA) process?
  - What is an interview-informed synthesized contingency analysis (IISCA)?
- **Why?**
  - Why should I consider implementing the PFA process?
  - Is there evidence supporting the treatment utility of the PFA process?
  - Why should I conduct an IISCA?
- **How?**
  - How do I implement the PFA process?
  - How do I implement the IISCA?
- **Which?**
  - Which parts of the PFA process are fundamental and which are negotiable (and adaptable)
  - Which parts of the IISCA are fundamental and which are negotiable (and adaptable)

To be able to do so, please attempt to answer the questions on the following pages during the workshop. Please then edit your answers based on discussion and review.

Consider then using the additional materials to implement the process.

Finally, review the articles in the reference section for additional implementation tips and for evidence of the utility and effectiveness of the practical functional assessment process, in general, and of the interview informed synthesized contingency analysis, in particular.

Notes:

Relevant abbreviations:	
PFA: Practical functional assessment	
IISCA: Interview-informed, synthesized contingency analysis	
BCBA: Board Certified Behavior Analyst	
EO: Establishing operation	**SR:** Synthesized reinforcement
FCT: Functional communication training	**FCR**: Functional communicative response
TR: Tolerance response	**CAB:** Contextually appropriate behavior
SBT: Skill-based treatment; consists of intermittent and unpredictable reinforcement of three life skills (communication, toleration, and contextually appropriate behavior [also referred to as compliance])	

Questions to answer during workshop

1. *What is the PFA process?*

2. What is involved in the PFA process?
An open-ended interview
An observation (sometimes)
A functional analysis, an IISCA in particular

3. What are the 3 main missions of the interview?
   I.

   II

   III.

   What else is important to try to accomplish during the interview?

4. *In general, what is an IISCA?*
A type of functional analysis in which problem behavior sensitivity to a personalized and synthesized reinforcement contingency is evaluated ….
--through repeated and direct observation of problem behavior during two conditions
--distinguished by the presence (test) and absence (control) of the reinforcement contingency suspected of influencing problem behavior
--in order to understand why problem behavior is occurring and then treat it based on that understanding

5. Describe a reinforcement contingency that synthesizes multiple EOs and reinforcers that may be evaluated in an IISCA.

6. In the type of functional analysis referred to as an IISCA,
   (a) What happens in the test conditions?
   (b) What happens in the control conditions?
   (c) Besides having two conditions, what is necessary for the IISCA to be analytic?

7. When conducting an IISCA, how is safety maximized?	
8. What seems to be missing from the PFA process? Is this a limitation or perhaps a strength?	
9. What you must know from a functional analysis in order to proceed to treatment? (1st response)	(2nd response)
10. What can you safely infer from a functional analysis and still defensibly proceed to treatment? (1st response)	(2nd response)
11. What do you NOT need to know from a functional analysis in order to proceed to treatment? (1st response)	(2nd response)

12. The reinforcement contingency seems obvious from interview and observation, should you still conduct an IISCA? YES. Why? Or said another way, what does an IISCA provide you as a practitioner?

13. How do you conduct an IISCA?

IISCA Task Analysis

Gain Assent

I. Begin analysis contingent on assent from client and terminate session if assent is revoked

Implement CONTROL session first

II. Begin analysis with control condition
III. Provide continuous access to synthesized SRs during control
e.g., allow escape, provide preferred materials, be available, and follows child's lead
IV. Refrain from implementing any potential EOs for problem behavior during control
V. Ignore problem behavior if it occurs during control condition

If zero PB in control, conduct TEST session next

VI. Initiate synthesized EO immediately upon start of test condition
VII. Progressively introduce more components of EO if behavior isn't evoked
e.g., signal transition w/ position & words, remove engaging materials, present work, escalate prompts
VIII. Immediately reinforce first instance of any topography of problem behavior even if it is not an agreed upon target response but seems related to EO
IX. Allow access to reinforcers for 20-40 seconds
X. Refrain from implementing any EOs for problem behavior during Sr intervals
XI. Progressively re-implement synthesized EOs following SR intervals during test
XII. Provide salient transition between SR and EO intervals during test
e.g., body positioning, tone of voice, and changing of materials

Analyze as you conduct sessions; be responsive to the data

XIII. Alternate control and test sessions (e.g., C, T, C, T, T)
XIV. Terminates analysis when sufficient control is achieved
e.g., reliable zero or near-zero rates in control and elevated, but controlled, rates in test
XV. Adjusts design based on results of each session, and adjust conditions given insufficient control following first four sessions

14. Write an appropriate interpretive or concluding statement from a successful IISCA during which problem behavior was occurred when the iPad was removed and the child was told to come to his desk and problem behavior shut off when the teacher removed the requirement to relinquish the iPad and come to the desk.
15. What are the critical factors responsible for the efficacy and treatment utility of the PFA process?
16. Why should you consider implementing the PFA process?
17. What are the fundamental assumptions driving the PFA process?

