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An evaluation of balance : a home-based parent training program addressing emerging problem behavior

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AN EVALUATION OF BALANCE: A HOME-BASED PARENT TRAINING PROGRAM ADDRESSING EMERGING PROBLEM BEHAVIOR

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Abstract

When taught by professionals, a set of social skills including functional communication, delay toleration, and cooperation with adult directives has been repeatedly shown to reduce severe problem behavior among children with autism. Teaching these same skills to typically developing preschoolers has also been demonstrated to reduce problem behavior and prevent it from developing. In this study, we evaluated the effects of a similar skills-based program when delivered in the home by parents to their 3- and 4-year-old children diagnosed with autism. Direct measures reflected decreases in emerging problem behavior and increases in child skills, and social validity measures suggested that the goals and procedures were acceptable to parents. Aberrant Behavior Checklist scores reflected improvement from baseline to post-test in at least one category for each participant. Building on this demonstration, future research should evaluate the extent to which this home-based, parent-delivered, BCBA-supported program prevents the development of problem behavior among young children with autism.

Keywords: autism, early intervention, functional communication training, parent training, prevention, Preschool Life Skills, problem behavior

An Evaluation of Balance: A Home-Based Parent Training Program Addressing Emerging Problem Behavior

The median age of an autism spectrum disorder (ASD) diagnosis in the United States is 3 years 10 months (Centers for Disease Control, 2018), and research focuses on ever-earlier identification (e.g., English, Tenenbaum, Levine, Lester, & Sheinkopf, 2018; Franchini et al., 2018). The American Academy of Pediatrics recommends early intervention services as soon as ASD is suspected (American Academy of Pediatrics, 2014; Myers & Plauché Johnson, 2007), bringing many children into contact with behavior analysts early in their lives. A critical function of these services would seem to be preventing the development of severe problem behavior, given that it is more common in children with ASD than in typically developing children and children with other disabilities (American Psychiatric Association, 2013; Bodfish, Symons, Parker, & Lewis, 2000; Farmer & Aman, 2011; Mayes et al., 2012), and given that delays from its emergence to treatment may be associated with an increased use of punishment (Kurtz et al., 2003). However, most early intensive behavioral intervention outcome studies report little or no data on problem behavior (Rogers & Vismara, 2008; Smith & Iadarola, 2015), and few programs from any discipline have been empirically evaluated and demonstrated to prevent the development of severe problem behavior in children with ASD (Ruppel & Hanley, 2019).

Therefore, in the present study, we evaluate a home-based, parent-implemented program specifically designed to prevent the development of severe problem behavior in children newly diagnosed with autism. The program relies on synthesized and personalized reinforcers (Hanley, Jin, Vanselow, & Hanratty, 2014) to shape play skills, responding to name calls, functional communication, delay tolerance, and cooperation with adult directions.

First, parents learn to promote child engagement (Luckett, Bundy, & Roberts, 2007) with

personalized and synthesized reinforcers. During the remainder of the program, parents provide access to this play context contingent on target language and social skills. Research has demonstrated that treatment packages in which personalized and synthesized reinforcers are used to teach communication, social-emotional, and cooperation skills reduce or eliminate severe problem behavior among children and adolescents with ASD (e.g., Beaulieu, Van Nostrand, Williams, & Herscovitch, 2018; Falcomata, Muething, Gainey, Hoffman, & Fragale, 2013; Falcomata, Roane, Muething, Stephenson, & Ing, 2012; Greer, Fisher, Saini, Owen, & Jones, 2016; Hanley, Jin, et al., 2014; Herman, Healy, & Lydon, 2018; Jessel, Ingvarsson, Metras, Kirk, & Whipple, 2018; Rose & Beaulieu, 2018; Santiago, Hanley, Moore, & Jin, 2016; Strand & Eldevik, 2017; Taylor, Phillips, & Gertzog, 2018). Comparative research also consistently reveals that synthesized reinforcers (e.g., escape from work to access tangibles, attention, and sensory reinforcement) produce stronger treatment effects than isolated reinforcers (e.g., escape only or praise only; Slaton & Hanley, 2018; Slaton, Hanley, & Raftery, 2017).

In the current program, parents deliver synthesized reinforcers continuously when responses are first taught; however, following acquisition of a few skills, the new skill repertoire is maintained on an intermittent and unpredictable schedule of reinforcement. This schedule seems to emulate the naturally occurring types of interactions that develop and maintain repertoires of problem behavior, and research has shown that such schedules can maintain newly acquired repertoires of social skills to the exclusion of problem behavior (Beaulieu et al., 2018; Falcomata et al., 2013; Hanley, Jin, et al., 2014; Herman et al., 2018; Jessel et al., 2018; Rose & Beaulieu, 2018; Santiago et al., 2016; Strand & Eldevik, 2017; Taylor et al., 2018). Jessel et al. (2018) showed that such outcomes are not only possible but also probable: Severe problem behavior reduced to zero or near-zero and skills maintained for 25 children with ASD

consecutively enrolled in a two-week intensive outpatient program.

A second key component of the present program is teaching children to respond to name calls by stopping, looking at the adult, and giving a verbal response. Such responses have been demonstrated to increase subsequent cooperation with instructions in typically developing children (Beaulieu & Hanley, 2014; Beaulieu, Hanley, & Roberson, 2012, 2013; Everett, Olmi, Edwards, & Tingstrom, 2005; Hamlet, Axelrod, & Kuerschner, 1984; Kraus, Hanley, Cesana, Eisenberg, & Jarvie, 2012). Beaulieu et al. (2012) showed that neither responding to name calls nor cooperation improved over time in the absence of explicit teaching. If explicit teaching is required for typically developing children, it would seem necessary for children with ASD, as research suggests that infants with ASD are less likely to respond to name calls than other infants, and these differences increase as children grow older (Miller et al., 2017).

Although responding to name calls may increase cooperation with subsequent instructions, children may need additional intervention to learn to cooperate with non-preferred activities. In the present program, this intervention begins with parents teaching functional communication (Carr & Durand, 1985; Ghaemmaghami, Hanley, & Jessel, in press; Reeve & Carr, 2000), then delay toleration, and finally cooperation with adult instructions. Children learn an omnibus mand that produces access to personalized and synthesized reinforcers (Ghaemmaghami, Hanley, Jin, & Vanselow, 2016), beginning with a simple mand form (Horner & Day, 1991) and progressing to a more complex utterance including social niceties and/or a mand frame (Ghaemmaghami, Hanley, Jessel, & Landa, 2018; Hernandez, Hanley, Ingvarsson, & Tiger, 2007). Next, children learn to tolerate delays to reinforcement of the mand. In the current program, children learn to emit a specific, calm response to mand denial called a tolerance response, based on Skinner's (1953) notion that people decrease the intensity of their

emotional responses by emitting other, incompatible responses (see also Carr & Carlson, 1993; Fagen & Hill, 1987; Hanley, Jin, et al., 2014). The tolerance response is initially reinforced immediately. Once acquired, children learn to cooperate with unpredictable numbers of instructions, chains of which progressively increase in average length (Ghaemmaghami, Hanley, & Jessel, 2016). Parents teach cooperation via differential reinforcement and either three-step prompting (e.g., Tarbox, Wallace, Penrod, & Tarbox, 2007) or a "wait out" procedure in which adults deliver a verbal instruction, remove tangibles unrelated to the instruction, and wait for the child to cooperate (Piazza, Moes, & Fisher, 1996). In either case, parents reinforce cooperation with the personalized and synthesized reinforcers.

The current program shares many features with the Preschool Life Skills program (PLS; Hanley, Heal, Tiger, & Ingvarsson, 2007; Luczynski & Hanley, 2013), the logic of which is that children learn to emit desirable responses in challenging situations when they repeatedly experience those situations and are explicitly taught how to respond. Across both direct and indirect measures, researchers have shown the PLS program to reduce problem behavior and strengthen social skills with typically developing preschoolers (Beaulieu & Hanley, 2014; Beaulieu et al., 2012, 2013; Fahmie & Luczynski, 2018; Francisco & Hanley, 2012; Gunning, Holloway, & Healy, 2018; Hanley et al., 2007; Hanley, Fahmie, & Heal, 2014; Luczynski, & Hanley, 2013; Luczynski, Hanley, & Rodriguez, 2014), as well as children with developmental disabilities (Falligant & Pence, 2017; Francisco & Hanley, 2012; Robison, Mann, & Ingvarsson, in press). However, in an effort to provide access to this skill-building curriculum to children newly diagnosed with autism who do not attend an effective early intervention program, the current program differs in some important ways from those previously evaluated, and these differences may preclude similar outcomes. Parents with no previous training in behavior

analysis and only two hours of Board Certified Behavior Analyst (BCBA) support per week are the primary interventionists, teaching occurs in the home, and the initial assessment consists of on an open-ended interview *without a functional analysis* to generate personalized and synthesized reinforcers for use in the skill development process.

The current program also adds components not included in skill-based treatments derived from functional analyses or in the PLS program: promoting child-led play and promoting balance between child- and adult-led activities. During child-led play, parents engage with their child in child-selected activities and are highly responsive to child communication attempts, behaviors McLaughlin and Carr (2005) describe as indicative of good rapport. These authors identified a correlation between poor rapport (the opposite adult behaviors), child problem behavior, and child noncompliance with instructions. Indeed, the National Association for the Education of Young Children recommends both child- and adult-led experiences, as they provide different types of learning opportunities (NAEYC, 2009). However, adults may avoid adult-led activities with children with a history of uncooperative behavior (Carr, Taylor, & Robinson, 1991), and research has suggested that embedding adult-directed teaching trials into play can punish children's play (Heal & Hanley, 2011; Heal, Hanley, & Layer, 2009). Therefore, the current program emphasizes separating child- and adult-led activities and striking a balance between the two. Given this emphasis, we call it the "Balance Program."

Evaluating the preventive effects of the Balance Program will necessitate a randomized controlled trial. The present study is a precursor to such an effort; its purpose is to evaluate the effects of the Balance Program on emerging problem behavior in children newly diagnosed with ASD using single-subject experimental designs. In addition to direct and indirect measures of emerging problem behavior and direct measures of skill development during and following

program implementation, we also report on procedural integrity, the dosage and distribution of teaching and support required to achieve the observed outcomes, and the social validity of the goals, procedures, and outcomes.

Method

Participants

Participants were four young children, Walt, Jaden, Max, and Kelly, and their primary caregivers (see Tables 1 and 2). Children were included who were between 3 and 6 years old, had been diagnosed with ASD by an outside evaluator within the last year, lived at home, and, according to parent report, engaged in frequent uncooperative behavior and some non-dangerous problem behavior that appeared to be socially-mediated.

We recruited potential participants by distributing flyers to local pediatricians and BCBAs, with the request that these clinicians hand them out to families of young children recently diagnosed with autism. We suggested that BCBAs hand out the flyers to families on their waitlist for comprehensive early intervention services, rather than to families seeking help with severe problem behavior. The flyer explained that university-based, applied researchers were seeking children recently diagnosed with ASD and parents who were interested in learning how to help their children develop skills to prevent the development of problem behavior. The flyer described the program as focusing on play, communication, and social-emotional skills.

When parents contacted the researcher and reported having a child who met the age and diagnostic criteria, the researcher asked the parent to describe whether the child exhibited any uncooperative or problematic behaviors, and the topographies, frequency, intensity, and situations in which they tended to occur. We invited families to participate in the program when parent report suggested emerging socially mediated behavior problems. We considered behavior

problems to be emerging if parents reported the daily occurrence of uncooperative behavior (e.g., refusing to follow directions) or non-dangerous problem behavior (e.g., whining, yelling, flopping on ground). We distinguished these emerging problem behaviors from severe problem behavior, which is sometimes observed in children under the age of 5. For example, Kurtz et al. (2003) reported on the self-injurious behavior of 30 children with a mean age of 2 years 9 months; all produced tissue damage, and 83% engaged in head banging (see also Kurtz, Chin, Huete, & Cataldo, 2012). If parents of prospective participants for our study reported the occurrence of severe problem behavior (e.g., aggression beyond the rare open-handed slap to another person's body, self-injury, behavior that resulted in observable damage to property, pica, elopement), we referred them to other programs, including our own Life Skills Clinic.

Although our participants were not referred for dangerous problem behavior, their parents nevertheless reported that the emerging problem behavior had adverse effects on the family. Parents had difficulty running errands, completing household tasks, and caring for our participants' siblings, and some reported persistent marital conflict and mental health concerns related to parenting issues.

Three Master's-level BCBAs participated, all of whom were enrolled in a behavior analytic doctoral program at the time of the study. One BCBA completed all visits for a particular family.

Overview

The Balance Program was designed to fit within existing service systems for children with ASD. As of 2014, practice guidelines for the behavior analytic treatment of ASD include at least two hours per week of direct supervision by a BCBA (Behavior Analyst Certification Board, Inc.). Therefore, the Balance Program involves two, 1-hr visits by a BCBA per week,

with the recommendation that parents practice at least five trials with their child twice daily between visits. To promote child skill acquisition and provide parents with immediate reinforcers for their teaching efforts, we asked parents to teach in short, circumscribed practice sessions with short intertrial intervals (Francisco & Hanley, 2012) early in the program. We specifically suggested that they *not* attempt to teach all day or embed the trials in typical routines until instructed to do so at Step 10. To minimize demands on parents, we did not ask them to collect data on practice sessions. We anticipated that it would be apparent from the child's responding at the start of the next visit whether high quality practice had occurred between visits.

