In-Home Parent Training of Functional Analysis Skills

John V. Stokes & James K. Luiselli

We taught two sets of parents to conduct a functional analysis (FA) under simulated conditions in their homes. Relative to a baseline (pre-training) phase, the accuracy of FA implementation by parents improved when they were given verbal, written, and video performance feedback. When training concluded, parents were able to implement FA accurately with their child. Issues of having paraprofessional practitioners learn FA skills are discussed.

Functional analysis (FA) is recognized as an effective method for determining social and non-social influences maintaining problem behavior and subsequently, formulating an effective intervention plan (Hanley, Iwata, & McCord, 2003). Although early FA studies were implemented by experienced research personnel (Iwata, Dorsey, Slifer, Bauman, & Richman, 1994), more recent inquiry has focused on paraprofessional staff and non-behavioral practitioners. For example, Moore, Edwards, Sterling-Turner, Riley, DuBard, & McGeorge (2002) taught classroom teachers to implement FA conditions through modeling, behavior rehearsal, and performance feedback. Similarly, Wallace, Doney, Mintz-Resudek, & Tarbox (2004) showed that educators could learn FA skills using scripts, role playing, and video demonstration. More recently, Phillips and Mudford (2008) combined lecture, written information, modeling, rehearsal, and feedback to train FA methodology with inexperienced residential-care staff. The importance of these studies is that when compared to assessment that is performed under simulated conditions, having natural care–providers conduct FA may capture more precisely the operating contingencies responsible for problem behavior.

Parents of children who have problem behavior have participated in FA sessions under professional supervision (Wacker, Berg, & Harding, 2006) but research has not addressed actual skills training with family members. That is, can parents acquire the skills necessary to conduct FA and within their homes? The present study considered this question by evaluating an in-home training program with two families unfamiliar with FA methods and no prior implementation history.

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METHOD

Participants and Setting

The participants were two sets of parents who had a child with autism. Family A included mother (32 years old), father (38 years old), and their 10-year old son. Family B included mother (36 years old), father (40 years old), and their 12-year old son. The families agreed to participate in the study as a component of consultation they were receiving from a board certified behavior analyst (BCBA). All FA sessions (described below) were conducted in a small area set aside in each family's home.

Measurement

The participants conducted FA sessions in which a graduate student played the role of a child. Each simulated session lasted 5 minutes and consisted of either the social disapproval, demand, or play condition described by Iwata et al (1994). During sessions, one parent from each family interacted with the student. There were 3 sessions per day (social disapproval, demand, play), implemented in random order, and scheduled over a one-week period. Note that the alone condition of the Iwata et al (1994) methodology was omitted from the study because the "target" child behavior could not occur if the participants were not present.

Because the children in each family occasionally hit their parents, the student playing the role of a child displayed aggression as the "target" behavior during FA sessions. The student followed a written script that specified when aggression should occur within each FA condition. The scripts were introduced to the student during two training meetings conducted by the senior author preceding the study.

The senior author videotaped each FA session and subsequently, recorded data by viewing the recorded sessions. Using a 30s partial interval recording method, each occurrence of the "target"

behavior was scored and whether the participant implemented the appropriate consequence in each FA condition. Implementation accuracy was calculated as a percentage measure by dividing the number of intervals in which the appropriate consequence was demonstrated by the total intervals in which the target behavior occurred and multiplied by 100.

Interobserver Agreement

Interobserver agreement (IOA) was assessed by having a second observer score data independently with the senior author for 75% of videotaped FA sessions. An agreement was recorded when both observers indicated that a participant implemented the appropriate consequence per opportunity. IOA (agreements divided by agreements plus disagreements multiplied by 100) averaged 94.3% (range: 85-100%).

Procedures and Experimental Design

Procedures were evaluated in a multiple baseline across participants design. The senior author served as trainer during all phases of the study.