18. How to implement the PFA Process Interview Fundamentals:	19. How to implement the PFA Process Interview Negotiables
20. How to implement the PFA Process Observation Fundamentals:	21. How to implement the PFA Process Observation Negotiables
22. How to implement the PFA Process Analysis Implementation Fundamentals	23. How to implement the PFA Process Analysis Implementation Negotiables
24. Final Question	

Additional **tips for conducting the open-ended interview**

Use the interview available below. All questions need not (and probably should not) be asked of every caregiver. Several examples of questions that might yield similar information are listed together; analysts may choose versions they feel comfortable with, and might consider asking different versions of the same question if the original question does not yield sufficient information. Analysts should stop asking a particular type of question when they have gathered enough information to design an IISCA.

The open-ended interview meeting may also be used to familiarize new clients with general service guidelines and procedures. The interview itself, however, rarely takes more than 45 minutes and can take as few as 10.

Here are 10 tips to increase the odds of a successful interview:

1. Always remember the 3-part mission with interview in order to stay on task:
    - Identify and define most severe problem behavior and associated non-dangerous behaviors,
    - Identify EOs that are most challenging and convenient to replicate (list materials needed),
    - Identify reinforcers and precise forms of delivery (list materials needed).
2. Interview people who spend most time with child/client.
3. Interview people together when possible and facilitate consensus.
4. First ask them to vividly recount two recent serious problem behavior episodes.
    - Listen for and document response class members, EO specifics, and reinforcers.
    - Then ask probe questions.
5. After listening to and taking notes on the recent problem behavior (pb) episodes, be more direct and ask what happens to evoke problem behavior (triggers) or its precursors (see questions on interview).
6. Then ask how people respond to problem behavior (consequate, redirect; see questions on interview).
7. If the 3-part mission has not been completed at this point (i.e., you have not obtained enough information to design an analysis), ask some hypothetical questions like the ones below.
    - *For identifying precursors:* When do you call for staff backup? When do you become vigilant about yours or others safety? What does _____ do that gets your heart rate up because pb now seems inevitable?
    - *To identify possible reinforcers:* For a million dollars….what would you do to turn pb OFF in 10 seconds? What *would* you do to ensure pb does not occur? What are the first things you tell new staff/teachers, or babysitters to *not* do around _____?
    - *To identify possible reinforcers:* For a million dollars….can you turn pb ON in 10 seconds?
8. Be sure to find out what they love most about child/client and what the child/client most loves to do.
9. Be sure to walk the interviewees through the next steps, the analysis & treatment process.
10. Be sure to ask them what, if anything, they are worried about with the process and address concerns or modify process as needed.

Open-Ended Functional Assessment Interview Date of Interview: _____

Developed by Gregory P. Hanley, Ph.D., BCBA-D

(Developed August, 2002; Revised: August, 2009)

Child/Client: _____ Respondent: _____

Respondent's relation to child/client: _____ Interviewer: _____

RELEVANT BACKGROUND INFORMATION

1. His/her date of birth and current age: ____-_____-_____ ____yrs ____mos Male/Female
2. Describe his/her language abilities.
3. Describe his/her play skills and preferred toys or leisure activities.
4. What else does he/she prefer?

QUESTIONS TO INFORM THE DESIGN OF A FUNCTIONAL ANALYSIS

To develop objective definitions of observable problem behaviors:

5. What are the problem behaviors? What do they look like?

To determine which problem behavior(s) will be targeted in the functional analysis:

6. What is the single-most concerning problem behavior?
7. What are the top 3 most concerning problem behaviors? Are there other behaviors of concern?

To determine the precautions required when conducting the functional analysis:

8. Describe the range of intensities of the problem behaviors and the extent to which he/she or others may be hurt or injured from the problem behavior.

T*o assist in identifying precursors to or behavioral indicators of dangerous problem behaviors that may be targeted in the functional analysis instead of more dangerous problem behaviors:*

9. Do the different types of problem behavior tend to occur in bursts or clusters and/or does any type of problem behavior typically precede another type of problem behavior (e.g., yells preceding hits)? Are there behaviors that seem to indicate that severe problem behavior is about to occur?

To determine the antecedent conditions that may be incorporated into the functional analysis test conditions:

10. Under what conditions or situations are the problem behaviors most likely to occur?
11. Do the problem behaviors reliably occur during any particular activities?
12. What seems to trigger the problem behavior?
13. Does problem behavior occur when you break routines or interrupt activities? If so, describe.

14. Does the problem behavior occur when it appears that he/she won't get his/her way? If so, describe the things that the child often attempts to control.

To determine the test condition(s) that should be conducted and the specific type(s) of consequences that may be incorporated into the test condition(s):

15. How do you and others react or respond to the problem behavior?
16. What do you and others do to calm him/her down once he/she engaged in the problem behavior?
17. What do you and others do to distract him/her from engaging in the problem behavior?

In addition to the above information, to assist in developing a hunch as to why problem behavior is occurring and to assist in determining the test condition(s) to be conducted:

18. What do you think he/she is trying to communicate with his/her problem behavior, if anything?
19. Do you think this problem behavior is a form of self stimulation? If so, what gives you that impression?
20. Why do you think he/she is engaging in the problem behavior?

Mission: Identify (a) co-occurring non-dangerous and dangerous topographies of problem behavior to reinforce in analysis, (b) specific materials/events/interactions that appear to routinely evoke problem behavior to use as the establishing operations in analysis test condition (c) specific materials/events/interactions that follow problem behavior and are reported to stop it to use as consequences in test condition and to be continuously programmed in the control condition.

