

# Developing Procedures to Improve Therapist–Child Rapport in Early Intervention

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**Abstract** Rapport is a primary component in the development of a therapeutic relationship between health-service professionals and clients. Pre-session pairing is a procedure often recommended in behavior analytic practice to build rapport with clients. However, many service providers may not exhibit pre-session pairing skills correctly or at a sufficient rate. The current study aimed to operationally define therapist behaviors that are indicative of pre-session pairing and to train direct care staff to implement said skills.

**Keywords** Pre-session pairing · Rapport · Staff training

## Implications for Practice

- Behavior analytic resources referencing rapport building as a treatment component have little empirical support.
- Literature on rapport building and a rationale for its use in early intervention are reviewed.
- Technological descriptions of pre-session pairing skills and methods to measure pre-session pairing are introduced as a resource for practitioners in early intervention.
- Behavioral skills training and performance feedback are effective methods to teach staff pre-session pairing skills.

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## Introduction

### Therapeutic Challenges in Early Intervention for Autism Spectrum Disorder (ASD)

Early identification and intervention has been associated with the most promising outcomes for children diagnosed with ASD (National Autism Center, 2015). While early intervention (EI) is intended to be rehabilitative, several characteristics of effective EI programs (e.g., exposure to new settings, new individuals, and new contingencies) can inadvertently produce undesirable or problematic behaviors. Aversive or nonpreferred therapeutic conditions may evoke problem behavior prior to entering a therapy session, during a therapy session, or even upon sight of a therapist (Carbone, Morgenstern, Zecchin-Tirri, & Kolberg, 2007). Problematic behaviors exhibited in this context have the potential to interfere with the efficiency and effectiveness of EI at a time when therapy is most crucial.

### Methods to Address Therapeutic Challenges in EI

Antecedent-based strategies can be used to reduce or eliminate the aversive nature of the therapeutic context (e.g., therapist and therapeutic setting). Carbone et al. (2007) summarized several strategies to reduce aversive motivating operations associated with the therapeutic context. One such procedure suggested was pairing, which involves embedding the therapeutic context, service provider, and therapy materials with preferred items or activities (i.e., positive reinforcers).

Pairing, also referenced as pre-session pairing, is well documented in clinical resources. In fact, several therapeutic resources suggest that developing therapist–child rapport through pairing may be helpful in reducing problematic behavior by developing a positive therapeutic environment prior

to introducing nonpreferred or aversive therapeutic components (Smith, 2001; Sundberg & Partington, 1998; Sundberg, 2008). The pairing procedure is generally described as imitating the child's actions, engaging in activities the client prefers, and delivering preferred items and activities to the client (Smith, 2001; Sundberg & Partington, 1998). The objective of pairing is to associate the service provider and therapeutic context with preferred items and activities such that the therapeutic context signals an "improving of conditions," rather than a "worsening of conditions" (Carbone et al., 2007; Sundberg & Partington, 1998). Empirical investigations conducted thus far support clinical resources promoting the value of rapport and pairing as a procedure used in EI. Rapport, as a component of a treatment package, has been effective in reducing problematic behavior (e.g., McLaughlin & Carr, 2005). Most recently, pre-session pairing has shown promise in reducing the aversive nature of the therapeutic context as an independent antecedent-based treatment (Kelly, Axe, Allen, & Maguire, 2015; Shillingsburg, Bowen, & Shapiro, 2014).

While multiple clinical resources and empirical investigations identifying rapport as an important therapeutic component in EI, there are no technological procedures or operational definitions in research or clinical practice from which to replicate. The first objective of this investigation was to operationally define rapport as it relates to EI for children with ASD. We refer to the individual behaviors belonging to the response class of rapport as *pre-session pairing skills*.

### Operationally Defining Pre-session Pairing Skills

We derived pre-session pairing skills from the established pairing literature and two additional resources including (a) functional analysis (FA; Iwata, Dorsey, Slider, Bauman, & Richman, 1982/1994) procedural components and (b) behavioral parent training (Reitman & McMahon, 2013).

In FA methodology, the play condition is designed to serve as an experimental control through the manipulation of motivating operations (MOs) that may evoke problem behavior (Iwata, 1982/1994; e.g., providing free access to reinforcing stimuli, thereby decreasing the reinforcing value of said stimuli). Within this condition, therapists provide noncontingent access to preferred toys and attention in the absence of demands. Components of the play condition are analogous to commonly recommended rapport building practices, which can provide an initial framework regarding the measurement and implementation of pre-session pairing. While the procedure outlined in the play condition is representative of several behavioral components of rapport building, it does not encompass all behaviors belonging to the response class.