Baseline. The participants observed a 15-minute videotape showing implementation of social disapproval, demand, and play FA conditions. The

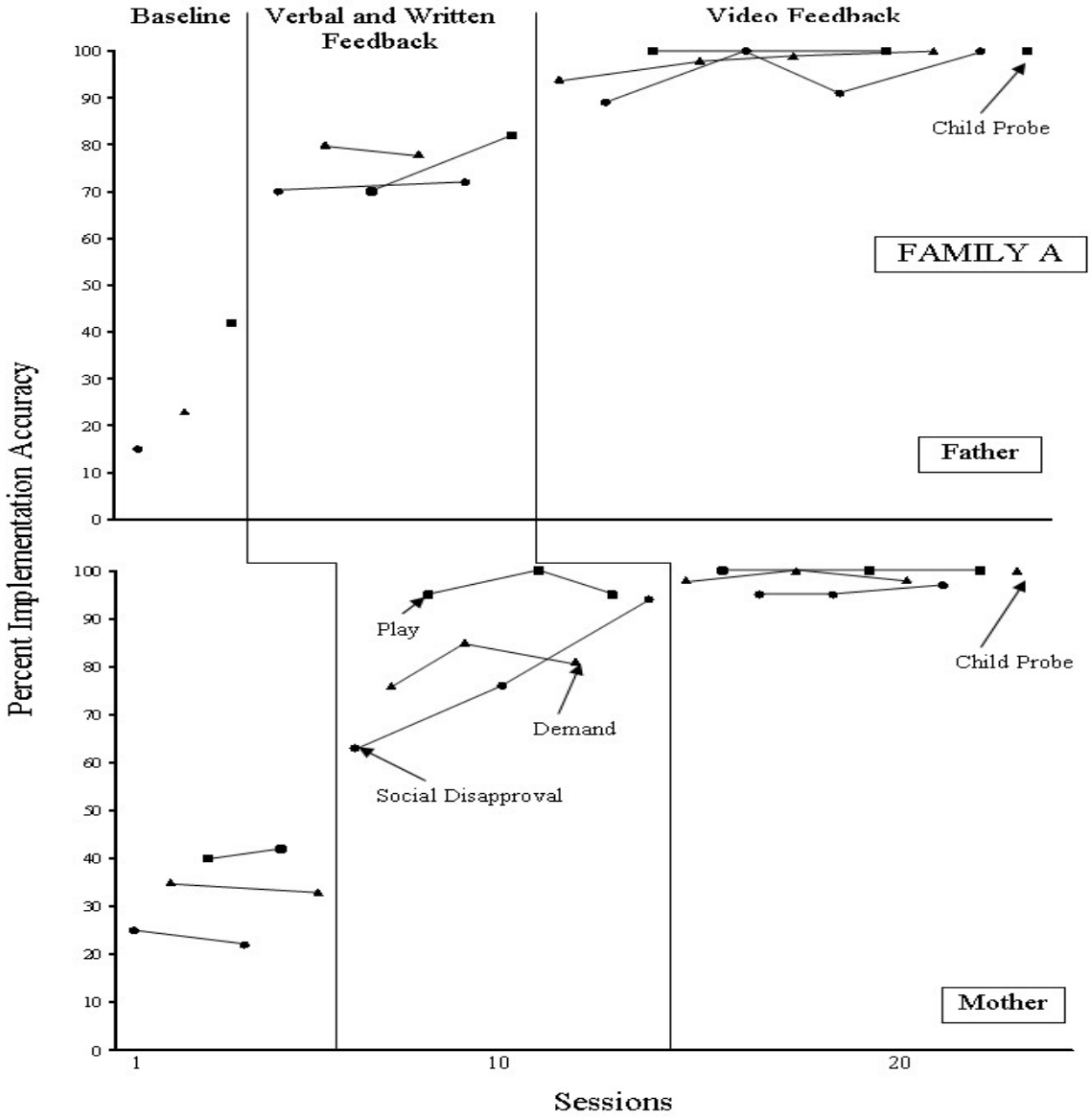

Figure 1. Percent implementation accuracy for mother and father from Family A.

videotape featured a child interacting with a professional service provider. After viewing the videotape, the trainer showed the participants a flow chart that described the steps making up each FA condition. They were allowed to ask questions about this information but otherwise were not told how FA should be conducted. After seeing the videotape and receiving the flow chart, the participants conducted FA sessions with the student.