[Go to www.prracticalfunctionalassessment.com for versions of this interview translated in multiple languages]

Form for Designing the IISCA

Once the open-ended functional assessment interview is complete, use this form to design an IISCA.

Pseudonym and age:	
Language abilities:	

1. **Describe the problem behaviors and their precursors and behavioral indicators** (i.e., all of the responses that will yield the reinforcers in the test condition)**.**

2. **Describe the synthesized establishing operation.** (This situation is presented at the beginning or the test session and intermittently during the test session, e.g., after 30 seconds of synthesized reinforcement).

3. **Describe the reinforcers to be synthesized.** (These are provided [a] following problem behavior and their reported precursors in the test condition and [b] continuously in the control condition.)

4. **Relying on the information above, describe your IISCA.**
   Who: *Where:* *Materials:*

Test:

Control:

IISCA Data Sheet Date:_____ Child/Client:_____

Implementer:_____

Behaviors to be scored: Prim or Reli

Directions: Relying on timer, place slash for each behavior in corresponding box. Data Collector: _____

Dangerous Problem Behavior: **R1:**

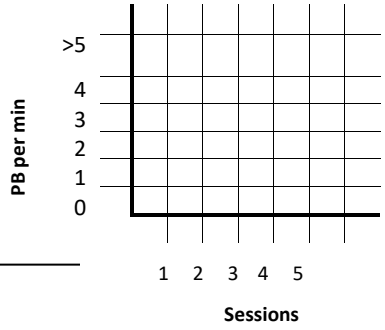
Non-Dangerous Problem Behavior: **R2:**

Session 1 CONTROL			*Session 2* TEST		*Ses.3* CONTROL		*Session 4* TEST		*Session 5* TEST	
1st min	R1	R2	R1	R2	R1	R2	R1	R2	R1	R2
1-10										
11-20										
21-30										
31-40										
41-50										
51-1:00										
2nd min	R1	R2	R1	R2	R1	R2	R1	R2	R1	R2
1:01-1:10										
1:11- 1:20										
1:21- 1:30										
1:31-1:40										
1:41-1:50										
1:51-2:00										
3rd min	R1	R2	R1	R2	R1	R2	R1	R2	R1	R2
2:01-2:10										
2:11- 2:20										
2:21-2:30										
2:31-2:40										
2:41-2:50										
2:51-3:00										
4th min	R1	R2	R1	R2	R1	R2	R1	R2	R1	R2
3:01-3:10										
3:11- 3:20										

3:21-3:30																				
3:31-3:40																				
3:41-3:50																				
3:51-4:00																				
5th min	R1	R2	R1	R2	R1	R2	R1	R2	R1	R2										
4:01-4:10																				
4:11-4:20																				
4:21-4:30																				
4:31-4:40																				
4:41-4:50																				
4:51-5:00																				

Graph the PB per min using this legend: = Test ● = Control ○

Session 1 / CONTROL	**R1 count:**	**R2 count:**	**Total PB:**	**/5 =**	**PB per min**
Session 2 / TEST	**R1 count:**	**R2 count:**	**Total PB:**	**/5 =**	**PB per min**
Session 3 / CONTROL	**R1 count:**	**R2 count:**	**Total PB:**	**/5 =**	**PB per min**
Session 4 / TEST	**R1 count:**	**R2 count:**	**Total PB:**	**/5 =**	**PB per min**
Session 5 / TEST	**R1 count:**	**R2 count:**	**Total PB:**	**/5 =**	**PB per min**
Session 6 / TEST or CONTROL	**R1 count:**	**R2 count:**	**Total PB:**	**/5 =**	**PB per min**
Session 7 / TEST or CONTROL	**R1 count:**	**R2 count:**	**Total PB:**	**/5 =**	**PB per min**



Conclusion: _____'s problem behavior appears to be sensitive to the synthesized reinforcement contingency involving:

Tips for Designing and Conducting a Successful IISCA

[Success being defined as: (a) zero or near-zero problem behavior in the control sessions as well as during the reinforcement intervals of the test sessions, (b) a short latency to problem behavior stopping following the presentation of the synthesized reinforcers, (c) a short latency to problem behavior being evoked in the test sessions when the establishing operation is presented, (d) no escalation of problem behavior within sessions or across sessions (in fact, the form and intensity of problem behavior should deescalate both within and across sessions), (e) no persistent emotional responding (e.g., crying) throughout a session or analysis, (f) no emergency procedures implemented, termination criteria reached, or medical staff involvement. Conducting a redesigned analysis is warranted if any of these conditions are not met.]

1. Design the test condition first (be sure to emulate the most challenging context from the interview that is convenient to replicate often), and then design the control condition from the test so the only difference between the two is the presence (test) or absence (control) of the synthesized reinforcement contingency.

2. Collect data live in the analysis on the data sheet provided but be sure to videotape all IISCA sessions in case the observational codes or operational definitions change during the analysis.

3. Ensure the same materials are available across all test and control sessions. Materials and interactions not specified in the contingency being tested are available noncontingently in all test and control sessions.

