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TRAINING PARENT IMPLEMENTATION OF DISCRETE-TRIAL TEACHING: EFFECTS ON GENERALIZATION OF PARENT TEACHING AND CHILD CORRECT RESPONDING

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Behavioral skills training was used to teach 3 parents to implement discrete-trial teaching with their children with developmental disabilities. Parents learned to implement discrete-trial training, their skills generalized to novel programs, and the children's correct responding increased, suggesting that behavioral skills training is an effective and efficient method of teaching discrete-trial teaching to parents.

DESCRIPTORS: parent training, discrete-trial teaching, autism, behavioral skills training, imitation, developmental disabilities

Many parents of children with developmental disabilities now participate in their children's early education, including teaching their children using discrete-trial teaching (Sturmey & Fitzer, 2007). This method has been used to teach a wide range of social, language, and academic behaviors to children with autism spectrum disorders (Sturmey & Fitzer). Koegel, Russo, and Rincover (1977) showed that educational staff can acquire discrete-trial teaching skills; however, instruction took up to 25 hr. Sarokoff and Sturmey (2004) taught 3 teachers to implement discrete-trial teaching using instructions, modeling, rehearsal, and feedback. Intervention took only approximately three 10-min sessions. Dib and Sturmey (2007) extended this study by teaching education staff to implement discrete-trial teaching correctly and to correct idiosyncratic errors in teaching using similar brief behavioral skills training procedures. They showed that improvements in staff behavior were accompanied by large reductions in stereotypy in students with autism spectrum disorders. Sarokoff and Sturmey (in press) extended these studies by demonstrating that teaching staff to conduct one discrete-trial teaching program using instructions, modeling, rehearsal, and feedback produced generalization of correct use of discrete-trial teaching to programs and students who they had not previously been taught to work with. Further, these improvements in staff teaching were also accompanied by increases in children's correct responding in receptive language training programs.

Unfortunately, researchers have not applied these methods extensively to teach parents of children with developmental disabilities to teach their own children. Hardy and Sturmey (1994) demonstrated that behavioral skills training was effective in teaching parents of 3 children with developmental disabilities to

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teach their children. This study collected only data on parents' teaching skills. It did not assess generalization of parents' teaching and did not collect data on children's behavior. Thus, although parents are often involved in their children's early education, we do not know how to train them effectively and efficiently, whether their teaching skills generalize to novel teaching programs, and what the effects are on their children's correct responding. Therefore, the present study evaluated whether (a) behavioral skills training was effective in teaching discrete-trial teaching to parents of children with developmental disabilities; (b) generalization of parent teaching skills from trained to untrained programs occurred; and (c) changes in parent teaching were accompanied by increases in children's correct responding.

METHOD

Participants and Setting

Three parent–child dyads participated. Rosa was a 35-year-old college graduate who was born in Nigeria, had low income, and was a registered nurse. Maria was a 48-year-old American-born college graduate, had low income, and was an administrator. Joanne was a 50-year-old high school graduate who was born in Nigeria, had low income, and was working as a direct-care worker with seniors. All these parents had no previous experience with discrete-trial teaching. George was a 4-year-old boy with autism who exhibited no vocal behavior and few imitative skills. Emmanuel was a 4-year-old boy with mental retardation, severe self-injurious behavior, and no vocal behavior. Christian was a 4-year-old boy with Down syndrome who had no vocal behavior and severe motor problems. The children had been diagnosed by an in-house licensed psychologist or an outside agency. All children were not on any medications and had no prior experience with discrete-trial teaching.

Parent training took place in a room (3 m by 3 m) at a special education preschool with a child-sized table and chairs present. During all sessions the parent sat across from the child. A video camera on a tripod was used to record each session.

Design, Data Collection, and Dependent Measure

A multiple baseline across parents design was used. The experimenter trained the parents to use discrete-trial teaching only during gross motor imitation (GMI). To assess generalization, data were also collected during vocal imitation (VIM). GMI was defined as the presentation of a motor movement by a parent, in whose presence responding similarly to the parent by the child produces reinforcement (Baer, Peterson, & Sherman, 1967). VIM was defined as the presentation of a sound by a parent, in whose presence responding similarly to the parent by the child produces reinforcement. VIM took place during approximately 48% of all sessions, distributed across all instructions baseline and posttraining conditions. The experimenter videotaped each session and scored the videotape later.