During the first and second visits, assessments were conducted. Subsequent visits consisted of review of previously learned steps, an observation to collect data and make a decision to move to the next step or continue at the current step, and instruction, either in the existing step or in a new step. Following mastery of all steps, there was a break of about one to three months, depending on the family's schedule, after which follow-up was conducted.

Setting and Materials

All BCBA visits were conducted in the participants' homes. Most visits were conducted in one commonly used space nominated by the primary caregiver (e.g., living room), but Step 10 visits were conducted throughout the home. All of the items and activities used during baseline, teaching, and follow up originated in the participants' homes and were identified via interview. These items were sorted into two bins of the same size (approximately 30 cm^3 or 60 cm x 40 cm x 30 cm, depending on the size of the items). The BCBA did not provide any materials other than video equipment, written documents, and bins if needed, nor were parents asked to purchase any items for the program.

Data Collection and Response Definitions

Data collection. The primary dependent variables were emerging problem behavior (EPB), child-led play, responding to name, functional communication, tolerance responding, and cooperation (with instructions and expectations). EPB was analyzed as responses per minute; percentage of opportunities correct was used for responding to name, functional communication, and tolerance responding; and percentage of 20-s whole intervals was used to analyze and report play and cooperation. Data were also collected on parent integrity to the teaching procedures (see Appendix A), which is reported as a percentage of 20-s intervals in which no errors were made. A checklist was used to measure each BCBA's fidelity to the support procedures (see Appendix A). All direct measures were collected in 5-min sessions in baseline. In the teaching process, data were collected from one 5-min or 5-trial session at the start of each visit. In follow up, data were collected from one or two 5-trial sessions at the start of the visit. All sessions were video recorded and scored later.

Indirect measures included a semi-structured parent interview called the Individualized Features of Reinforcement Meeting (InFORM; Appendix B), the Aberrant Behavior Checklist-Second Edition (ABC-2; Aman & Singh, 2017), and social validity assessments (see Appendix C). The purpose of the InFORM, administered during the first visit, was to identify the materials and activities to be used during teaching. The ABC-2 is a 58-item rating scale completed by parents or caregivers that is often used in evaluations of interventions for children with autism outside of behavior analysis (Kaat, Lecavalier, & Aman, 2014). The ABC-2 was completed by each participant's primary caregiver on the second visit (in which baseline observations were also conducted) and again on the second visit at Step 10. Parents completed versions of the social validity assessment before the teaching process, after the teaching process, and at follow up, with questions pertaining to the acceptability of the goals, procedures, and outcomes of the program.

Response definitions. EPB definitions were individualized per child (see Table 1). Hitting and throwing items were rarely observed, of low intensity, and involved small or lightweight items. In other words, these topographies were qualitatively distinct from the aggression and property destruction generally emitted by children referred for the treatment of severe problem behavior.

Child-led play was defined as the child manipulating toy(s) and/or engaging in activity-related conversation with the caregiver in the absence of EPB. Responding to name was defined as stopping, looking towards the parent, and saying "yes." Functional communication was defined as any instance of a mand for access to items or to play the child's way, to escape or avoid items or parental instruction, or any combination, emitted in the absence of EPB. The topography of the functional communication response (FCR) taught was individualized for each child based on his/her language level. A tolerance response was defined as any instance of an explicit and calm response to a delay or denial imposed by the parent (e.g., "OK"). Cooperation was defined as behaving in accordance with the adult instruction or expectation in place at the time. For example, if the adult asked the child to color by himself and left the area, the expectation that the child color would be considered in place until the adult returned. See Table 1 for participant-specific tasks.

Interobserver agreement. Interobserver agreement was evaluated by having a second, independent observer review the video recordings and collect data on all target behaviors at a separate time from the primary data collector. Each session was divided into 20-s intervals. Interobserver agreement for EPB was calculated by dividing the smaller total number of occurrences by the larger total number of occurrences in each interval, adding up the proportions, dividing by the number of intervals, and multiplying by 100. Interobserver agreement for all

other measures was calculated by dividing the number of agreements (intervals marked with the same symbol by both data collectors) by the number of agreements plus disagreements, and then multiplying by 100. Interobserver agreement data were collected for at least 20% of sessions across all conditions and participants, and averaged at least 86% for all participants and all measures (see Table 3).

Design

Functional control over EPB and parent procedural integrity by the Balance Program package was demonstrated using a nonconcurrent multiple baseline across participants design. Functional control over child responding to name, FCR, tolerance responding, and cooperation by the package was demonstrated via repeated measures and replication of the effects of the independent variable on multiple dependent variables across points in time, when baseline opportunities were presented. The effects of the package on the balance between child- and adult-led activities were inferred rather than demonstrated.

Procedures

Natural baseline. The BCBA distributed fun and task materials, as identified in the parent interview, around the room and directed the parent to engage with the child as she normally would. Two or three, 5-min sessions were conducted. These data were used to assess the balance between time spent on child-led and adult-led activities, prior to any instruction to the parent in this regard.

Prompted baseline. The BCBA then instructed the parent to allow the child to play about half of the time and to try to have the child complete tasks the other half of the time. No further prompts or instructions were given before or during the sessions. Three to five, 5-min sessions were conducted. These data were used to evaluate the parent's ability to create balance between child-led and parent-led activities when specifically asked to do so, as well as to

evaluate target child behaviors under these conditions.

Teaching process. Each step in the program was based on research suggesting its potential importance to the prevention of problem behavior for children with ASD. Table 5 summarizes the parent and child objectives for each step with relevant references. With the exception of the initial visit, each visit began with the BCBA asking the parent if she or he had any questions about the behavior targeted for teaching during the prior visit. The BCBA answered these questions and provided models upon request. The BCBA then made a video recording of the parent and child practicing that step for five trials or min. During the video recording, the BCBA did not provide any prompts or feedback. Once recording was completed, the BCBA provided feedback to the parent, emphasizing what the parent did correctly and noting any areas that could be improved. Parents had access to a written description of the step as well (Appendix D). The BCBA then decided whether to remain on the current step or introduce the next step, based on the parent and child performance during the video session and the criteria noted in Appendix D. When staying on the current step, the BCBA provided a rationale to the parent and guided the parent and child to practice the step for the remainder of the visit. When introducing a new step, the BCBA oriented the parent to a written description of the step. The BCBA provided a rationale for the step, and then coached the parent to implement the step with the child. The parent and child continued to practice the step for the remainder of the visit, with BCBA prompts and feedback as needed. At the end of the visit, the BCBA asked the parent to practice the new step five times, at least twice per day, until the next visit.

Each teaching step built on the previous ones such that the child continued to practice all previously learned skills and experienced the intermittent, unpredictable delivery of the putative reinforcers. That is, when responding to name was introduced in Step 2, it was followed by the

immediate return to child-led play on each trial. In Steps 3 and 4, the parent continued to call the child's name, and immediately consequated responding with the return to child-led play on about half of trials. On the other trials, the parent followed the child's response to name call with the statement that it was time to do an adult-led task. Emission of the FCR was then consequated with an immediate return to child-led play. In all subsequent steps, parents continued to call the child's name on each trial and immediately reinforced responding on one trial per five-trial session. A tolerance response was taught in Step 5; in this step, four out of five name calls were followed by the statement that it was time for an adult-led task. The FCR yielded immediate return to child-led play on two trials, and on the other two trials, parents denied the request. The emission of the tolerance response yielded an immediate return to child-led play. In Steps 6 through 10, responding to name call, the FCR, and tolerance responding each yielded immediate reinforcement on one trial. On the other two trials, the parent followed her denial with an instruction or a series of instructions. Cooperation yielded immediate reinforcement. The number of instructions or tasks required varied across trials, with one trial requiring less cooperation and one trial requiring more. Even after the child learned to cooperate for longer periods, the parent continued to reinforce shorter bouts of cooperation (i.e., one to three instructions) on one trial per session. The order of trial types varied across sessions such that which response would yield immediate reinforcement on each trial was unpredictable.

Post-test. The data from Step 7 were considered the post-test. At this time, all of the skills—play, responding to name, functional communication, tolerance responding, and cooperation-- had been taught and the same contextual features as in the baseline were present.

Generality. Steps 8, 9, and 10 were considered generality steps, as they extended the process beyond that which was assessed in baseline. Prior to Step 8, the BCBA asked parents to

nominate any tasks that had not been included thus far, but that parents felt were important for children to do. The parent and child practiced these tasks in Step 8 and included these tasks for the remainder of the program.

In Step 9, the parent discontinued use of the bins and returned all items to their regular locations. The parent and child practiced under these conditions. In Step 10, practice was extended to new areas of the home, and included items and tasks relevant to those locations. Whereas in previous steps, the BCBA had instructed the parent to set up explicit practice sessions in a consistent location with consistent materials, in Step 10, the BCBA instructed the parent to integrate the practice into natural routines. For example, the parent might interrupt play by calling the child's name and directing him to go to his room and make his bed, and then direct the child to brush his teeth. If the child did not emit the response to name call, FCR, tolerance response, or cooperation independently, the parent prompted it. After the child finished brushing his teeth, the parent might allow the child to return to play. After several minutes, the parent might call the child's name and, contingent on the child's correct response, allow the child to go back to playing.

The teaching process was considered complete following two consecutive sessions at Step 10 in which the child displayed near-zero rates of EPB, independent responding to name, functional communication, and tolerance responding in most opportunities, cooperation and play in most applicable intervals, and when parent- and child-led times each comprised roughly half of the session.

Booster and follow up. Between four and 10 weeks after the last Step 10 visit, depending on the family's availability, the BCBA conducted a booster session. The BCBA visited the family, observed the parent and child practice Step 10, and, following the observation,

provided feedback and prompting as needed. The BCBA then returned later the same week to record a five-trial session of Step 10. If the child's performance met the criteria noted above, a second session was recorded during that same visit. If not, the BCBA provided feedback, asked the parent to practice with the child, and returned to record another session when the family's schedule allowed.

Modifications. We made modifications for two participants, Max and Kelly. Max's occurred after his first follow up phase, because his mother reported that she still felt nervous implementing adult-led time. She elaborated that Max typically engaged in EPB the first time she introduced any variation to a previously practiced situation, and that she found EPB aversive. We made Kelly's modifications during the teaching process, after several visits at Step 9 across which Kelly's functional communication and tolerance responses decreased to low levels. Kelly's mother was nearly 8 months pregnant at this time and reported being too tired most days to practice between visits. Given the different issues, we made different modifications for each child.

Clinic sessions and parent education (Max). We view the Balance Program as a potential Tier 1 intervention in a Response to Intervention model. That is, most or all children admitted to early intervention services could receive the Balance Program, implemented by parents in the home. If the Balance Program does not produce the desired changes in behavior for a child, a Tier 2 intervention would be indicated. A Tier 2 intervention might consist of BCBA-implemented sessions a few times per week, either in the home or in a clinic. A Tier 3 intervention, should it be required, might consist of intensive outpatient or inpatient services.

Therefore, given that the Tier 1 intervention did not yield a general enough change in Max's behavior according to an important stakeholder, we invited Max and his mother to attend

sessions in our university-based outpatient clinic. The same BCBA who had served as Max's mother's in-home coach for the entire Balance Program conducted his sessions in the clinic. We began clinic sessions at Step 8 (new directions), given Max's mother's report that he engaged in EPB given any variation in context. The BCBA ran the sessions according to the parent manual, using activities and materials nominated by Max's mother and like those available in the home. Initially, the BCBA asked Max's mother to observe sessions from behind a one-way mirror. The BCBA provided her with copies of the teaching procedures integrity checklist—the same that had been used to score her behavior during preceding sessions—and asked her to score the BCBA's behavior. Between sessions, the BCBA met with Max's mother for about 5-10 min to discuss her scores, correct any misunderstandings, and answer questions. When Max's behavior in sessions with the BCBA met the manual-specified criteria, the BCBA progressed to Step 9. When Max's behavior at this step met criteria *and* when Max's mother scored the BCBA's teaching integrity with no errors for one session, the BCBA invited Max's mother to participate in sessions. She agreed that she felt comfortable doing so. Initially, Max's mother and the BCBA worked together during the sessions. First, his mother focused on interacting with him during child-led time, and the BCBA implemented all of adult-led time. When she did this with minimal errors and she indicated that she felt comfortable, his mother began calling his name and delivering reinforcement when he responded. When Max was responding consistently and his mother stated she felt ready, she began providing an instruction following some name calls and reinforcing his FCRs. This continued until she was implementing all parts of the program and Max was responding correctly, at which time the BCBA left the room during sessions and observed through a one-way mirror. At this point, the program was run exactly as it had been in the home; the BCBA gave no prompts or feedback during sessions, provided feedback

afterwards, and offered guidance on what to practice for the rest of the visit.