Behavioral parent training (BPT) is comprised of several empirically based parent training models that promote socially appropriate behavior and reduce problematic behavior in children through parent-implemented interventions (Reitman &

McMahon, 2013). A primary treatment component of BPT teaches parents to engage in several positive play-related behaviors with their children including (a) praising appropriate behavior; (b) reflecting appropriate talk made by the child; (c) imitating appropriate play; (d) describing appropriate play; and (e) being enthusiastic about the play session (Reitman & McMahon, 2013).

Seven pre-session pairing skills were selected from previous pairing literature (i.e., Kelly, Axe, Allen, & Maguire, 2015; McLaughlin & Carr, 2005; Shillingsburg, Bowen, & Shapiro, 2014), FA methodology (Iwata et al., 1982/1994), and behavioral parent training (Reitman & McMahon, 2013) to represent the several individual behaviors of pre-session pairing. Table 1 details each pre-session pairing skill, the definition, an example of each skill, and the measurement procedure used in the evaluation. In addition to identifying behaviors representative of pre-session pairing, it is important to establish preliminary guidelines regarding the frequency of said skills during a pre-session pairing session. Criteria for the pre-session pairing skills were primarily derived from behavioral parent training literature to establish an ideal rate of the skills during a pre-session pairing session (Reitman & McMahon, 2013).

Given that pre-session pairing is frequently recommended in EI, it is necessary that service providers be sufficiently trained to implement the procedure to maximize its effectiveness. While service providers may exhibit some pre-session pairing skills without formal training, many may not demonstrate the skills at a satisfactory rate consistent with the literature outlined above. The second objective of the current study was to train behavior analytic service providers to implement pre-session pairing skills at an acceptable rate.

## Method

### Participants, Setting, and Materials

Six staff members employed at a midwestern university-based clinic for toddlers with autism were trained to use pre-session pairing skills. Staff members 1, 2, and 3 had limited experience working with the target population and were enrolled in local undergraduate universities. Staff members 4, 5, and 6 were graduate-level students in the field of behavior analysis. Sessions were conducted in a common play area of the clinic. Tangible items (both preferred and nonpreferred) and activities were scattered about the room and included common toys, such as a slide, balls, cars, and building blocks.

### Experimental Design and Dependent Measures

A nonconcurrent multiple baseline design (Watson and Workman, 1981) across staff members was used to evaluate staff performance and acquisition. Each multiple baseline

**Table 1** Pre-session pairing skills, definitions, examples, and measurement procedures used for each skill

Skill	Definition	Example	Measurement procedure
Proximity	Therapist stays within arm's distance of client	If the child was playing in the ball pit, was the therapist within arm's reach	30-s whole-interval recording
Praise	Therapist uses behavior-specific praise contingent on appropriate play skills	Staff—"Awesome job turning the page!"	Frequency
Reflect	Therapist repeats vocalizations made by client	Child—"Woof-woof" Staff—"Woof-woof, the dog is barking"	Percentage of opportunities
Imitate	Therapist imitates appropriate play skills exhibited by client	Child opens a book Staff opens a book	Frequency
Describe	Therapist describes appropriate play skills exhibited by client	Staff—"You are playing the piano!"	Frequency
Initiate	Therapist offers tangible items to client	Rolling a toy car down their arm and placing it in the child's hand	Frequency
Create	Therapist creates a new activity by changing the function of a toy	Using a book as a tent for dolls	Frequency

design consisted of three staff members from a given group (i.e., undergraduate or graduate student group).

Each pre-session pairing skill was measured using one of three measurement systems: frequency, percentage of opportunities, or whole-interval recording. Praise, imitate, describe, initiate, and create skills were measured using frequency. Criteria for the praise, imitate, describe, initiate, and create skills were set at a frequency of 10 per skill, per session. Proximity was measured using 30-s whole interval recording. In order to meet session criteria, staff members were required to be within arm's reach of the client for 100 % of intervals. Reflect was measured using percentage of opportunities. Staff members were required to reflect 100 % of opportunities presented in order to meet session criteria.

Staff behavior across pre-session pairing skills was aggregated into two dependent measures each session: (a) the percentage of pre-session pairing skills exhibited at least once during session and (b) the percentage of pre-session pairing skills implemented to criteria. Mastery criteria were defined as 86 % (i.e., 6 of 7) of skills implemented to criteria across two consecutive sessions. Each session lasted 5 min.