4. Sessions are usually 5 min in duration, and the typical sequence of sessions is control, test, control, test, test (a 25-min analysis), but allow the results of each session to alter the sequence as necessary (see 6-7 below).

5. Provide all suspected reinforcers noncontingently and continuously in the control condition (i.e., there should be no relevant establishing operations for any of the suspected reinforcers in the control sessions).

6. Always conduct a control session first. If problem behavior occurs, conduct another control session. If problem behavior occurs again, discuss what is missing from the control condition with present parents or teachers and redesign the condition. When problem behavior does not occur, proceed to a test session.

7. Provide the synthesized reinforcers *immediately* following *any* dangerous or associated non-dangerous problem behavior in the test sessions for about 30 s. Also, cue the learner about the prevailing condition by correlating, for example, different body positions with the EO (stand authoritatively) and the reinforcement interval (kneel while showing signs of acquiescence).

8. If a problem behavior occurs that is of a different topography than that specified in the behavior definitions and it appears to be in response to the presentation of the EO, provide the putative reinforcers for this behavior in the test sessions, then adjust the observational code, and rescore sessions from videos later.

9. Conduct a second or third test session if problem behavior does not occur at all or reliably in the test session(s), or occurs with long latency from the presentation of the EO. If problem behavior does not occur after 2 or 3 test sessions (or occurs unreliably or only after long latencies from the EO), discuss what is missing from the test condition with present parents or teachers and redesign the condition. Consider also having parents or teachers conduct the analysis with coaching from the analyst.

10. For children who are overly reactive to the analysis (e.g., comment often on what you just did, are about to do, or why you are doing what you are doing) or who are likely to be so, consider: (a) making the reinforcement interval longer and more variable (e.g., 45 s-2 min), (b) conducting the analysis in a typical context (i.e., not a session room), and having a person relevant to the child/client conduct the analysis.

Once the IISCA is complete (control over problem behavior has been shown), design a skill-based treatment that will strengthen the life skills of communication, toleration, and compliance via intermittent and unpredictable reinforcement of each.

The development and eventual articulation of this practical functional assessment process, systematic replications of the interview-informed synthesized contingency analyses, evidence of its treatment utility (marked with †), and evidence for the effectiveness of treatments designed from the process (marked with ‡) can be found in these co-authored articles:

Piazza, C. C., Fisher, W. W., Hanley, G. P., Remick, M. A., Contrucci, S. A., & Aitken, T. (1997). The use of positive and negative reinforcement in the treatment of escape-maintained destructive behavior. *Journal of Applied Behavior Analysis, 30*, 279-297.

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Rajaraman, A. & Hanley, G. P. (2018). Interview-informed synthesized contingency analysis (IISCA). In: Volkmar, F. (Eds.) *Encyclopedia of Autism Spectrum Disorders.* Springer, New York, NY.

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Ghaemmaghami, M, & Hanley, G. P. (unpublished manuscript). Functional communication training: From efficacy to effectiveness. *Being revised for the Journal of Applied Behavior Analysis.*

Systematic replications of interview-informed synthesized contingency analysis (marked with *) and additional evidence of its treatment efficacy (marked with †) and effectiveness (those marked with ‡) can be found in these articles from other research groups:

†Strohmeier, C. W., Murphy, A., & O'Connor, J. T. (2016). Parent-informed test-control functional analysis and treatment of problem behavior related to combined establishing operations. *Developmental Neurorehabilitation*, *20*, 247-252.

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‡Chusid Rose, J. & Beaulieu, L. (2019) Assessing the generality and durability of interview-informed functional analyses and treatment. *Jrnl of Applied Beh. Analysis.*

Evidence showing the efficacy of personalized and synthesized reinforcers in the assessment of problem behavior (marked with *) and its treatment (marked with †) can be found in these articles. Superior comparative efficacy of synthesized contingencies can be found in those marked with ‡ (***See Slaton & Hanley, On the nature and scope of synthesis in functional analysis of problem behavior. JABA, 2018, #4, for a review of these studies).***

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Appendix E: PFA Workbook (Waitlist Group)

Open-Ended Functional Assessment Interview

Date of Interview: _____

Developed by Gregory P. Hanley, Ph.D., BCBA-D

(Developed August, 2002; Revised: August, 2009)

Child/Client: _____ Respondent: _____

Respondent's relation to child/client: _____ Interviewer: _____

RELEVANT BACKGROUND INFORMATION

1. His/her date of birth and current age: ____-_____-_____ ____yrs ____mos Male/Female
2. Describe his/her language abilities.

3. Describe his/her play skills and preferred toys or leisure activities.

4. What else does he/she prefer?

QUESTIONS TO INFORM THE DESIGN OF A FUNCTIONAL ANALYSIS

To develop objective definitions of observable problem behaviors:

5. What are the problem behaviors? What do they look like?

To determine which problem behavior(s) will be targeted in the functional analysis:

6. What is the single-most concerning problem behavior?

7. What are the top 3 most concerning problem behaviors? Are there other behaviors of concern?

To determine the precautions required when conducting the functional analysis:

8. Describe the range of intensities of the problem behaviors and the extent to which he/she or others may be hurt or injured from the problem behavior.