When Max's behavior met the manual-specified criteria with his mother, in the clinic, at Step 9, we invited Max and his mother to re-attempt the program in the home. The BCBA conducted the first session, again at Step 9. Max's behavior met criteria, so on the next visit, his mother conducted a session at Step 9. We continued this way until Max's behavior met criteria at Step 10, with his mother, in the home.

Because Max's mother had previously expressed discomfort at follow up (i.e., following a break in visits), we asked her if there were any other steps we could take to increase her comfort level. She noted some specific challenges: (a) explaining the rationale for the procedures to Max's father and to extended family; (b) applying the strategies to situations that could not be easily practiced with the BCBA (e.g., holiday parties, grocery shopping); and (c) committing to regular practice. Therefore, during the four week break, the BCBA conducted three parent education modules over four visits with Max's mother (see Appendix E; Module 1 was conducted over two visits). The BCBA did not work directly with Max, nor did Max's mother run sessions during these visits; rather, they consisted exclusively of discussion between the BCBA and Max's mother.

Modified program and Balance Express (Kelly). Kelly's mother cited her own physical fatigue, rather than Kelly's behavior, as interfering with practice at home. Therefore, rather than invite Kelly's mother to bring her into the clinic, we offered to supplement the standard Balance visits with visits by the BCBA during which the BCBA conducted practice with Kelly (to replace the practice her mother was no longer able to conduct). In addition, because the FCR and tolerance response had decreased to near zero and responding to name was variable, we returned to Step 2. In an effort to eliminate prompted responding, we modified the program such that the

response programmed for reinforcement on a given trial was only reinforced if Kelly emitted it independently. If a prompt was required, the adult then required Kelly to complete a series of five demands from the task bin independently. A brief reinforcement interval was then delivered, followed by the next trial.

When these modifications did not yield the desired rates of independent FCRs over six visits, we consulted with Kelly's mother to determine which skills she most wanted Kelly to learn. She indicated that the FCR and cooperation were the most important to her. Therefore, we developed a shortened version of the program that we called *Balance Express.* In Balance Express, everything was the same as in the standard program, except that responding to name call and tolerance responding were not targeted. When denying an FCR, the adult simply said "no," followed immediately by an instruction. At Kelly's mother's request, the BCBA continued to conduct some sessions during Balance Express until the baby was born. Kelly's mother opted to take a six-week break following the baby's birth, after which BCBA visits resumed and Kelly's mother resumed all implementation.

Results

Summary

Figure 1 summarizes data for all participants. Black symbols represent performance given the standard program, and gray symbols represent Max's and Kelly's performances with their parents, in the home, following modifications to the program. For all participants, EPB (top left-hand panel) decreased from the prompted baseline to post-test, generality, and follow up, even though child-led play comprised only about half of the session in post-test, generality, and follow up (top right-hand panel) and social skills and cooperation were required (third and fourth left-hand panels). All participants played in the absence of emerging problem behavior for the

majority of child-led intervals in all conditions (second left-hand panel), although an increase in play was observed with Jaden after teaching. Parental integrity to the teaching procedures improved from the prompted baseline to post-test, generality, and follow-up sessions for all participants, with more substantial improvements observed for Max's mother following modifications to the program (bottom right-hand panel).

EPB

Individual participant data are displayed in Figures 2-5, and Figure 6 displays EPB data from the prompted baseline and the first three steps of teaching for all participants, to highlight the multiple baseline across participants design.

During the natural baseline, all participants except Walt emitted some EPB. Jaden and Max emitted it following certain parent actions during play, and Kelly emitted it during her mother's attempts to implement adult-led time. Jaden's and Max's verbal behavior suggested that they emitted EPB when their parents did not play in the way that they preferred. During the prompted baseline, all parents imposed some adult-led activities, and all participants engaged in increasing (Walt, Jaden, Max) or stable (Kelly) rates of EPB. With the introduction of Teaching Step 1, rates of EPB decreased to zero or near-zero and remained below the baseline average throughout the teaching process and follow up for all participants, with the exception of a few isolated spikes for Max and Kelly.

Play

Walt and Kelly engaged in play in the absence of EPB for 100% of the child-led time in baseline (Figures 2 and 5, second panels). Jaden and Max engaged in play for the entire child-led time, but their play was sometimes accompanied by EPB (Figures 3 and 4, second panels; black portions of bars reflect play in the absence of EPB and gray portions reflect time in which child-

led play was permitted but child did not play or played with EPB). In Step 1, Jaden's and Max's play in the absence of EPB increased to 100%. All participants engaged in play for all or most of the allotted time across all teaching sessions and follow up. Because there was little change in the quality of play from baseline to teaching, we characterize our participants as having had initially strong play skills.

Responding to Name

Walt's and Max's parents did not call their names during baseline, and Jaden's and Kelly's did so infrequently. Neither Jaden nor Kelly responded with any part of stopping, looking, or responding verbally. Responding emerged only following the introduction of Step 2 targeting this skill. Across subsequent teaching steps and follow up, responding generally remained high for Walt, Jaden, and Max. Kelly's responding was more variable. Following the first set of modifications to Kelly's program, including a return to Step 2, responding immediately increased and became more stable; however, it became variable again following the re-introduction of Step 3.

Functional Communication

All caregivers attempted to restrict access to tangibles and/or place demands during the prompted baseline, creating opportunities for children to emit mands to retain the tangibles and escape the demands. However, only Max did so in the absence of EPB, and he only did so on one out of four opportunities. In Steps 3 and 4, parents taught their children to use an omnibus FCR to escape demands and regain access to the fun bin and mand compliance. In Step 3, Walt and Jaden were taught to emit the first part of the mand ("Excuse me") when the parent presented the evocative event. In Step 4, they learned to emit the entire mand (e.g., "Excuse me…can I have my way please?"). Walt and Jaden acquired these responses and emitted them in most or all

opportunities across subsequent steps. Max and Kelly acquired mands ("Can I have my way, please?" and the manual signs "more time," respectively); their parents attempted to teach them to precede the mand with an attention-getting response, but these participants did not acquire the attention-getting response quickly, and their parents opted to move on. Max's and Kelly's responding was variable until modifications (clinic, Balance Express) were made, at which time responding for both became high and stable and remained so across subsequent phases.

Tolerance Responses

Because participants emitted few or no mands using words in baseline, there were few explicit mand denials by parents and therefore few opportunities to emit a tolerance response. Tolerance responding emerged following the introduction of Step 5 for Walt, Jaden, and Max, and in the third visit at Step 5 for Kelly. Responding maintained in most opportunities across subsequent steps for Walt and Jaden. Max's responding was variable until the clinic sessions, at which time it became high and stable, and remained so across subsequent phases. Kelly's responding decreased following Step 7, which-- based on parent report-- was associated with a decrease in practice given parental fatigue. Based on discussion with Kelly's mother about her values and priorities, the tolerance response was not included in the Balance Express package.

Cooperation

All participants engaged in some cooperation during baseline; however, it averaged fewer than 50% of requested intervals for all participants. Cooperation was targeted beginning in Step 6, and the proportion of requested cooperation emitted increased immediately for Walt, Jaden, and Kelly. Max's cooperation was variable until Step 9 of his initial Balance experience. It remained high for Step 10, but was variable again at follow up. Max's cooperation then increased to consistently high levels during the clinic visits, and remained high upon return to the

home and in the second follow up phase with his mother.

At follow up, Walt and Max emitted cooperation in all requested intervals, and Kelly emitted cooperation in 95% of requested intervals. At follow up with his father, Jaden emitted cooperation in 100% of requested intervals. However, at follow up with his mother, Jaden emitted cooperation in only 29% of requested intervals, which was higher than that observed in baseline but low compared to his cooperation at Step 10 with his mother.

Balance

The proportion of session time allocated to child-led activity decreased gradually across teaching steps for all participants as adults delivered chains of demands of increasing average length. Parent and child behavior in baseline highlight the importance of systematic progression towards this balance. When the session was comprised almost entirely of child-led time, as it was in the natural baseline, there were very few opportunities for children to practice communication and social skills. When parents attempted to implement some adult-led activity in the prompted baseline, children emitted EPB and very few skills.

Parent Integrity to Teaching Procedures

Parent integrity to the teaching procedures increased immediately upon introduction of the teaching process for all participants. It remained high for Walt's, Jaden's, and Kelly's parents across teaching and follow up. For Max's mother, it decreased upon introduction of Step 2 and remained variable across teaching, although generally higher than in baseline. Following modifications to the program, the level increased and variability decreased.

BCBA Integrity to Support Procedures

BCBA integrity to the support procedures was scored for an average of 17% of sessions (range, 14-22%) across all three conditions (baseline, teaching process, and follow up) for all

participants and averaged at least 93% (see Table 6).

Dosage

The entire process, from the InFORM through follow up, required 15, one-hour BCBA visits for Walt, 20 for Jaden, 59 for Max, and 56 for Kelly.

Aberrant Behavior Checklist-2

The results for each subsection of the ABC-2 are summarized in Table 7, with raw scores appearing first and percentile ranks in parentheses. Percentile ranks are based on 1,036 parent ratings of children under the age of 6 with an autism diagnosis (Aman & Singh, 2017). According to the ABC-2's authors, a score in the 75th percentile or above suggests the need for intervention (Aman & Singh, 2017). At baseline, both of Walt's parents rated his behaviors at or above the 75th percentile for Hyperactivity/Noncompliance and Inappropriate Speech. Max's mother rated his behavior at the 75th percentile for Irritability. All participants' parents rated behaviors in all the other categories below the 75th percentile. This supports our designation of the participants' behaviors of concern as "emerging" (rather than "severe") problem behavior.

The ABC-2's authors state that generally, a reduction of one standard deviation or more might be considered clinically significant (Aman & Singh, 2017). Walt's Parent A's ratings met this criterion in the areas of Hyperactivity/Noncompliance and Inappropriate Speech, and Parent B's ratings met this criterion in all areas except Stereotypic Behavior. Max's mother's ratings met this criterion in the areas of Irritability and Stereotypic Behavior.[1]

Parents who provided higher ratings in baseline (Walt's, Max's) rated their child's

[1] All of our participants displayed some restricted/repetitive behavior or interests, consistent with the diagnostic criteria for ASD. The Stereotypic Behavior section of the ABC-2 focuses on motor stereotypy specifically. For our participants, vocal stereotypy and restricted interests were more common.

behavior following the program as meeting the criteria for one or more clinically significant reductions. By contrast, Jaden's and Kelly's baseline ratings were lower at the start (all at or below 50th percentile); it is therefore somewhat expected that they would not meet the criteria for clinically significant reductions following program implementation, even in categories in which ratings showed improvement. All participants' raw scores improved by at least three points in at least one category, and none worsened by the same amount.

Social Validity

Results of the social validity surveys are summarized in Table 4, and responses to open-ended questions can be found in Appendix C. All parents rated the goals of the program as important, the procedures as highly acceptable, and their comfort implementing the procedures as high. At Step 10 and follow up, parent ratings of their satisfaction with the balance in activities, with their child's behavior, and with their interactions with their child *outside of BCBA* visits varied across participants. Generally, Walt's and Jaden's parents rated themselves as more satisfied than Max's and Kelly's. Walt's, Jaden's, and Kelly's parents provided only positive comments in response to open-ended questions, and Max's mother did not respond to any open-ended questions.

Discussion

Direct measures suggest that for four children with ASD, the Balance Program reduced emerging problem behavior, improved social and cooperation skills, and was associated with the development of balance between child- and adult-led interactions. These outcomes were demonstrated in the home, with parents providing all or most of the teaching. Parents socially validated the goals and procedures, and an indirect, standardized measure of problem behavior detected general improvements. In other words, the Balance Program produced important child

behavior outcomes relevant to children with an ASD diagnosis.

Our evaluation also revealed some areas for improvement and important directions for future research. First, not all of the children acquired all of the targeted social skills. Modifications to the program were associated with more robust performance for two children, and these modifications might be incorporated from the beginning for future participants. In addition, on the social validity assessment, some parents provided equivocal ratings for the outcomes of the program outside of BCBA visits; therefore, steps might be taken to improve outcome generality. Once these areas have been addressed, future researchers might consider a randomized controlled trial to evaluate the program's preventive effects on problem behavior in children with ASD.

All of the children in the present study acquired at least a simple FCR, and three of four acquired discriminated speaker and listener repertoires. It is likely that initial language skills are a moderator of outcomes in this program. The three participants who acquired the response to name and tolerance response communicated in short, disfluent sentences or with full vocal-verbal fluency at the start of the program, whereas the participant who did not acquire these responses (Kelly) was non-verbal at the start of the program. Kelly's individual data suggest that these responses were attainable for her in isolation; in several sessions, she emitted high levels of responding to name, but she never emitted criterion levels of responding to name and the FCR in the same session, suggesting that the desired conditional discrimination was not established. Future researchers should evaluate the program with additional participants who have little verbal behavior in baseline. If similar outcomes are observed, the program might prescribe a modified approach (e.g., Balance Express) for children with little initial language and/or parents who foresee having limited time to dedicate to practice.