Verbal and Written Feedback. Immediately following each FA session, the trainer met with each participant for 3-5 minutes. The trainer used the previously described flow chart to discuss each step comprising the FA condition that had been implemented. The participants received verbal and written feedback for each step in the form of praise

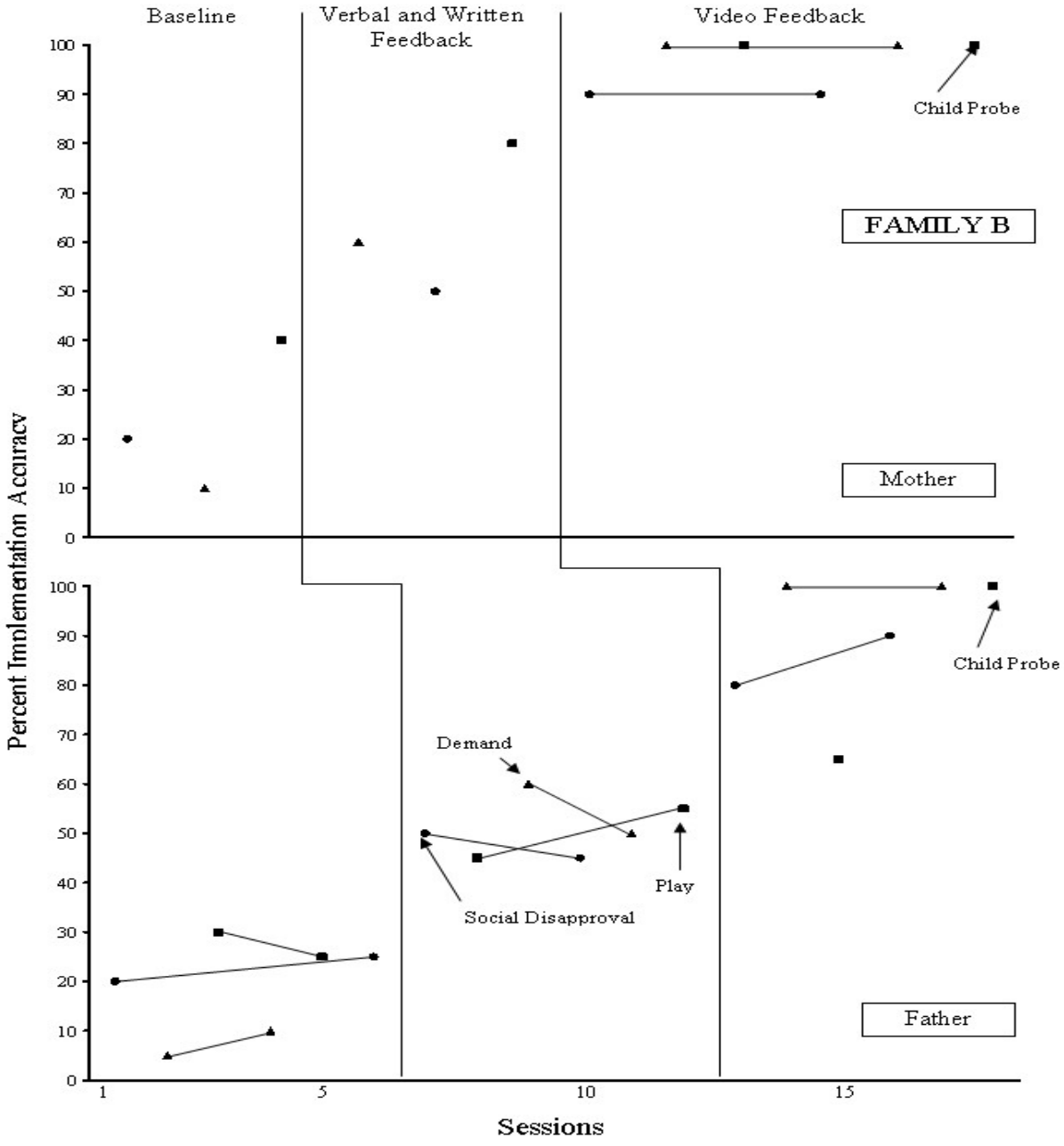

Figure 2. Percent implementation accuracy for mother and father from Family B.

for accurate performance (e.g., "That's great, you responded as soon as the behavior occurred.") or correction for steps that were implemented inaccurately (e.g., "Remember, don't wait longer than 5 seconds before you respond.").