To assist in identifying precursors to or behavioral indicators of dangerous problem behaviors that may be targeted in the functional analysis instead of more dangerous problem behaviors:

9. Do the different types of problem behavior tend to occur in bursts or clusters and/or does any type of problem behavior typically precede another type of problem behavior (e.g., yells preceding hits)? Are there behaviors that seem to indicate that severe problem behavior is about to occur?

To determine the antecedent conditions that may be incorporated into the functional analysis test conditions:

10. Under what conditions or situations are the problem behaviors most likely to occur?

11. Do the problem behaviors reliably occur during any particular activities?

12. What seems to trigger the problem behavior?

13. Does problem behavior occur when you break routines or interrupt activities? If so, describe.

14. Does the problem behavior occur when it appears that he/she won't get his/her way? If so, describe the things that the child often attempts to control.

To determine the test condition(s) that should be conducted and the specific type(s) of consequences that may be incorporated into the test condition(s):

15. How do you and others react or respond to the problem behavior?

16. What do you and others do to calm him/her down once he/she engaged in the problem behavior?

17. What do you and others do to distract him/her from engaging in the problem behavior?

In addition to the above information, to assist in developing a hunch as to why problem behavior is occurring and to assist in determining the test condition(s) to be conducted:

18. What do you think he/she is trying to communicate with his/her problem behavior, if anything?

19. Do you think this problem behavior is a form of self stimulation? If so, what gives you that impression?

20. Why do you think he/she is engaging in the problem behavior?

Form for Designing the IISCA

Once the open-ended functional assessment interview is complete, use this form to design an IISCA.

Pseudonym and age:	
Language abilities:	

5. **Describe the problem behaviors and their precursors and behavioral indicators** (i.e., all of the responses that will yield the reinforcers in the test condition)**.**

6. **Describe the synthesized establishing operation.** (This situation is presented at the beginning or the test session and intermittently during the test session, e.g., after 30 seconds of synthesized reinforcement).

7. **Describe the reinforcers to be synthesized.** (These are provided [a] following problem behavior and their reported precursors in the test condition and [b] continuously in the control condition.)

8. **Relying on the information above, describe your IISCA.**
   Who: *Where:* *Materials:*

Test:

Control:

IISCA Data Sheet Date:_____ Child/Client:_____

Implementer:_____

Behaviors to be scored: Prim or Reli

Directions: Relying on timer, place slash for each behavior in corresponding box. Data Collector: _____

Dangerous Problem Behavior: **R1:**

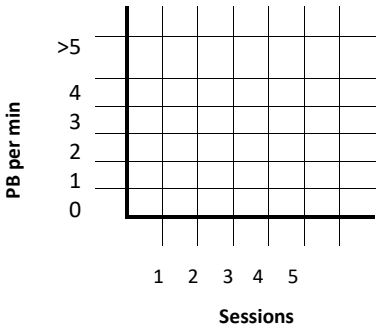
Non-Dangerous Problem Behavior: **R2:**

Session 1	CONTROL		*Session 2* TEST		*Ses.3* CONTROL		*Session 4* TEST		*Session 5* TEST	
1st min	R1	R2	R1	R2	R1	R2	R1	R2	R1	R2
1-10										
11-20										
21-30										
31-40										
41-50										
51-1:00										
2nd min	R1	R2	R1	R2	R1	R2	R1	R2	R1	R2
1:01-1:10										
1:11- 1:20										
1:21- 1:30										
1:31-1:40										
1:41-1:50										
1:51-2:00										
3rd min	R1	R2	R1	R2	R1	R2	R1	R2	R1	R2
2:01-2:10										
2:11- 2:20										
2:21-2:30										
2:31-2:40										
2:41-2:50										
2:51-3:00										
4th min	R1	R2	R1	R2	R1	R2	R1	R2	R1	R2
3:01-3:10										

3:11- 3:20																				
3:21-3:30																				
3:31-3:40																				
3:41-3:50																				
3:51-4:00																				
5^{th} min	R1	R2	R1	R2	R1	R2	R1	R2	R1	R2	R1	R2	R1	R2	R1	R2	R1	R2	R1	R2
4:01-4:10																				
4:11-4:20																				
4:21-4:30																				
4:31-4:40																				
4:41-4:50																				
4:51-5:00																				

Graph the PB per min using this legend: = Test ● = Control ○

Session 1 / CONTROL	**R1 count:**	**R2 count:**	**Total PB:**	**/5 =**	**PB per min**
Session 2 / TEST	**R1 count:**	**R2 count:**	**Total PB:**	**/5 =**	**PB per min**
Session 3 / CONTROL	**R1 count:**	**R2 count:**	**Total PB:**	**/5 =**	**PB per min**
Session 4 / TEST	**R1 count:**	**R2 count:**	**Total PB:**	**/5 =**	**PB per min**
Session 5 / TEST	**R1 count:**	**R2 count:**	**Total PB:**	**/5 =**	**PB per min**
Session 6 / TEST or CONTROL	**R1 count:**	**R2 count:**	**Total PB:**	**/5 =**	**PB per min**
Session 7 / TEST or CONTROL	**R1 count:**	**R2 count:**	**Total PB:**	**/5 =**	**PB per min**



Conclusion: _____'s problem behavior appears to be sensitive to the synthesized reinforcement contingency involving:

Appendix F: Open-Ended Interview Scripts for Experimenters

Participant: _____ Date: _____ Experimenter: _____

Start time: _____ End time: _____ Total interview duration: _____

Instructions to participants:

- Interview
    - **This is your chance to get some information to conduct a functional analysis. Here are some materials to do that – you can choose to use them or not. If you prefer to use this time differently, you may. You can stop at any time.**

*Stop interview after 60 minutes, regardless of how many questions the participant has asked.