Max's modifications also suggest revisions to the program. Max's performance improved substantially in sessions implemented by the BCBA in the clinic with higher teaching integrity than his mother had exhibited. When his mother returned to teaching, she demonstrated improved teaching integrity. Although the current data do not allow for conclusions about which change(s) were responsible for either Max's or his mother's improvements, his mother may have benefitted from the higher dose of modeling from the BCBA and from the experience of scoring teaching integrity until she did so with no errors. In future in-home applications, the BCBA could model correct implementation or show video models, and teach the parent to accurately evaluate teaching integrity.

Walt's, Jaden's, and Max's performances suggest a possible relation between teaching integrity averaging at least 80% and robust child outcomes: Child performance reached criteria in phases in which teaching integrity averaged 80% or higher, and did not otherwise. Future implementers might consider adding a role-play component to the program and coaching parents until they demonstrate at least 80% correct implementation before beginning to teach their children a given step. In other words, in future iterations, the parent training procedures might include all the steps of behavior skills training (BST; e.g., Drifke, Tiger, & Wierzba, 2017; Sawyer, Crosland, Miltenberger, & Rone, 2015). We did not initially incorporate role-play because of expected time constraints in practice and because we hoped the program might be useful in telehealth settings, in which role play is more difficult. However, future researchers might consider adding opportunities for parents to demonstrate teaching integrity prior to practicing with their child.

Parents' ratings of the goals and procedures of the program were overwhelmingly positive (M = 6.9, range 6-7 out of 7), and parents reported that the BCBA support was sufficient

to make them feel comfortable teaching the skills. However, parents' ratings of the outcomes of the program outside of BCBA visits were mixed, with Walt's and Jaden's parents rating the outcomes more highly than Max's and Kelly's. Walt and Jaden progressed through the program more quickly than Max and Kelly, with no modifications. Some variables that might have influenced both the child's progress and parents' satisfaction with outcomes outside of visits include the amount and/or procedural integrity of practice outside of visits throughout the program. In the future, researchers might collect data on between-visit practice and evaluate the effects of procedural modifications on the frequency and quality of practice, as well as the generality of outcomes. Interestingly, Kelly's mother's open-ended comments on the results of the program seem to contrast with her rankings, suggesting that future researchers might find multiple types of social validity measures informative.

Future researchers implementing the program using a single subject design might also consider design modifications to enhance the demonstration of functional control over all child skills by the program. In the present study, there were no baseline opportunities for children to demonstrate some of the skills. Future researchers could ask parents to provide opportunities for particular skill(s) during the prompted baseline or afterwards, as its own baseline condition, if no opportunities are observed in the prompted baseline.

However, even when parents did not present opportunities for particular skills in baseline, we have several reasons to infer that children lacked these skills and acquired them as a function of the program. First, it is unlikely that a child has had opportunities to acquire a skill if, over repeated observations, the parent does not provide opportunities for the child to emit that skill. Skill acquisition requires practice; Luczynski and Hanley (2013) demonstrated that, in the absence of explicit teaching, typically developing preschoolers did not develop similar skills.

The fact that the parents did not provide baseline opportunities for very commonplace parent-child interactions suggests that parental attempts had been extinguished by persistent child non-cooperation or punished by EPB, as suggested by Carr et al. (1991). Finally, all parents rated the goals of the program as very important (see Table 4), which they would have been unlikely to do had children had a history of reliably emitting these skills in relevant opportunities.

We inferred rather than demonstrated control by the program over the balance between adult- and child-led activities. In early teaching steps, child-led play was delivered contingent on relatively short responses and a great deal of the session was spent in child-led play by design; balance was achieved gradually, emerging around Step 6 or later. We deemed it undesirable to extend participants' baselines for the time that would be required to demonstrate stability until after balance emerged for earlier participants. However, given the demographic and geographic differences among the families, and the varying amounts of time between baseline and demonstration of balance, it seems implausible that balance would have emerged as a function of some factor other than the program.

There is precedent for teaching each of the skills in the Balance Program (e.g., Durand & Moskowitz, 2015; Everett et al., 2005; Hanley, Jin, et al., 2014; Luczynski & Hanley, 2013); nevertheless, whittling down the program to the behaviors that are essential for preventing the development of severe problem behavior is an important task for researchers. Such an evaluation might be most productive after a demonstration of the preventive effects of the program via a randomized controlled trial; the question will then be which components of the program are necessary to produce the preventive effects. It is possible, for example, that differentially reinforcing various durations of cooperation with personalized and synthesized reinforcers may be sufficient.

Future researchers, before or after a randomized controlled trial, might also investigate the moderating role of initial play skills. All of our participants engaged with the materials their parents had nominated as preferred for the majority of child-led time in baseline, and no parents prompted their children to do so. Despite these robust child performances in baseline, all BCBAs conducted instruction in Step 1 to correct parent errors-- such as interfering with child toy manipulation or attempting to teach-- that might have made access to the fun materials a less potent reinforcing context. It is unclear what the effects of the program would have been, had the participants not demonstrated robust play in baseline. It seems probable that baseline play behavior moderates the effects of the program; whether this is the case and how to address it are important research questions.

Despite the many questions that remain, the promising effects of the Balance Program shown in the current study-- and the studies showing positive effects of similar skill-based teaching programs delivered in different service models (e.g., Hanley et al., 2007; Hanley, Jin, et al., 2014; Jessel et al., 2018; Robison et al., in press)-- suggest that Balance may be a useful program for professionals supporting parents of children with ASD in the home.

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Table 1
Child Characteristics

Name	Age (Yr:Mo)	Sex	Diagnosis	Race/ Ethnicity	Language Level[a]	EPB	Tasks
Walt	4:3	M	ASD	White/ Caucasian	3	Whining, yelling, hitting	Cleaning up, putting on outerwear, sharing with brother, listening to story
Jaden	4:7	M	ASD	White/ Caucasian	4	Yelling, throwing*, kicking air, stomping, squeezing parent's face	Cleaning up, handwriting, putting on outerwear, making bed, brushing teeth
Max	4:1	M	ASD	White/ Caucasian	4	Whining, yelling, throwing*, flopping, verbal attacks	Cleaning up, putting on particular clothes, playing parent-selected game, playing alone
Kelly	3:3	F	ASD	Black/ African American	1	Whining, kicking air, pushing items/people away, flopping	Cleaning up, listening to story, early VB tasks, playing alone

Note. Yr is years. Mo is months. ASD is autism spectrum disorder. EPB is emerging problem behavior. * = small/lightweight items, such as socks or game pieces, not in the direction of another person. Tasks include those used in baseline and Steps 6 and thereafter. VB is verbal behavior.

[a]1 = non-verbal; 2 = one-word utterances; 3 = short disfluent sentences; 4 = full fluency

Table 2
Parent Characteristics

Child Name	Participating Caregivers	Race/ Ethnicity	Primary Language	Highest Education	Employment	Other Children	Training/Professional Experience—Early Childhood
Walt	Mother, mother	White/ Caucasian	English	College degree, postgraduate degree	Full time outside home	1	No
Jaden	Mother, father	White/ Caucasian	English	College degree, high school degree	Full time outside home	0, 1	Yes-- general, no
Max	Mother	White/ Caucasian	English	Some college	Not employed outside home	1	No
Kelly	Mother	Black/ African American	English	College degree	Full time outside home	2	Yes-- general

Note. For Walt and Jaden, when a column contains one response, it applies to both parents. When a column contains two responses separated by a comma, one response pertains to each parent.

Table 3

Mean Interobserver Agreement (Range)

	Walt	Jaden	Max	Kelly
Baseline				
Sessions Scored	40%	33%	25%	20%
EPB	98% (95-100%)	99% (98-100%)	100%	87%
Skills (Incl. Play)	99% (93-100%)	97% (87-100%)	97% (80-100%)	100%
Session Balance	98% (93-100%)	97% (93-100%)	93% (80-100%)	90% (80-100%)
Parent Teaching Integrity	93%	94% (87-100%)	97% (93-100%)	93%
Teaching Process				
Sessions Scored	24%	20%	22%	21%
EPB	99% (93-100%)	99% (97-100%)	99% (97-100%)	100%
Skills (Incl. Play)	98% (80-100%)	97% (89-100%)	95% (67-100%)	97% (75-100%)
Session Balance	100%	95% (83-100%)	91% (69-100%)	98% (89-100%)
Parent Teaching Integrity	96% (93-100%)	90% (81-100%)	90% (71-100%)	86% (76-96%)
Follow Up				
Sessions Scored	50%	50%	33%	50%
EPB	100%	98% (96-100%)	100%	96%
Skills (Incl. Play)	97% (87-100%)	96% (88-100%)	93% (83-100%)	93% (87-100%)
Session Balance	100%	92% (88-93%)	92% (83-100%)	91% (89-93%)
Parent Teaching Integrity	93%	86% (84-87%)	86% (83-89%)	87%

Note. EPB = emerging problem behavior. Skills = play, responding to name, functional communication, tolerance responding, and cooperation. Session balance = proportion of session spent in child-led and adult-led time.

Table 4

Social Validity Questionnaire Results

Questions	Walt Parent A/B	Jaden Parent A/B	Max	Kelly
Pre-				
1. A goal of the program is to create balance between child-led activities and parent-led activities. Is this important to you?	6/6	7/7	7	7
2. Another goal is to teach children to accept inevitable daily disappointments and ambiguities. Do you consider this an important goal for your child?	7/7	7/7	7	7
3. A third goal is to increase how often your child cooperates with your requests without displaying problem behavior. Is this an important goal for you and your child?	7/7	7/7	7	7
Post-Step 10				
4. I considered the activities I was asked to do with my child to be acceptable.	7/7	7/7	7	7
5. The level of BCBA support was enough to make me feel comfortable teaching the skills.	7/7	7/7	7	7
Post-Step 10 and Post-Follow Up				
6. Consider your regular everyday activities **outside of BCBA visits**. Are you	7/6	6/7	4	5
satisfied with the amount of time you and your child spend on child-led vs. parent-led activities?	6/7	7/7	5	5
7. Are you satisfied with your child's current level of cooperation and appropriate	6/7	3/6	5	3
behavior **outside of BCBA visits**?	6/6	6/7	4	3
8. How positive are your everyday interactions with your child **outside of BCBA**	6/6	5/7	5	5
visits?	6/7	6/7	4	5
9. Do you feel comfortable implementing the strategies you learned in the program	6/6	7/7	NR	7
when the BCBA is not there?	6/7	6/7	6	7

Note. 1 = not at all; 4 = not sure/somewhat; 7 = very much so; NR = no response. Scores reported for Max were collected following session 58 and following his final follow up session. See Appendix C for responses to open-ended questions.

Table 5
Objectives by Teaching Steps

		Parent Objective	Child Objective	Selected References
Teaching Process	1	Present no EOs for EPB	Play in the absence of EPB	Ghaemmaghami, Hanley, Jin, & Vanselow, 2016; Hanley et al., 2014 & repl.; Heal et al., 2009; Heal & Hanley, 2011; McLaughlin & Carr, 2005; NAEYC, 2009
	2	Shape responding to name	Stop, look, say "yes" to name call	Beaulieu et al., 2012, 2013; Beaulieu & Hanley, 2014; Everett et al., 2005; Hanley et al., 2007 & repl.; Kraus et al., 2012; Hamlet et al., 1984; Miller et al., 2017
	3	Shape functional communication	Emit part of mand	Carr & Durand, 1985; Ghaemmaghami, Hanley, Jin, & Vanselow, 2016; Hanley et al., 2007 & repl.; Hanley et al., 2014 & repl.; Horner & Day, 1991; Reeve & Carr, 2000
	4	Teach complete mand	Emit complete mand	Ghaemmaghami et al., 2018; Hanley et al., 2007 & repl.; Hanley et al., 2014 & repl.; Hernandez et al., 2007
	5	Shape tolerance	Respond to denials calmly	Carr & Carlson, 1993; Fagen & Hill, 1987; Hanley et al., 2007 & repl.; Hanley et al., 2014 & repl.; Skinner, 1953
	6	Shape cooperation	Follow 1-3 instructions	Ghaemmaghami, Hanley, & Jessel, 2016; Hanley et al., 2007 & repl.; Hanley et al., 2014 & repl.; Lalli & Casey, 1996; Piazza et al., 1996; Tarbox et al., 2007
Post	7	Shape persistence	Complete all steps of an activity	Hanley et al., 2007 & repl.; Hanley et al., 2014 & repl.
Generality	8	Practice with new instructions	Complete new activities	Stokes & Baer, 1977
	9	Practice without bins	Demonstrate all skills without bins	
	10	Practice during typical routines around house	Demonstrate all skills during typical routines around house	

Note. EO = establishing operation. EPB = emerging problem behavior. Repl. = replications.

Table 6

Mean BCBA Procedural Fidelity (Range)

	Walt	Jaden	Max	Kelly
Baseline				
Sessions Scored	20%	33%	12.5%	20%
Fidelity	100%	100%	100%	100%
Teaching Process				
Sessions Scored	19%	10%	12%	13%
Fidelity	90% (89-90%)	93% (90-100%)	97% (86-100%)	96% (86-100%)
Follow Up				
Sessions Scored	50%	25%	33%	50%
Fidelity	100%	100%	100%	100%

Note. For Max and Kelly, "Teaching Process" includes all teaching phases, including modifications. For Max, "Follow Up" includes both Follow Up phases.