## Procedure

**Baseline** Prior to beginning each baseline session, staff members were instructed to review a list that consisted of the name and operational definitions of the seven pre-session pairing skills for 2 min. After reviewing the pre-session pairing list, staff members were instructed to implement pre-session pairing to the best of his or her ability.

**Behavioral Skills Training (BST)** After baseline was established, staff members were trained on all pre-session pairing skills using one session of behavioral skills training (Sarakoff & Sturmey, 2008). The experimenter verbally explained pre-session pairing skills one at a time with the staff member and then disclosed the session criteria for the skill. The experimenter then modeled each pre-session pairing skill

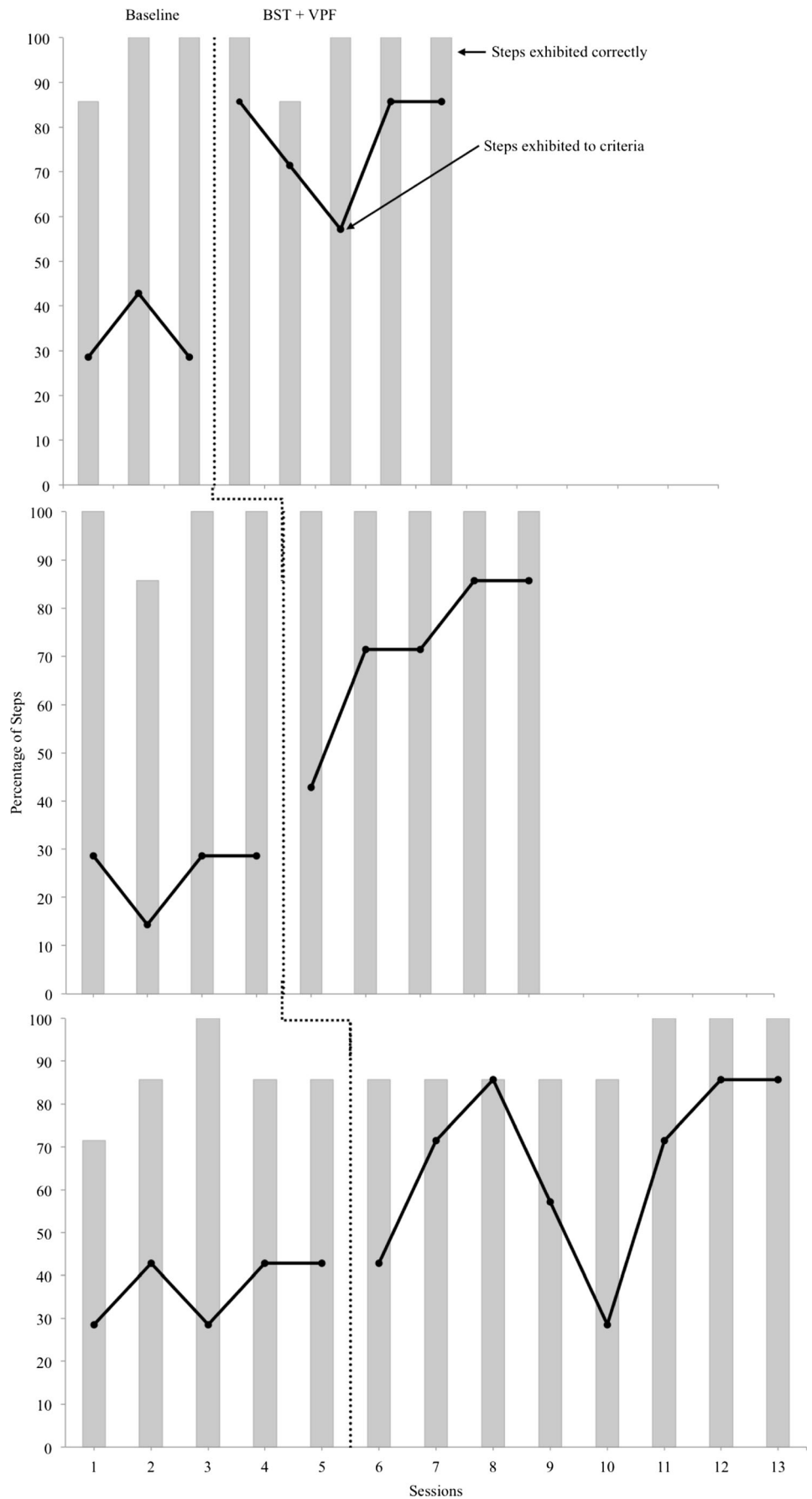
with stimuli (if necessary) as the staff member served as the child. The experimenter then switched roles with the staff member such that the experimenter served as the child and the staff member role-played the pre-session pairing skill. If the staff member exhibited the skill correctly, the experimenter provided positive feedback and proceeded to the next pre-session pairing skill following the same procedure. If the staff member did not exhibit the skill correctly during role play, corrective feedback was given and the skill was practiced until the participant exhibited the skill correctly. Following the single BST session, staff members were instructed to implement pre-session pairing to the best of his or her ability.