When in doubt, here is a snapshot of the problem behavior you are trying to describe:

9. **Describe the problem behaviors and their precursors and behavioral indicators** (i.e., all of the responses that will yield the reinforcers in the test condition). • Dangerous PB: SIB, Aggression (pinches, pushes), Disruption (hitting table, swiping) • Non-dangerous Bx: Whining, complaining, stomping
10. **Describe the synthesized establishing operation.** (This situation is presented at the beginning or the test session and intermittently during the test session, e.g., after 30 seconds of synthesized reinforcement). • Remove toys (cars, crayons, puzzles) • Withhold attention and compliance with mands • Present instruction to complete handwriting or math homework, play differently with toys.
11. **Describe the reinforcers to be synthesized.** (These are provided [a] following problem behavior and their reported precursors in the test condition and [b] continuously in the control condition.) • Absence of instruction • Delivery of cars, crayons, puzzles, and cajoling attention • Be available to respond to bids and comply with mands

Open-Ended Functional Assessment Interview Date of Interview: _____

Developed by Gregory P. Hanley, Ph.D., BCBA-D

(Developed August, 2002; Revised: August, 2009)

Child/Client: _____ Respondent: _____

Respondent's relation to child/client: _____ Interviewer: _____

RELEVANT BACKGROUND INFORMATION

1. His/her date of birth and current age: ____-_____-_____ ____yrs ____mos Male/Female
2. Describe his/her language abilities.
   A. Speaks in short sentences (2-3 word phrases)
   B. Only likes to talk about his preferred interests or ask for something that he wants
   C. Those interests are cars, trains, airplanes, and boats

3. Describe his/her play skills and preferred toys or leisure activities.
   A. Likes to play with toy cars.
   B. He likes to tell his peers and teachers what to do with the cars when he plays.
   C. He also likes puzzles and coloring – but he really likes coloring if it involves coloring pictures of cars or trains.

4. What else does he/she prefer?
   A. Sometimes, he likes to organize his toys.
   B. When he colors, he likes to use red and blue – he doesn't like to use other colors.
   C. He really likes to play with his friends and even his teachers, but only if they play how he wants to. Sometimes it seems like it doesn't matter what toys he's playing with, as long as he gets to direct the people playing with him.

QUESTIONS TO INFORM THE DESIGN OF A FUNCTIONAL ANALYSIS

To develop objective definitions of observable problem behaviors:

5. What are the problem behaviors? What do they look like?
   A. Self-injury –
      a. he hits his head and flails his body on the floor
   B. Property destruction
      a. he swipes materials from the table
   C. Aggression
      a. Pinching and pushing parents and teachers
   D. Whining/shouting and meltdowns
      a. he whines at us and stomps his feet if he doesn't want to do something

To determine which problem behavior(s) will be targeted in the functional analysis:

6. What is the single-most concerning problem behavior?
   A. Self-injury

7. What are the top 3 most concerning problem behaviors? Are there other behaviors of concern?
   A. Self-injury, property destruction, and aggression
   B. The whining can be really annoying
   C. The meltdowns are hard to handle, especially in public

To determine the precautions required when conducting the functional analysis:

8. Describe the range of intensities of the problem behaviors and the extent to which he/she or others may be hurt or injured from the problem behavior.
   A. The self-injury can range from light hits to his head to really severe face punching – he's given himself black eyes before
   B. The aggression and property destruction have caused damage, also, either to us or stuff in our house
   C. The whining and meltdowns are really embarrassing – they can be manageable at first, but escalate to really loud yelling and flailing

To assist in identifying precursors to dangerous problem behaviors that may be targeted in the functional analysis instead of more dangerous problem behaviors:

9. Do the different types of problem behavior tend to occur in bursts or clusters and/or does any type of problem behavior typically precede another type of problem behavior (e.g., yells preceding hits)?
   A. Yeah it seems to happen together
   B. Well, aggression and SIB seem to happen all at the same time – it's hard to tell
   C. So, typically, he starts with the whining and foot stomping. After that he will either engage in self-injury or aggression or property destruction. Sometimes, it seems like all three happen at once.

To determine the antecedent conditions that may be incorporated into the functional analysis test conditions:

10. Under what conditions or situations are the problem behaviors most likely to occur?
    A. When play time is over – we try to give him warnings of what's about to happen next
    B. We usually need him to come to the table to do some work and he gets mad if we interrupt time with his toys
    C. Oh, definitely will see it if we're playing with him and don't play exactly how he likes to play. That happens with peers all the time – we're pretty good at following his directions but if we mess up that's when we're in trouble.

11. Do the problem behaviors reliably occur during any particular activities?
    A. He hates to do his school work
    B. Handwriting is a tough one because he wants to use the crayon or pencil to draw cars instead
    C. It really seems to happen when we interrupt the activity that he wants to do to have him come do something we need him to do like practicing handwriting or some simple math worksheets.