Table 7

Aberrant Behavior Checklist Scores (with Percentiles)

Name	Irritability		Social Withdrawal		Stereotypic Behavior		Hyperactivity/ Noncompliance		Inappropriate Speech	
	Max. 45 *Clin. Sig. 20*		*Max. 48* *Clin. Sig. 15*		*Max. 21* *Clin. Sig. 8*		*Max. 48* *Clin. Sig. 29*		*Max. 12* *Clin. Sig. 6*	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Walt										
Parent A	9 (37th)	1 (<16th)	4 (25th)	0 (<16th)	0 (16th)	1 (25th)	**35 (84th)**	**9* (16th)**	**6 (75th)**	**0* (16th)**
Parent B	**18 (70th)**	**3* (<16th)**	**13 (70th)**	**4* (25th)**	1 (25th)	1 (25th)	**32 (75th)**	**13* (32nd)**	**6 (75th)**	**1* (32nd)**
Jaden	6 (25th)	6 (25th)	9 (50th)	6 (37th)	1 (25th)	1 (25th)	19 (50th)	21.4 (50th)	2 (37th)	2 (37th)
Max	**21 (75th)**	**12* (50th)**	1 (<16th)	0 (<16th)	**4 (50th)**	**0* (16th)**	28 (70th)	19 (50th)	3 (50th)	4 (63rd)
Kelly	7 (32nd)	2 (<16th)	7 (37th)	3 (16th)	1 (25th)	2 (25th)	12 (32nd)	12 (32nd)	1 (45th)	1 (45th)

Note. Clin. Sig. = clinically significant score per ABC-2 authors. Bolding and asterisk denotes clinically significant reduction according to criteria provided in ABC-2 manual. Post measures reported for Max were collected following session 58. Mean scores for a sample of children with ASD, as rated by their parents, are as follows: Irritability—12.8 (50th percentile); Social Withdrawal—10 (50th percentile); Stereotypic Behavior—5 (50th percentile); Hyperactivity/Noncompliance—18.7 (50th percentile); Inappropriate Speech—3.7 (63rd percentile) (Aman & Singh, 2017).

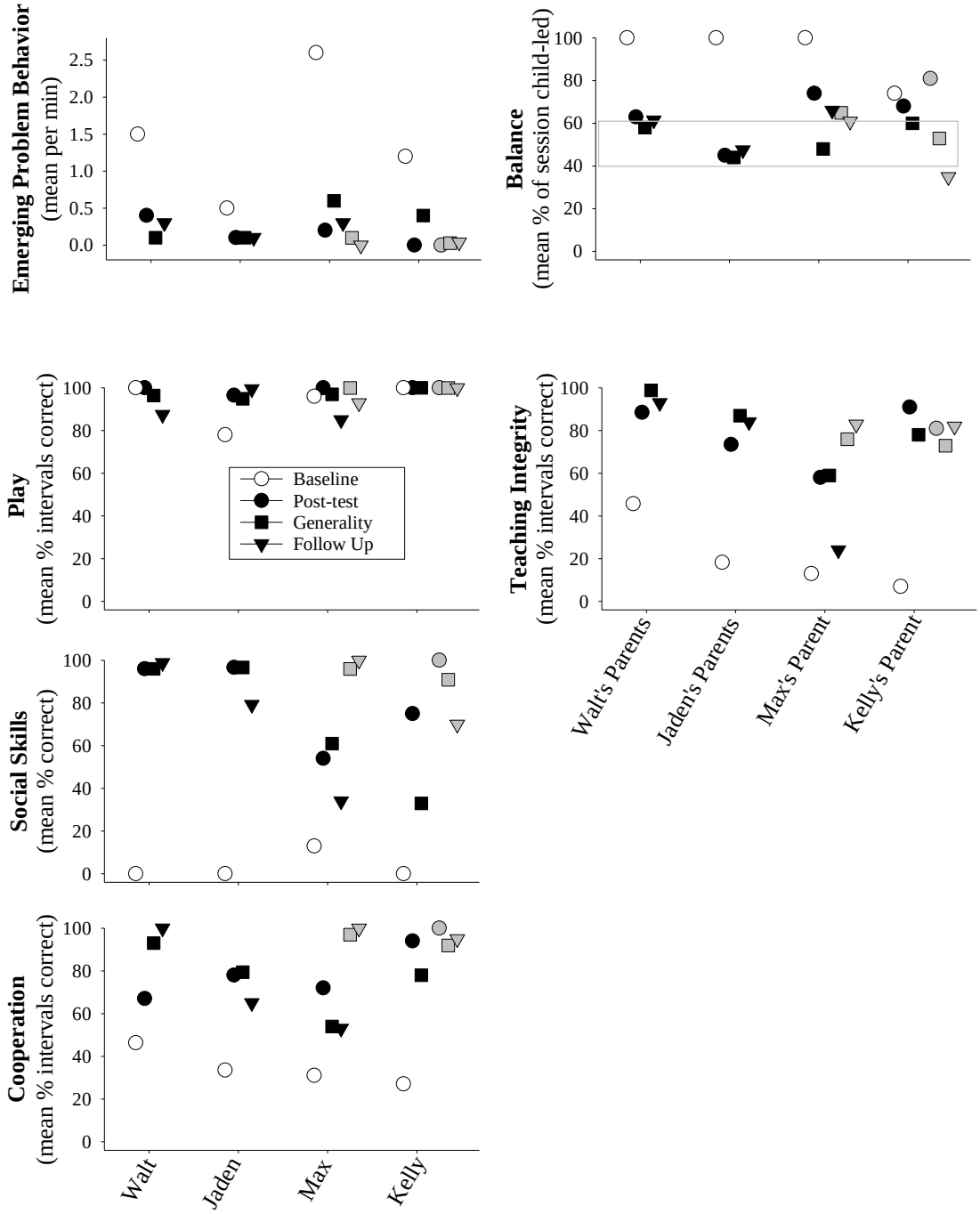

Figure 1. Summary data for all participants. Baseline mean was calculated from all sessions of the prompted baseline for all measures except for "Balance," which was calculated from all sessions of the natural baseline. Post-test mean was calculated from all sessions of Step 7. Generality test mean was calculated from all sessions of Steps 8, 9, and 10. Follow-up mean was calculated from all sessions of follow-up. Gray symbols (Max, Kelly) represent performance in the home, with parent as implementer, following modifications to package.

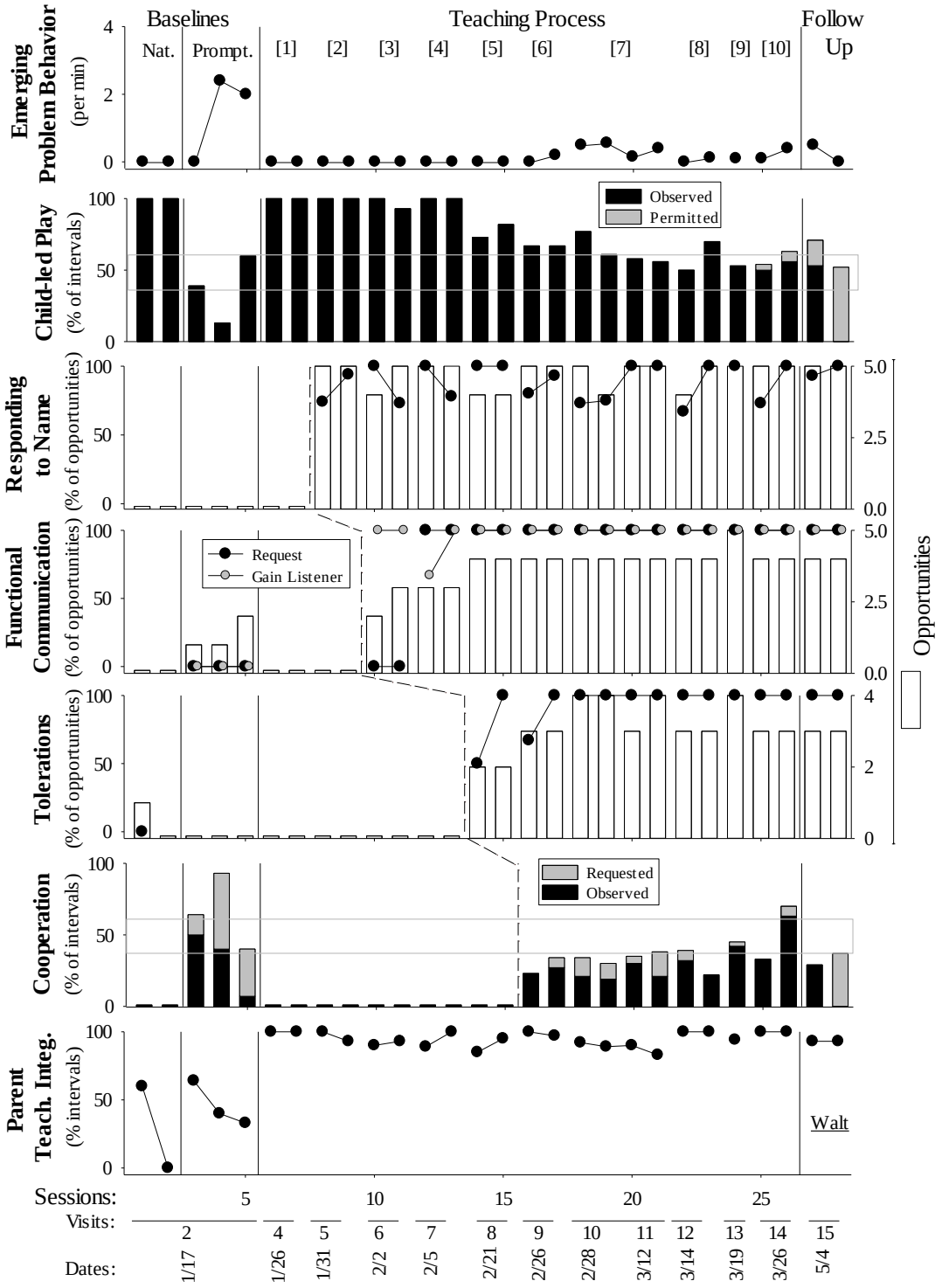

Figure 2. Individual data for Walt. Numbers in brackets refer to teaching steps. Nat. refers to natural baseline. Prompt. refers to prompted baseline.

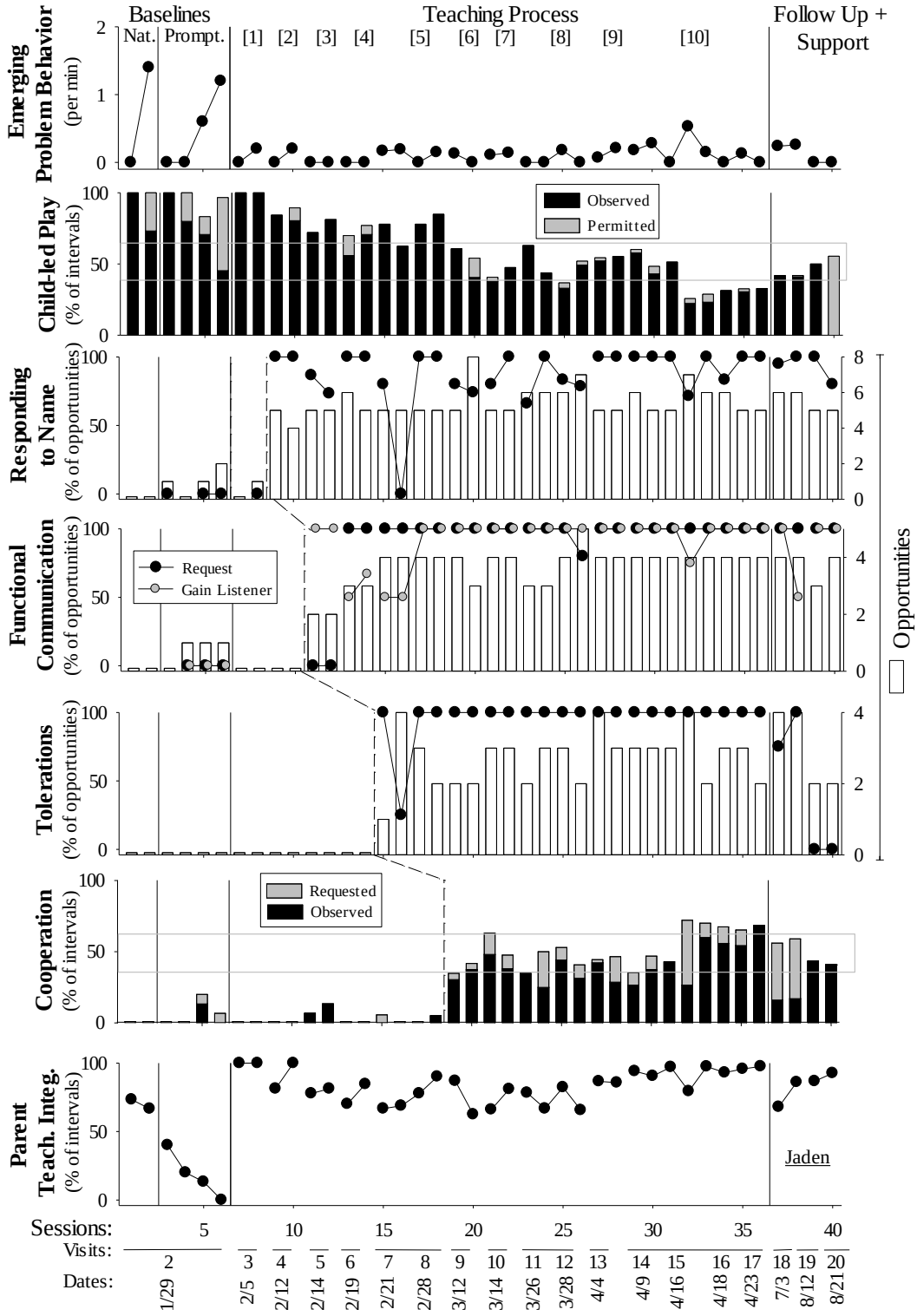

Figure 3. Individual data for Jaden. Numbers in brackets refer to teaching steps. Nat. refers to natural baseline. Prompt. refers to prompted baseline.