**Performance Feedback (VPF)** Following each subsequent pre-session pairing session, the experimenter reviewed a graph of the staff member's performance with the staff member and provided vocal verbal feedback indicating which skills the staff member met criteria on and which skills he or she did not (Reinke, Lewis-Palmer, & Martin, 2007). Graphs identical to the individual panels in Figs. 1 and 2 were used to display the number of skills exhibited at least once and the number of skills implemented to criteria.

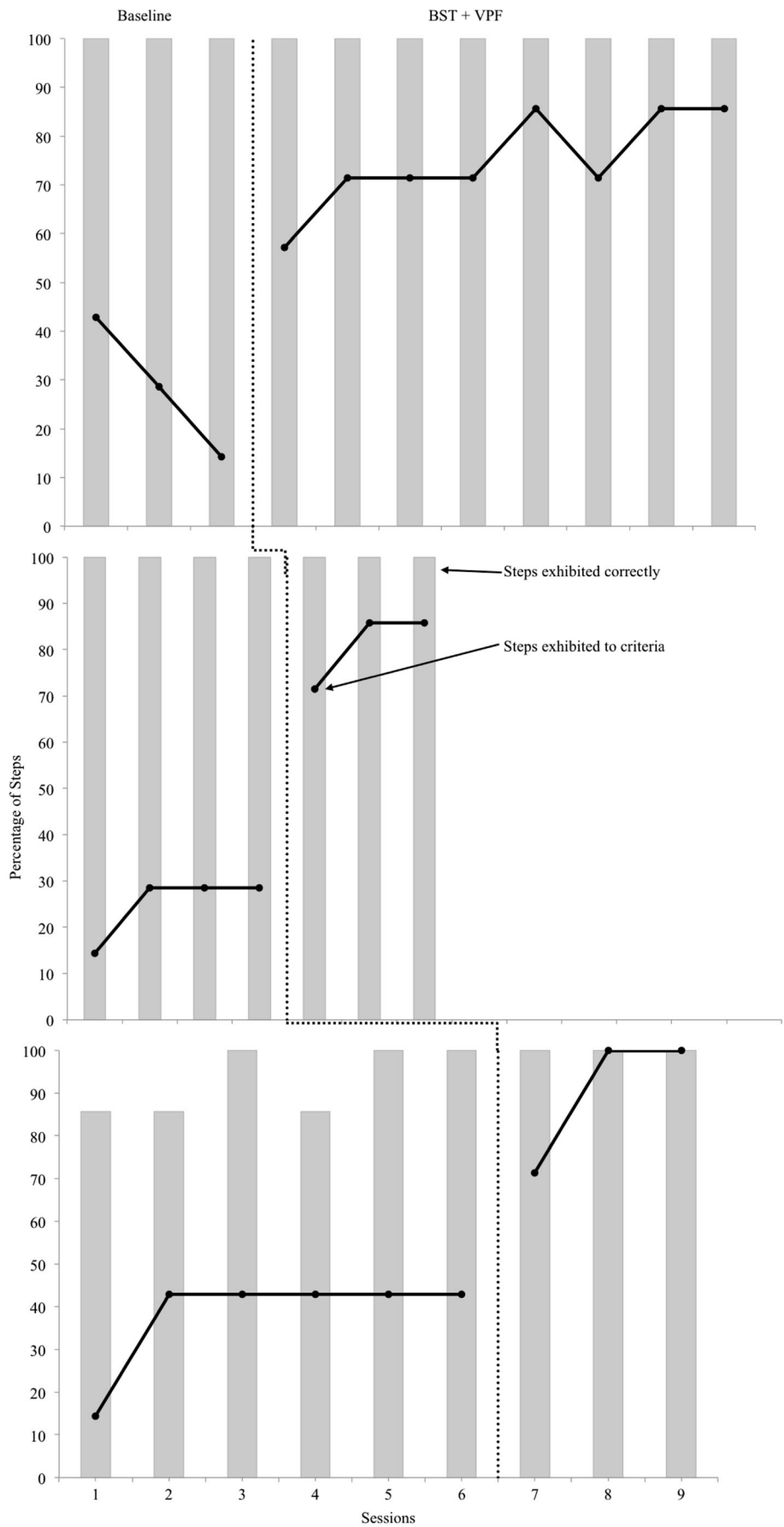
## Interobserver Agreement

A secondary observer collected data using identical measurement procedures as the primary data collector. Interobserver agreement data were collected for 25 % of sessions distributed across baseline and intervention phases for all staff. Total count interobserver agreement was calculated for skills exhibited correctly by dividing the smaller number of skills correctly exhibited by the total number of skills exhibited and multiplying the quotient by 100. Total count interobserver agreement for skills exhibited to criteria each session was calculated by dividing the smaller number of skills exhibited to criteria by the total number of skills and multiplying the quotient by 100. Agreement for skills exhibited and skills exhibited to criteria were 98 and 73 %, respectively.

**Fig. 1** Performance data for staff members 1–3. Percentages of skills correctly implemented per session are represented by *gray bars*. Percentages of skills implemented to criteria per session are represented by the *black data path*



**Fig. 2** Performance data for staff members 4–6. Percentages of skills correctly implemented per session are represented by *gray bars*. Percentages of skills implemented to criteria per session are represented by the *black data path*



## Results and Discussion

Results are represented in Figs. 1 and 2. During baseline, all six staff members exhibited all seven skills of pre-session pairing during at least one session. Two of six staff members exhibited all seven skills at least once across all baseline sessions. None of the staff members implemented pre-session pairing skills to criteria during baseline. Following the implementation of BST, none of the staff members immediately met mastery criteria. Staff members 1 and 2 required five sessions of performance feedback to meet mastery criteria. Staff members 3 and 4 required eight sessions of performance feedback, and staff members 5 and 6 required three sessions.

While these results are promising for the use of this treatment package in training pre-session pairing skills, several limitations should be noted. First, the skills present in each staff member's repertoire were not measured prior to introduction of the skills list during baseline. Future research should include an additional baseline component prior to providing subjects with the checklist to examine which skills staff members emit spontaneously without instruction to do so. Second, the intervention used to teach pre-session pairing skills consisted of two components: BST and performance feedback. Data from the current investigation suggest that the list provided in baseline may have been sufficient to teach the appropriate pre-session pairing skills. However, staff members