12. What seems to trigger the problem behavior?
    A. Taking something away from him
    B. Asking him to do something he doesn't want to do

Answers to hypothetical Q:

1. Million dollars to trigger:
   A. Take away his toys and tell him playing is over and it's time to do your work or chores

   a. Especially academic demands like handwriting or math worksheets
C. Playing a different way than him or not following his directions when you're playing with him

13. Does problem behavior occur when you break routines or interrupt activities? If so, describe.
    A. Yeah, I guess so
    B. It's not really about breaking routines, but maybe if you interrupt him playing
    C. He gets really into playing with certain toys and seems like he has to finish whatever is in his head before he can be done with the toys. So if we stop him while he's having a car race or organizing his toys, he gets really mad

Answers to hypothetical Q:

1. What gets your heart racing:
   A. Any time I know I have to tell him to stop doing what he wants to do and tell him to do something I know he doesn't want to do

14. Does the problem behavior occur when it appears that he/she won't get his/her way? If so, describe the things that the child often attempts to control.
    A. Yeah, I guess you could say that
    B. It seems like he tries to control how we play – he wants to choose the specific toys and the activities we do with them
    C. He gets the most frustrated when we try to get him to stop playing all together and do something we need him to do like wash his hands before dinner or practice his school work.

To determine the test condition(s) that should be conducted and the specific type(s) of consequences that may be incorporated into the test condition(s):

15. How do you and others react or respond to the problem behavior?
    A. We do our best to do the same thing every time
    B. We try to keep a straight face so it doesn't seem like he's bothering us but it's hard to do that when he gets loud
    C. Honestly, sometimes we just say forget it and let him keep playing – it's usually not worth the fight to get him to do something because of everything else that's going on

16. What do you and others do to calm him/her down once he/she engaged in the problem behavior?
    A. We do our best to handle it in the moment
    B. Well, when he starts whining or stomping, we give him some extra time with his toys before asking him to do whatever it is that we asked him to do
    C. The best way to respond is to even let him bring his toys with him wherever we asked him to go and just have him do something really quick – like one letter of handwriting or one math problem and then let him go right back to playing. That minimizes a lot of the problem usually.

Answers to hypothetical Q:

1. Million dollars to turn it off:
   A. Tell him he doesn't actually need to do whatever it was and go back to playing with his toys – and play with him but do whatever it is he wants us to do while we're playing

17. What do you and others do to distract him/her from engaging in the problem behavior?
    A. Hmm, we kind of tip toe around him
    B. Try to let him have as much time playing as possible before telling him to do something
    C. If we really need him to stop playing and do something like brush his teeth or get in the car, we sometimes promise to get him something really great after if he can follow directions – stuff like McDonalds for lunch or a new toy car

Answers to hypothetical Q:

1. What gets your heart racing:
    A. Any time I know I have to tell him to stop doing what he wants to do and tell him to do something I know he doesn't want to do

In addition to the above information, to assist in developing a hunch as to why problem behavior is occurring and to assist in determining the test condition(s) to be conducted:

18. What do you think he/she is trying to communicate with his/her problem behavior, if anything?
    A. Sometimes for us to leave him alone and other times for us to play with him
    B. Maybe that he wants more time with his toys
    C. It seems like he needs more time with toys and us playing with him – he wants both a lot of the time which can be hard when we need him to do something or we're busy doing something else

19. Do you think this problem behavior is a form of self stimulation? If so, what gives you that impression?
    A. No
    B. He's not really a sensory-seeking type of kid
    C. He doesn't do any of this stuff when he's happy and getting his way

20. Why do you think he/she is engaging in the problem behavior?
    A. I have no idea
    B. He seems really frustrated with us sometimes
    C. I think he is just really particular and wants to do what he wants to do instead of what we want him to do. As long as we follow his lead, he's fine. It's when we have to give directions or make him do something he doesn't want to do that sets him off.

Escape from teacher directed demands to tangibles and attention/mand compliance.

Appendix G: Analysis Script and Instructions

Participant: _____ Date: _____ Experimenter: _____

Start time: _____ End time: _____ Total analysis duration: _____

- Design
  - **"This is your time to design your conditions. Here are some materials to do that – you can choose to use them or not. Let me know when you are ready to proceed with the analysis."**

*Allow no more than 20 minutes for analysis design.

- Analysis
  - **"This is your time to conduct your analysis. Here are some materials to do that – you can choose to use them or not. You can terminate the analysis at any point. Please identify what you are doing by saying out loud the condition you are running. For example, you could say, "Starting control condition," before you start. Take 3-5 minutes to get set up and we'll begin."**

*Conditions under which you should terminate the analysis:

- participant does not implement EO following 15 minutes;
- participant does not reinforce any dangerous response you emit;
- participant makes reinforcers contingent on problem behavior in control condition;
- participant runs two test sessions with an isolated reinforcement contingency;
- participant does not reinforce whining/stomping and only reinforces dangerous behaviors;

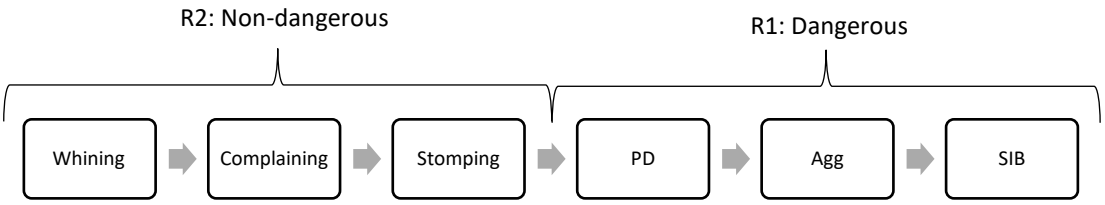
- When analysis is finished, make a copy of the participant's data sheet and leave him/her with the original.