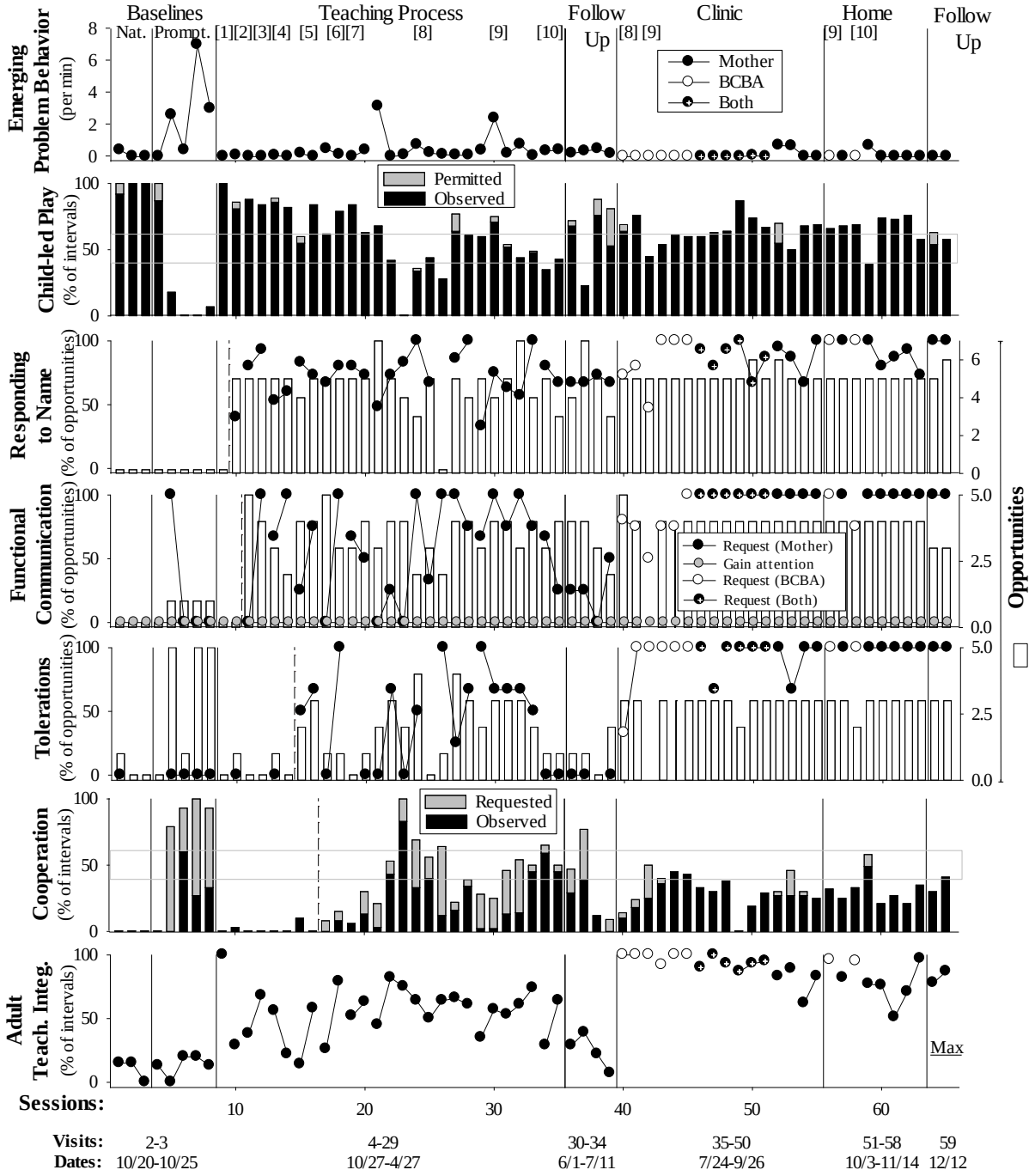

Figure 4. Individual data for Max. Numbers in brackets refer to teaching steps. Nat. refers to natural baseline. Prompt. refers to prompted baseline.

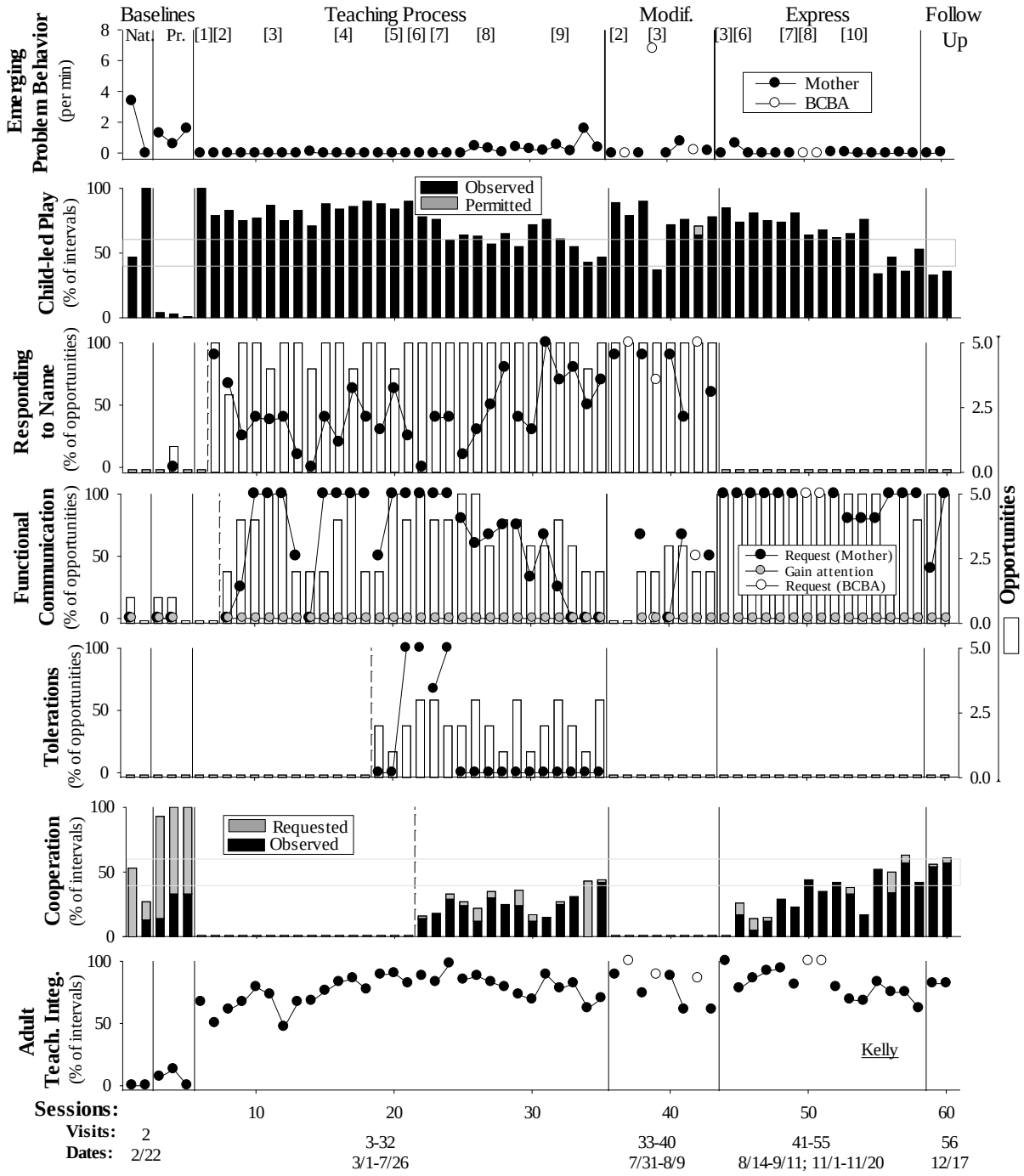

Figure 5. Individual data for Kelly. Numbers in brackets refer to teaching steps. Nat. refers to natural baseline. Pr. refers to prompted baseline.

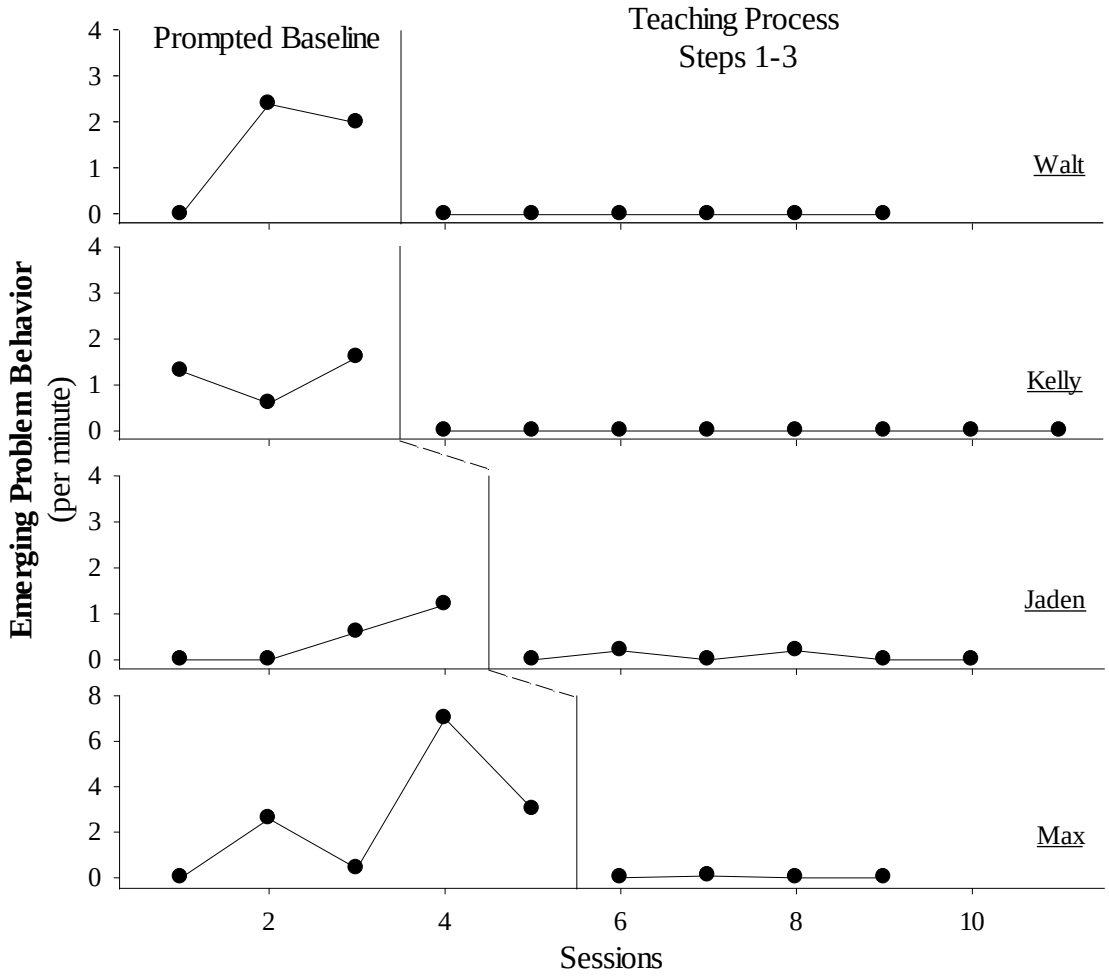

Figure 6. Emerging problem behavior data for all participants displayed in one figure, to highlight the multiple baseline across participants design.