did not exhibit the skills to criteria until performance feedback was delivered. Future research should aim to isolate the training components to determine the most efficient and effective training procedure to teach pre-session pairing skills. Further, staff were trained during clinical service hours, which limited the number of interobserver agreement sessions obtained and the low percentage of interobserver agreement for skills exhibited to criteria. While the secondary observer was trained to record pre-session pairing data, the high rate of multiple individual behaviors exhibited during sessions by staff members may not have been feasible to record using a paper and pencil method. These limitations call for refinement of data collection procedures and additional data collector training to ensure reliable procedures.

## Conclusions

The current investigation was the first to identify and teach behaviors that encompass a pre-session pairing procedure. Technological descriptions and performance criteria are critical to this area of research to extend and refine the measurement and conceptualization of rapport for future investigations in the topic area.

The current study also extends the empirical support for BST and performance feedback as a staff training intervention for the acquisition of skills within a free operant context. Moreover, the treatment package used in these procedures resulted in increases in pre-session pairing skills to mastery criteria. Gains were observed across all staff members, regardless of previous experience with behavioral programming. This suggests both new and experienced staff members may benefit from BST and performance feedback for pre-session pairing skills. Future investigations should examine which training components were responsible for behavior change.

Future research should aim to extend beyond training staff on the implementation of pre-session pairing towards extending current literature on the effects of pre-session pairing procedures on child behavior. While these procedures are recommended in the EI literature (e.g., Sundberg & Partington, 1998), few empirical evaluations have been conducted on their effects on child behavior (e.g., Kelly et al., 2015; Shillingsburg, Bowen, & Shapiro, 2014). Future research should examine the effects of this procedure on variables such as compliance, problem behavior, and acquisition of new skills. Also of benefit, future investigations should modify procedural components of pre-session pairing to determine the pre-session pairing skills most responsible for behavior change (i.e., component analysis) and the optimal dosage of the procedure to achieve desired effects (i.e., parametric analysis). Moreover, since the procedure is intended to affect the therapeutic relationship between therapist and child in addition to affecting child behavior, future investigations should examine the social validity of the procedure among parents, staff, and clients.

**Compliance with Ethical Standards** All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

**Informed Consent** Informed consent was obtained from all individual participants included in the study.

**Conflict of Interest** All authors declare that they have no conflicts of interest.

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