There were four dependent measures. The first two were the parents' percentage of correct use of 10 components during 10 consecutive discrete trials of GMI and VIM. Observers collected data using the same method as Sarokoff and Sturmey (2004), in which parents could emit 10 correct teaching responses (e.g., obtaining eye contact), use a correction procedure correctly, and collect data during each trial. Percentage correct was calculated by dividing the total number of correct responses by the total number of correct and incorrect responses and multiplying by 100%. Observers also collected data on children's correct responses. A correct response was defined as any behavior that matched the modeled response or was an approximation of the modeled response. For the GMI target behavior of clapping hands, a correct response was scored if the child touched his open hands together once or twice. For the VIM target behavior "ah," a correct response was scored if the child's mouth opened

wide while he said "ah" or if his mouth opened halfway while he said "ah." The percentage of correct responses was calculated by dividing the number of correct responses by the total number of responses and multiplying by 100%.

During GMI, parents presented three models: clap hands, arms up, and touch nose. *Clap hands* was defined as moving both hands together and making an audible sound with the hands. *Arms up* was defined as raising both hands simultaneously above the head. *Touch nose* was defined as placing one finger on the tip of the nose. For VIM, parents presented three models: "ah," "mm," and "mmaa." The instruction used in both GMI and VIM was the parent's verbal instruction "do this." The parent then modeled the correct response.

Procedure

Instructions baseline. During instructions baseline, the experimenter gave the parent a typed list of definitions of the 10 components of discrete-trial teaching. At the beginning of each session, the experimenter stated, "Do discrete-trial teaching to the best of your ability." Each session consisted of 10 trials and lasted approximately 5 min. Sessions were videotaped and scored later.

Training. The experimenter first provided the same typed copy of 10 components of discrete-trial teaching and described each component. Next, the experimenter gave the parent a copy of a graph of her instructions baseline performance and a copy of the previous session's data sheet. The experimenter stated her average baseline score, described her performance during the last session, and discussed her previous performance. The experimenter asked the parent for any questions and answered them. Next, the experimenter sat with the child and modeled three discrete trials. The parent then sat with her child and performed three discrete trials. The experimenter provided the parent with descriptive spoken feedback immediately following the performance, including positive comments on target components performed correctly and informative corrective feedback on components that the parent needed to practice. The experimenter then sat with the child and modeled three additional discrete trials that included the specific components that were previously implemented incorrectly. Rehearsal and modeling were repeated with the parent performing three trials and experimenter demonstrating three trials until 10 min elapsed. Following each training session, the parent then performed 10 uninterrupted discrete trials. This session was videotaped and scored at a later time. The criterion for completion of training was 90% or more correct parent responses on two consecutive training sessions.

Posttraining. At the beginning of each posttraining session, the experimenter stated, "Do discrete-trial teaching to the best of your ability." During this phase, the experimenter did not conduct any training. Each session consisted of 10 trials and lasted approximately 5 min. Sessions were videotaped and scored later.

Interobserver Agreement

Interobserver agreement was measured during 35% of sessions, randomly distributed across baseline and intervention phases and all three parent–child dyads. Agreement was calculated by dividing the total number of agreements by the total number of agreements plus disagreements and multiplying by 100%. Agreement on correct use of discrete-trial teaching was 94% (range, 80% to 100%), 95% (range, 80% to 100%), and 93% (range, 80% to 100%) for Rosa, Maria, and Joanne, respectively. Agreement was 100% for all correct children's responses.