Appendix A: Procedural Integrity

BCBA Support Integrity—During Teaching Process	Yes	No	N/A
1. Fun and task materials are set up according to current step			
2. BCBA videotapes 5 min or 5 trial session, without prompts or concurrent feedback Note: If the parent asks a question of the BCBA, the BCBA may respond (e.g., "don't worry, just do your best"). Score "no" if BCBA provides unsolicited, extensive, or repeated prompts/feedback.			
3. After video, BCBA discusses what parent did correctly Note: This may be presented as a conversation, in which the BCBA encourages the parent to state what went well and the BCBA confirms/elaborates.			
4. BCBA describes what could be improved, if applicable			
5. BCBA makes sure parent demonstrates the skills relevant to the current step (i.e., if the parent does not in the video, BCBA provides feedback and practice)			
6. BCBA orients parent to agenda for rest of session (continue practicing current step or begin new step)			
7. If beginning new step, BCBA orients parent to new step sheet			
8. BCBA provides rationale for new step			
9. BCBA guides parent and child to practice new step at least once and provides prompts as needed and accurate feedback			
10. BCBA provides opportunities for parent to ask questions throughout			
	Total: __/__		

BCBA Support Integrity-- Baseline/Follow Up	**Yes**	**No**
1. Both fun and task materials are present. *(If these are not visible on camera at the start of the session, wait to score. Watch entire session and then score.)*		
2. BCBA refrains from prompting the parent to emit any of the behaviors listed on the parent teaching integrity checklist. Note: If the parent asks a question of the BCBA, the BCBA may respond (e.g., "don't worry, just do your best"). Score "no" if BCBA provides unsolicited, extensive, or repeated prompts/feedback.		
3. BCBA refrains from prompting the child		
4. BCBA refrains from providing feedback to the parent specific to any behavior listed on parent teaching integrity checklist.		
5. BCBA refrains from providing feedback to the child		
6. Video consists of 5 min (baseline) or 5 trials (follow up) *(If parent attempts to end video before 5 min/5 trials are complete, BCBA may ask the parent to keep going for [#] more min or trials.)*		
	Total: ___/___	

Parent/Caregiver Teaching Integrity

Context	Do	Don't
Child-led time	1. Make many of the child's "fun" items/activities available 2. Be available to and engaged with the child (close in proximity, not distracted, provide *high quality* attention) 3. Honor all reasonable requests, vocal or via indicating response 4. Program 'child-led' time for the amount of time specified in current phase/step 5. Deny unreasonable requests and redirect to available activities/items	6. Refrain from placing any demands (giving instructions, prompting language, attempting to teach, asking questions if child does not typically respond) 7. Refrain from correcting the child or the way they are engaging with an item/activity 8. Refrain from manipulating child's toys, unless following the child's lead 9. Refrain from reacting to ANY inappropriate behavior. (No redirecting, offering choices, offering other toys.)
Adult-led time	1. Deliver an instruction when terminating child-led time 2. Deliver clear, concise instructions (approx. 2 words for every year of child's age, at most) 3. For each instruction, use 3-step prompting or prompts agreed on with BCBA 4. Only allow access to materials relevant to what the child is expected to do 5. Only provide attention relevant to what your child is expected to do (agreed-upon prompts; praise for compliance)	6. Do not *negotiate, argue, rationalize* or *cajole*. 7. Do not comply with child attempts to lead instruction (e.g., "I want to clean up before I sit at the table") 8. Do not present demands as questions/options 9. Minimize reactions to inappropriate behavior (ignore, block, and/or prompt) 10. Do not change the demand contingent on uncooperative or problematic behavior.
Transition (adult to child-led time)	1. Move from adult-led time to child-led time only following response to name, FCR, TR, or compliance 2. Reward response to name, FCR, TR some of the time, even when they are not the current target *n/a in Steps 1 and 2* 3. Sometimes reward *very small chains* of compliance following a denial (e.g., 1-3 compliances) 4. Prompt the communication or toleration skills if they are not occurring; wait at least 30 seconds between prompts.	5. Do not foreshadow which skills will be reinforced or how many demands will need to be completed prior to earning child led time (i.e., keep it unpredictable) 6. Do not change plans in response to child's inappropriate behavior (e.g. if plan was to ask child to complete 5 tasks, do not change that plan because they began to tantrum)

Appendix B: Individualized Features of Reinforcement Meeting (InFORM) Notes

Date of Interview: _____ Child/Client: _____
Respondent: _____ Interviewer: _____
Relationship to child/client: _____

1. **Date of birth and current age: ____-_____-_____ ____yrs ____mos Male/Female**
   Medical/Psychiatric Diagnoses:_____
2. **Who is the primary physician? _____ Who is the primary caregiver? _____**
3. **Describe general language abilities. How does he/she request to get/do things or to not do things?**

4. **What are the things your child likes least to do, but you think may be important for him/her to do?**
5. **What are the things that you have the most trouble having your child do (or doing with your child) because whenever you try to have your child do them (or do them with your child), he/she is noncompliant or highly uncooperative?** (e.g., materials for clean-up, getting dressed, academics, hygiene tasks, medical check-up, chores, non-electronic interactive games, exercise activities)
6. **Besides being uncooperative with these things, what other problematic behaviors does your child engage in when you try to accomplish these things?**
   From this information, note the activities and materials for the task bin here:

7. **How do you and others (a) respond to uncooperative or problematic behavior and (b) do to calm him/her down? Is there anything that once denied inevitably leads to problematic behavior?**
8. **If she/he could only do one thing for the next hour, what do you think it would be?**
9. **Describe his/her play skills. What are his/her favorite toys, foods, activities, and interactions?** (e.g., particular objects, toy themes, electronics, books, photo albums, particular furniture, music, videos, massagers, social interactions or availability, snacks, to run, roam/meander, particular conversation topics, access to rituals or stereotypy)
10. **Does he/she prefer to (a) play alone, (b) have someone watch but not interact too much, or (c) play with others? What does the play look like when she is playing with others?**
    From this information, note the materials for the fun bin here along with preferred interactions:

Appendix C: Social Validity Survey

The first set of questions is about the **goals** of the program. We want to know if the goals of the program line up with your personal goals for yourself and your child.

1) A goal of the program is to create balance between child-led activities and parent-led activities. Is this important to you?

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

2) Another goal is to teach children to accept inevitable daily disappointments and ambiguities. Do you consider this an important goal for your child?

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

3) A third goal is to increase how often your child cooperates with your requests without displaying problem behavior. Is this an important goal for you and your child?

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

4) Are there other goals that you hope the program will meet?

These questions are about the **approach** we used in the program. We want to know how comfortable you were with the teaching activities.

5) I considered the activities I was asked to do with my child to be acceptable.

Strongly Disagree			Not Sure			Strongly Agree
1	2	3	4	5	6	7

6) The level of BCBA support was enough to make me feel comfortable teaching the skills.

Strongly Disagree			Not Sure			Strongly Agree
1	2	3	4	5	6	7

7) Do you have any other comments about the process?

These questions are about the **results** of the program. Please consider your typical daily interactions with your child, **outside of BCBA visits**.

8) Consider your regular everyday activities. Are you satisfied with the amount of time you and your child spend on child-led vs. parent-led activities?

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

9) Are you satisfied with your child's current level of cooperation and appropriate behavior?

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

10) How positive are your everyday interactions with your child?

Not nearly as positive as I would like			Somewhat positive			Very positive
1	2	3	4	5	6	7

11) Do you feel comfortable implementing the strategies you learned in the program when the BCBA is not there?

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

12) Do you have any other comments about the results of the program?
Is there anything else you'd like us to help you with?

Social Validity Questionnaire Results: Open-Ended

Name	Pre: Are there other goals that you hope the program will meet?	Post-Step 10: Do you have any other comments about the process?	Post-Step 10: Do you have any other comments about the results of the program? Is there anything else you'd like us to help you with?	Follow Up: Do you have any other comments about the results of the program? Is there anything else you'd like us to help you with?
Walt A/B	NR/NR	NR/"Once I had a good understanding of where it was going, I was very excited. [BCBA] was fantastic!"	NR/NR	"An excellent experience, thank you!"/NR
Jaden A/B	NR/"No"	"I really enjoyed the process of this program. I really needed a program like this with a hands on approach. I would highly recommend this program to any family."/"The process is perfect and does not require any changes."	"All the goals were met and I am very happy with the results."/"Very satisfied with this program and how much it has helped our everyday life."	"We're very happy with the results of the program. We would like help with mealtime."/"I feel as though he challenges me less. All the requests I used to ask him to do (putting clothes on, sneakers on, etc.) have become a natural part of his everyday routine. He uses manners much more."
Max	NR	NR	NR	NR
Kelly	"No"	NR	"I am very satisfied with the program."	"Everything has been great ☺"

Note. NR = no response

Appendix D: Parent Handouts

Step 1: Promote Play

Purpose:

- ✓ Encourage your child to play
- ✓ Create a context in which problematic behavior is unlikely
- ✓ Strengthen parent-child relationship

Parent's Goals:

- ✓ Provide access to many of child's most-liked items and activities
    - Allow continuous and uninterrupted access to everything in the fun bin for 5 minutes
- ✓ Let the child lead the activities
    - Observe what your child is doing, wait for an indication s/he wants you to join in, and then do what you think s/he wants you to do
- ✓ Express interest in and approval of the child's activities
    - Respond to all of your child's comments, questions, requests
    - Compliment your child's play at least 2 times in 5 minutes
- ✓ Avoid making playtime seem like work to the child
    - Avoid asking questions or giving directions.
      Make statements instead:
      -"I wonder _____"
      -"I can help if you'd like"
      -"That's a _____"

Child's Goal:

- ✓ Engage with items from the fun bin for most of the 5 minutes, with near-zero rates of emerging problem behavior.

To Do:

1. Provide entire fun bin (not just one item at a time).
2. Allow your child to do whatever s/he likes with the materials, including stereotypy (or "self stim").
3. Be present and available to your child the whole time (don't do other tasks or attend to other people).
4. Follow your child's lead. Respond to all social bids, or requests to look or play.
5. Compliment your child's appropriate play with the materials. Be non-directive (don't attempt to teach or expand on child's language during this time).

Step 2: Teach Your Child to Respond to His/Her Name

Purpose:

- ✓ Teach your child to respond consistently when his/her name is called.
  - Children learn *not* to respond because adults often call a child's name before asking him/her to stop a fun activity and do something the adult wants or needs.
  - Your child can learn to respond well to his/her name if s/he experiences some rewards or welcome surprises following his/her name being called.
- ✓ Prepare your child for later lessons on cooperation.
  - When children respond well to their name, they also tend to be more cooperative with instructions that follow.

Parent's Goals:

- ✓ Call your child's name.
- ✓ Teach your child to respond.
- ✓ Immediately praise your child, provide access to the fun bin, and resume allowing the child to lead the interactions

Child's Goals:

- ✓ Upon hearing his/her name, stop what s/he is doing, look towards you, and say "yes" in 4/5 opportunities.

To Do:

1. Allow your child to play for 30 to 60 seconds.
2. Call your child's name one time.
3. If needed, prompt your child to stop (put down materials), look at you, and say "yes."
   - The BCBA can show you different ways of prompting and help you choose one.
4. Immediately praise your child, provide access to the fun bin, and resume playtime.
   - If your child refuses to respond to his/her name, or if problematic behavior occurs, follow these steps:

     i. Remove as many fun items from the area as possible.

     You choose whether you will remove items your child is holding, or simply remove all other fun items from the area.

     ii. Take a work task from the task bin and prompt your child to complete it, using 3-step prompting.

     or

     Wait for your child to complete it. Avoid eye contact and do not engage socially with your child. Every 30 seconds, remind your child what s/he should do.

     iii. Once your child completes the task, return the fun bin and resume playtime.
5. Once out of 5 practice opportunities, provide a fun upgrade to the child when s/he stops, looks, and says "yes."

Step 3: Teach Your Child to Use Words (Part 1)

Purpose:

- ✓ Teach your child to use words to get what s/he wants in challenging situations
- ✓ Start by teaching just part of the request, so your child gets what s/he wants quickly and without much effort. This helps your child learn the value of words rapidly. (We will expand this to a complete request later.)

Parent's Goals:

- ✓ After your child responds to his/her name, *sometimes* give him/her a short, clear direction to do something s/he dislikes.
- ✓ Teach your child to say "excuse me" (or his/her personalized Part 1 Words—discuss with BCBA)
- ✓ Immediately praise your child for using words, provide access to the fun bin, and resume allowing the child to lead the interactions.

Child's Goals:

- ✓ Independently use his/her Part 1 Words to re-access playtime in all opportunities in a session

To Do:

1. Allow your child to play for 30 to 60 seconds.
2. Call his/her name.
   - Half the time, reward his/her response by resuming play time.
   - Half the time, don't resume play time. Go right to #3.
3. Give a short, clear direction to do something s/he dislikes.
   - For example, "Put the iPad down" or "Let's brush your hair"
4. If needed, prompt your child to say "excuse me" (or his/her personalized words).
   - The BCBA can show you different ways of prompting and help choose one that works for your child.
5. Immediately praise your child, provide access to the fun bin, and resume play time.
   - If your child refuses to respond to his/her name or to use his/her words, or if problematic behavior occurs, follow these steps:

     i. Remove as many fun items from the area as possible.

     You choose whether you will remove items your child is holding, or simply remove all other fun items from the area.

     ii. Prompt your child to follow the original direction, using 3-step prompting.

     or

     Wait for your child to use words or follow directions. Avoid eye contact and do not engage socially with your child. Every 30 seconds, remind your child what s/he should say/do.

     iii. Once your child uses his/her words or follows directions, return the fun bin and resume play time.