Control Sessions:

- Engage in zero pb unless EO (e.g., any demand, noncompliance with mand, lack of response to a social bid) is in place
    - If EO in place, engage in R2

Test Sessions:

- Mand throughout EO and Sr intervals (as possible)
- Upon each presentation of EO, engage in some member of the response class:



- If clinician reinforces with all synthesized Sr, terminate responding and consume reinforcers
- If clinician reinforces with one or more (but not all) synthesized Sr, continue through hierarchy until all synthesized reinforcers are delivered
- If clinician does not reinforce at all, continue through hierarchy

- Two times during test session, comply with first portion of EO presentation (e.g., put toys away, play differently, comply with demand)
    - Engage in R1 or R2 if clinician (a) provides more salient cue of EO or (b) changes something about EO to make it more evocative (e.g., changes demand, prompts quicker compliance, denies mands firmly)

Appendix H: PFA Scoring Rubric

Interview	Asks about target behaviors and all associated non-dangerous behaviors (e.g., definitions, severity, response class)	SIB + / - Agg + / - PD + / - Whining/stomping + / - Response class + / -
	Asks about specific evocative events (e.g., types of demands)	Removing toys + / - Introducing work + / - Mand NC + / -
	Asks about specific reinforcers (e.g., preferred items, how child likes to interact)	Return of toys + / - Removal demand + / - Mand comp + / -
	Asks follow up/hypothetical questions if necessary (e.g., million dollar Qs)	Million $ Q1 + / - Million $ Q2 + / - Last occurrence Q + / - Heart racing Q + / - Other Qs: _____

Analysis

Begins analysis with control condition	Yes No Notes:									
Provides continuous access to synthesized Srs (e.g., follows child's lead) during control	Control 1: + / - Control 2: + / - Control 3: + / - #Errors:_____									
Refrains from implementing any potential EOs for problem behavior during control	Control 1: + / - Control 2: + / - Control 3: + / - #Errors:_____									
Ignores problem behavior if it occurs during control	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -
	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -
	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -
Initiates synthesized EO within 20 seconds upon start of test condition (e.g., instructs to clean up, plays differently, mand NC)	Test 1: + / - Test 2: + / - Test 3: + / - #Errors:_____									
Progressively adds more components of EO until PB is evoked (e.g., signals the transition with position and words, removes engaging materials, present work, escalates prompts, etc.)	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -
	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -
	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -
Reinforces first instance of problem behavior immediately (even if it is not a target response)	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -
	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -
	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -
Allows access to reinforcers for 20-40 seconds	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -
	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -
	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -
Refrains from implementing any EOs for problem behavior during Sr intervals	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -
	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -
	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -
Progressively re-implements synthesized EOs following Sr intervals during test	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -
	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -
	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -
Provides salient transitions between Sr and EO intervals during test (e.g., body positioning, tone of voice, presentation of materials)	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -
	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -
	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -
Alternate control and test conditions (e.g., CTCTT)	Yes No Notes:									
Terminates analysis when sufficient control is achieved (e.g., reliable low-zero rates in control and elevated rates in test)	Yes No Notes:									

Participant Name: _____ Primary data collector: _____ Reli: _____

Total duration of interview: _____ Total duration of analysis: _____ Reason for terminating: _____

Appendix I: Social Validity Survey

Functional Analysis Training Questionnaire

Thank you for agreeing to answer several questions about your experience conducting an Interview-Informed Synthesized Contingency Analysis (IISCA). Please answer the questions honestly and provide as much detail as you can.

1. Did you feel confident in your ability to gather relevant information to design an ecologically-relevant functional analysis?

Not at all			Not Sure			Very much
1	2	3	4	5	6	7

Please elaborate.

2. Did you feel confident that you could conduct an efficient functional analysis that would yield sufficient functional control?

Not at all			Not Sure			Very much
1	2	3	4	5	6	7

Please elaborate.

3. Did you feel confident that you could conduct a functional analysis considered safe and socially acceptable by the client and his/her caregivers?

Much more dangerous			Similar			Much less dangerous
1	2	3	4	5	6	7

Please elaborate.

4. Did you feel confident that you could interpret data from a functional analysis and determine whether or not that analysis resulted in sufficient functional control?

Not at all			Not Sure			Very much
1	2	3	4	5	6	7

Please elaborate.

5. The training I received regarding conducting practical functional assessments enhanced my ability to design, conduct, and interpret a functional analysis.

Not at all			Not Sure			Very much
1	2	3	4	5	6	7

Please elaborate.