RESULTS AND DISCUSSION

Figure 1 presents the data on parent and child correct responding during both GMI and VIM sessions. During the instructions baseline, parents emitted few correct discrete-trial teach-

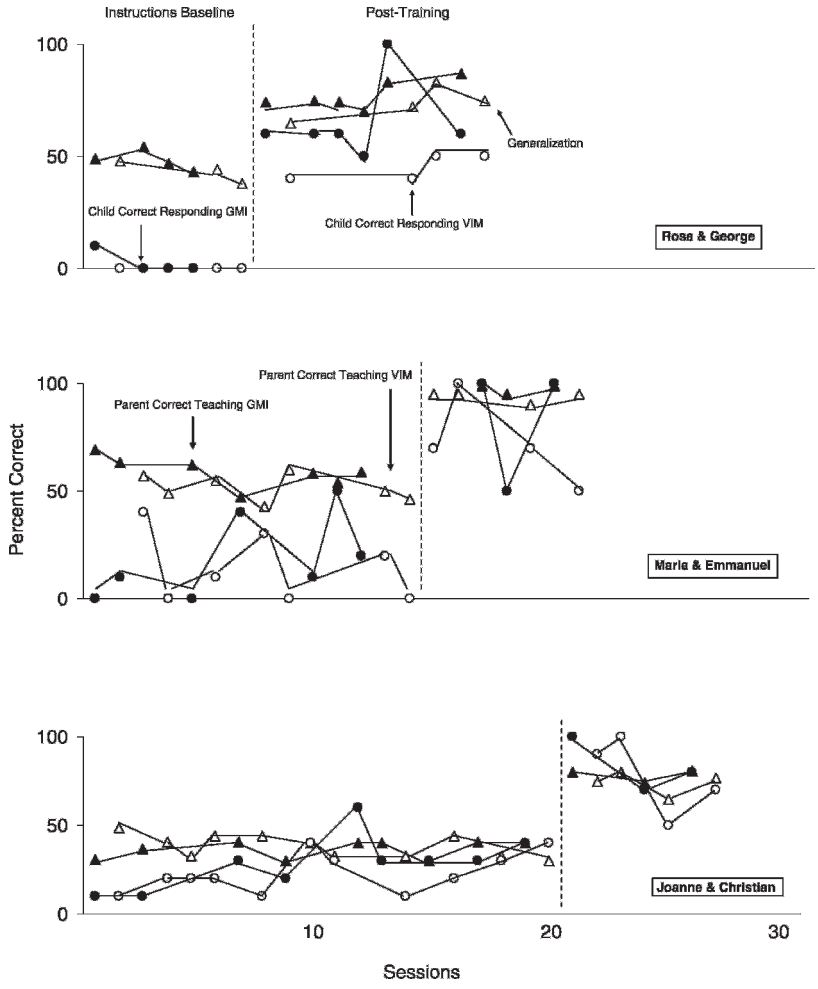

Figure 1. The percentage of correct implementation and generalization of discrete-trial teaching for parents and correct gross-motor and vocal imitative responses for children during instructions baseline and posttraining.

ing responses. After training, parents' use of discrete-trial teaching improved greatly. Similarly, children emitted few and sometimes close to zero correct responses during instructions baseline, but all 3 children emitted many more correct responses during both GMI and VIM.

During GMI, Rosa, Maria, and Joanne increased their use of correct discrete-trial teaching responses by 31%, 43%, and 40%, respectively. During VIM, Rosa, Maria, and Joanne increased their use of correct discrete-trial teaching responses by 31%, 43%, and 33%, respectively. During GMI, George, Emmanuel, and Christian increased their proportion of correct responses by 64%, 67%, and 57%, respectively. Similarly, during VIM, George, Emmanuel, and Christian increased their proportion of correct responses by 45%, 58%, and 55%, respectively.

This study extended the results of Sarokoff and Sturmey (2004), Dib and Sturmey (2007), and Hardy and Sturmey (1994) by demonstrating that behavioral skills training was highly effective and efficient in teaching discrete-trial teaching skills to parents. This study also demonstrated that improving correct implementations of discrete-trial teaching may result in generalization of correct parent teaching to

untrained teaching programs and that their children emitted more correct responses after their parents learned to teach effectively. These data show that this treatment package was effective, but this study did not identify which component was responsible for change. Future research should conduct a component analysis of the behavioral skills training package.

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