Step 4: Teach Your Child to Use Words (Part 2)

Purpose:

- ✓ Expand your child's Part 1 Words to a full request.
  - Teaching a simple, general request that gains your child many desired items/interactions at the same time makes it easier for your child to use words in very frustrating or challenging situations.
  - Being able to quickly and easily come up with words that affect others' behavior is a crucial skill, without which problem behavior is likely.

Parent's Goals:

- ✓ After your child says "excuse me," respond by saying "yes?"
- ✓ Teach your child to say "my way, please" (or his/her personalized Part 2 Words—discuss with BCBA)
- ✓ Immediately praise your child for using words, provide access to the fun bin, and resume allowing the child to lead the interactions.

Child's Goals:

- ✓ Independently use his/her Part 1 and Part 2 Words to re-access playtime in all opportunities in a session

To Do:

1. Allow your child to play for 30 to 60 seconds.
2. Call his/her name.
   - Half the time, reward his/her response by resuming play time.
   - Half the time, don't resume play time. Go right to #3.
3. Give a short, clear direction to do something s/he dislikes.
4. Wait for your child to say "excuse me" (or his/her personalized words)
5. Say "yes?"
6. Teach your child to say "my way, please" (or his/her personalized words)
7. Immediately praise your child, provide access to the fun bin, and resume play time.
   - If your child refuses to respond to his/her name or to use his/her words, or if problematic behavior occurs, follow the steps on p. 40.

Step 5: Teach Your Child to Accept Disappointment

Purpose:

- ✓ Teach your child how to respond maturely to disappointment.
  - Problem behavior often originates as an emotional response to disappointment, and becomes an effective way for children to control their environment as others work to avoid emotional outbursts.
  - Practicing a specific, mature response to disappointment teaches your child another way to react.

Parent's Goals:

- ✓ After your child uses his/her words to request his/her way, *sometimes* say "no."
- ✓ Teach your child to say "OK" (or his/her personalized Acceptance Words—discuss with BCBA)
- ✓ Immediately praise your child for using words, provide access to the fun bin, and resume allowing the child to lead the interactions.

Child's Goals:

- ✓ Independently accept disappointment (i.e., say "OK") in all opportunities in the session.

To Do:

1. Allow your child to play for 30 to 60 seconds.
2. Call his/her name.
   - On **1 out of 5 occasions**, reward his/her response by resuming play time.
   - The other times, don't resume play time. Give your child a direction to do something s/he dislikes. When your child uses his/her Part 1 and 2 words…
     -Praise your child and return to playtime on **2 occasions**
     -Go to #3 on **2 occasions**
3. Deny the request. Use a variety of words (e.g., "no," "not right now," "I'm sorry, we can't," etc.).
4. Teach your child to say "OK" (or his/her personalized words)
5. Immediately praise your child for using words/handling disappointment, provide access to the fun bin, and resume play time.
   - If your child refuses to respond to his/her name, use his/her words, use his/her acceptance words, or if problematic behavior occurs, use the same strategies described on p. 40.

Step 6: Teach Your Child to Cooperate (A Little)

Purpose:

- ✓ Teach your child to cooperate with your instructions.
  - Start by asking for just a little bit of cooperation,
    so your child gets back to the fun quickly and without much effort.
    This helps your child learn that following your instructions isn't so bad.

Parent's Goals:

- ✓ After your child uses accepts disappointment, *sometimes* require him/her to follow your instructions.
  - At this stage, require him/her to follow 1-3 instructions (e.g., put 1 toy away; put down the iPad and open a book; put away a toy, get out the hairbrush, and allow parent to brush once)
- ✓ Immediately praise your child for cooperating, provide access to the fun bin, and resume allowing the child to lead the interactions.

Child's Goals:

- ✓ Cooperate with 1-3 instructions with near-zero rates of emerging problem behavior for two consecutive sessions.

To Do:

1. Allow your child to play for 30 to 60 seconds.
2. Call his/her name.
   - On **1 out of 5 occasions**, reward his/her response by resuming playtime.
   - The other **4 occasions**, don't resume play time. Give your child a direction to do something s/he dislikes. When your child uses his/her Part 1 and 2 words…
     -Praise your child and return to playtime on **1 occasion**
     -Deny the request; praise your child and return to playtime when s/he gives the acceptance response on **1 occasion**
     -Go to #3 on **2 occasions**
3. Repeat your clear, concrete direction for the child to do something s/he dislikes. Be very specific.
4. As needed, prompt your child to follow the direction.
   - The BCBA can show you different ways of prompting and help you choose one.
   - *Sometimes,* give another clear, concrete direction or two and prompt your child to follow them as needed.
5. If your child follows the direction(s) readily (e.g., with no prompts or after you showed him/her how to do it), immediately praise your child, provide access to the fun bin, and resume playtime.
   - If your child needs physical guidance or a wait-out to follow directions, do not praise or resume playtime. Give another direction and resume playtime once your child has completed it.
   - If your child refuses to use words or if problematic behavior occurs, follow the steps on p. 40.

Step 7: Teach Your Child to Cooperate (More)

Purpose:

- ✓ Stretch the amount of parent-led time to create balance between child-led and parent-led activities

Parent's Goals:

- ✓ After your child uses accepts disappointment, *sometimes* require him/her to follow your instructions.
    - At this stage, *sometimes* require him/her to follow all relevant instructions to complete a task.
- ✓ Immediately praise your child for cooperating, provide access to the fun bin, and resume allowing the child to lead the interactions.

Child's Goals:

- ✓ Cooperate with unpredictable instructions (sometimes 1or 2, sometimes complete a whole task) with near-zero rates of emerging problem behavior for two consecutive sessions.

To Do:

1. Allow your child to play for 30 to 60 seconds.
2. Call his/her name.
    - On **1 out of 5 occasions**, reward his/her response by resuming playtime.
    - The other **4 occasions**, don't resume play time. Give your child a direction to do something s/he dislikes. When your child uses his/her Part 1 and 2 words…
      -Praise your child and return to playtime on **1 occasion**
      -Deny the request; praise your child and return to playtime when s/he gives the acceptance response on **1 occasion**
      -Go to #3 on **2 occasions**
3. Repeat your clear, concrete direction for the child to do something s/he dislikes. Be very specific.
4. As needed, prompt your child to follow the direction.

Sometimes, continue giving directions until your child has completed most or all of a task.

5. If your child follows the direction(s) readily (e.g., with no prompts or after you showed him/her how to do it), immediately praise your child, provide access to the fun bin, and resume playtime.
    - If your child needs physical guidance or a wait-out to follow directions, do not praise or resume playtime. Give another direction and resume playtime once your child has completed it.
    - If your child refuses to use words or if problematic behavior occurs, follow the steps on p. 40.

Step 8: Teach Your Child to Cooperate with Different Instructions

Purpose:

- ✓ Make sure your child can use his/her skills regardless of what the direction or activity is

Parent's Goals:

- ✓ When giving your child instructions, choose different activities than you have in previous practice sessions.

Child's Goals:

- ✓ Cooperate with **new**, unpredictable instructions (sometimes 1or 2, sometimes complete a whole task) with near-zero rates of emerging problem behavior for two consecutive sessions.

To Do:

Steps are the same as in the previous step, except that you should choose activities that you haven't asked your child to do in previous practice sessions.

Step 9: Teach Your Child to Cooperate Without the Bins

Purpose:

- ✓ Practice under more natural conditions
  - Remove the bins
  - All items are where they are normally kept

Parent's Goals:

- ✓ Practice as you have before, but without the bins and with all items where they are normally kept.

Child's Goals:

- ✓ Use all skills (responding to name, using words, accepting disappointment, cooperating) for two consecutive sessions, without the bins and with all items in their regular locations.

To Do:

Steps are the same as in the previous step, except for the location of the items (where they are normally kept, not in the bins).

Step 10: Teach Your Child to Cooperate During Natural Routines

Purpose:

- ✓ Practice during regular routines throughout the home

Parent's Goals:

- ✓ Practice giving rewards and welcome surprises *intermittently* and *unpredictably* throughout the day during normal activities.
    - Aim for balance between parent-led and child-led activities
- ✓ Sometimes reward responding to name, sometimes using words, sometimes accepting disappointment, and sometimes various amounts of cooperation (a little or a lot).

Child's Goals:

- ✓ Use all skills (responding to name, using words, accepting disappointment, cooperating) during natural activities, with near-zero rates of emerging problem behavior, when adult-led and child-led time approach equal proportions of the session.

To Do:

Steps are the same in the previous step, except that you should practice during natural routines rather than set-up practice sessions.

Appendix E: Parent Education Modules

Module 1: Addressing Common Concerns from Other Stakeholders

Other important people in your child's life likely have their own ideas about how to interact with your child. However, the more people who implement the Balance strategies, the more quickly you will observe positive changes in your child's behavior across all kinds of situations. In this module, we will discuss some ways that you could respond to common questions and concerns from family members and caregivers.

Why prompt (tell – show – help)?

- Although it seems like preschool-aged children understand our words, they often don't understand as well as we think. A little difference in a situation can be much more confusing to a child than to an adult. So, we're giving him the benefit of the doubt by showing him what to do.
- But, you don't have to show him. The most important parts are telling and helping.
- It might feel wrong to help a child do something he knows how to do. But consider why he's not doing it, if he knows how. It's probably because he doesn't want to. By helping him (physically guiding him), you are teaching him that he needs to follow directions from trusted adults even when he doesn't want to. (You may be tempted to try to convince him to do it, but honestly, how often has that worked with a preschooler? When you try to convince, you are simply providing a child a break from an activity he didn't want to do in the first place.)

When he's engaging in bad behavior, why don't you reprimand him? How will he learn not to do that if you don't tell him?

- Young children learn better from experience than words. Although it seems like preschool-aged children understand our words, they often don't understand as well as we think.
- The best way to teach a young child not to do something is to show him that he does not get what he wants by doing it. If a child misbehaves because he is asked to do something he doesn't want to do, the best way to teach him that he cannot get out of the task is to follow through with the task. Following through can mean prompting or just waiting, but not taking the task away. Reprimands can get in the way here; they tend to turn into arguments, which distract everyone (even the adult) from the task the child was asked to do. If you feel you must, you can briefly tell the child his behavior is unacceptable (e.g., "No yelling. Do [task] quietly"). Just be sure to keep it short, and don't get into a discussion; otherwise, you are giving the child the break from the task that he was looking for by engaging in bad behavior in the first place!

Why not send him to time out?

- Time out is only helpful when you are sure a child is misbehaving for some reason *other* than dislike of a task. If you ask a child to do something, he misbehaves, and you send him to time out, you are providing him a break from the task he didn't want to do—so time out won't teach him not to misbehave. With [child's name], we tend to see misbehavior when we ask him to do something he doesn't like. So, we don't use time out in those situations. We follow through with the task instead.

Why not take away electronics or other things he likes?

- We do take them away temporarily, until he does as we have asked. We don't take them away for a long time as a punishment, because young children need lots of practice to learn anything. So we want to give things back, let him play, and then give another direction—so he can practice responding as we expect. We do this over and over, to help him learn to follow our directions without misbehaving.

Module 2: Planning for Community Events

You can use the Balance strategies in all kinds of situations, including ones that we haven't practiced together. Use these steps:

1) Think about new activities ahead of time, and decide if they might be difficult. Ask yourself, "Is this something my child would choose to do? Will he be allowed to do it the way that he wants?" If the answer to either question is "no," you'll need to think of this activity as "adult-led time," even if it's something that other people consider fun.

2) Decide what you can make available for "child-led time" during this activity. For example, if you are going somewhere, can you bring a few of your child's favorite toys, or allow him to watch videos on your phone?

3) As you head out for the activity, start with "child-led time." For example, in the car, give your child the toys and phone, and tell him, "It's your way!" Give as much attention as you can under the circumstances, and honor his requests as much as you can. (If you can't, remember to say, "No, but you can have _____").

4) Occasionally call his name; practice rewarding responding, rewarding calm requests, and rewarding tolerance responses.

5) When you want him to participate in the "adult-led" activity, proceed as we have done in practice (call name, give instruction, deny request, give/repeat instruction). Remember to reward cooperation with your instructions with return to child-led time.

6) Repeat. Over time, you will be able to increase the amount of time your child participates in the adult-led activity. Be patient and keep practicing.

Module 3: Committing to Regular Practice

The Balance strategies will be most helpful if you use them consistently. We have worked hard together, but you will need to continue to be a teacher for your child. Here are some things to keep in mind moving forward.

1) During your typical activities, throughout the day:

- Remember to occasionally reward any behavior you want to keep seeing, such as using words calmly and following directions quickly.
- Follow through on all instructions you give.

You might consider posting these reminders somewhere visible, and checking in with yourself throughout the day or at the end of the day—how are you doing?

2) When something is hard:

- When your child has a hard time with an activity—or you anticipate he will—make some

dedicated time to practice, like we did in visits. This can be quick—10 min a day for a couple of days.

- Start with some child-led time, then mix in your 5 practice trials: one with responding to name rewarded, one with the request rewarded, one with the tolerance response rewarded, and two on which you ask your child to do some amount of the hard activity. (Mix up the order!)