Video Feedback. The participants viewed a videotape that had been made of them conducting each of the three FA conditions. The trainer watched the videotape with each participant, using verbal feedback (praise and correction) as each step of the FA condition was reviewed. Similar to the verbal and written feedback phase, the video feedback sessions with the trainer lasted 3-5 minutes.

Child FA Probe. At the final session of the study, each participant conducted one of the FA conditions with their child. Conditions were determined randomly with each family. This phase was included to determine whether the FA skills learned by the participants during simulated training generalized when they interacted with their child.

Social Validity Assessment

When the study concluded, the participants rated their preferences for the training procedures on a 3-point Likert-type scale (1 = fair, 2 = good, 3 = excellent). The procedures they rated were (a) reviewing the flow chart and watching a video during the baseline phase, (b) receiving verbal and written feedback, and (c) receiving video feedback.

RESULTS

Results for the two families are shown in Figures 1-2. For Family A (Figure 1), both mother and father had from 15-40% implementation accuracy during the baseline phase. Both parents performed better when they received verbal and written feedback, with mother achieving between 70-80% accuracy and father achieving between 65-100% accuracy. The accuracy of both parents reached 100% when video feedback was used during training. Each parent also performed at 100% accuracy during the FA probe session with their child.

The results for Family B (Figure 2) were 5-40% implementation accuracy between mother and father during the baseline phase. With verbal and written feedback, performance of both parents improved to 45-80% accuracy. Adding video feedback produced near-100% accuracy by mother and father. Each parent also performed at 100% accuracy during the FA probe sessions with their child.

The four participants rated video feedback most favorably (M = 2.7), followed by verbal and written feedback (M = 2.0) and reviewing the flow chart and watching a videotape demonstration (M = 1.5).

DISCUSSION

To our knowledge, the present study is the first experimental evaluation of procedures for teaching FA skills to parents. Like other research with paraprofessional practitioners (Phillips & Mudford, 2008, Wallace et al., 2004), we combined several procedures that were applied sequentially. Specifically, parent implemented FA skills improved when family members received verbal and written feedback, and their performance was enhanced further upon observing themselves on videotape. The effects of training were rapid and achieved without extensive contact with the parents. The video feedback component of training, in particular, was rated highly. In summary, it appears that with abbreviated training parents of children who have developmental disabilities can acquire FA skills within the home setting.

Because the study was conducted with both sets of parents in their home we were sensitive to the demands placed on each family. In fact, this concern was the impetus to evaluate a time-efficient training program. Completed over a one-week period, the study showed that FA training can be accomplished successfully with minimal allocation of professional resources.

Guidance was provided to the participants during baseline because to do otherwise would have produced an artificial pre-training performance. In effect, parents who are naïve to FA methodology could not be expected to implement procedures appropriately. Providing the participants with a flow chart of FA conditions and having them watch an actual FA likely contributed to baseline outcomes. The procedures we programmed during the baseline phase could be considered preliminary training methods that might be introduced before, or perhaps simultaneously with, verbal, written, and/or video performance feedback.

One limitation to the study was that FA training sessions were conducted in a simulated context. Although the child probes suggested generalization from training, these results were restricted to a single FA condition with each parent. Additionally, we did not include child assessment data during the baseline (pre-training) phase. Note too that the targeted FA skills concerned one element of procedural implementation (applying consequences) and not other aspects of assessment such as data collection and interpretation. Finally, 2 of the 4 family members implemented the three FA conditions only one time before receiving training.

Research should continue to evaluate different methods for training FA skills to paraprofessional practitioners. As noted, having a parent or teacher conduct FA in the natural context of a classroom or home may be the best strategy for identifying behavior-maintaining contingencies. Armed with such information, clinicians and consultants should be better able to formulate effective intervention plans because procedures can be "matched" to behavior function that has been documented in the settings where problems occur.

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