ANALYZING THE EFFECTS OF REPEATED PRACTICE USING
THE BEHAVIORTOOLS™ TRAINING MODEL WITH PARENTS
OF CHILDREN WITH DEVELOPMENTAL DISABILITIES

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to the Faculty of
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Master of Arts
In
Social Science

By
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A Thesis

By

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Fall 2011

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DEDICATION

My husband
Though it was hard sometimes, you were patient throughout the completion of my coursework at FIT, my masters program and my thesis. Despite the long hours and incessant homework, you were always there with an encouraging word, telling me how proud you were and reassuring me that I could do it. I love you.

My parents and sister
Thank you for your continuous support and unconditional love. You’ve always encouraged me to pursue my dreams.

My grandfather
You encouraged all of us to get a higher education. Thank you for making it possible.

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I know that you never realized the commitment that you were making when you agreed to be my reliability observer. Thank you for the countless hours that you spent away from you husband and fun activities in order to assist me on my journey. You are a truly incredible friend and woman. Without you, my research would have been incomplete.

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ABSTRACT

ANALYZING THE EFFECTS OF REPEATED PRACTICE USING THE BEHAVIORTOOLS™ TRAINING MODEL WITH PARENTS OF CHILDREN WITH DEVELOPMENTAL DISABILITIES

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Without behavior skills training, parents may rely on coercive styles of parenting due to the reinforcing effects for both parties. When coercive strategies are used, the negative behavior of both the parent and child is strengthened. This project investigated the effectiveness of the BehaviorTools™ training in reducing coercive parent-child interactions and increasing positive parent-child interactions for parents of children with developmental disabilities.

Using an AB single-subject, parametric design, the level of role play practice offered in the BehaviorTools™ training was varied. Acquisition of behavior management skills was measured through pre- and post-training role play assessments. In-situ positive and negative parent-child interactions were
measured using partial interval recording. Outcome data demonstrated increases in positive parent-child interactions and decreases in negative parent-child interactions for all subjects. Results revealed no relationship between participants who engaged in repeated practice versus single practice, as is standard in the implementation of the BehaviorTools™ training.

Four “types” of parents seemed to emerge from this study: those who interacted positively before the training and demonstrated even more positive interactions as well as a reduction in negative interactions post-training; parents who engaged minimally pre-training and increased positive interactions post-training; parents who interacted more negatively than positively pre-training and demonstrated a dramatic increase in positive interactions and decrease in negative interactions post-training; and parents who were undifferentiated in the pre-training phase due to the control of the child in the environment. These parents learned the skills necessary to pivot away from “junk” behavior, resulting in desirable changes in parent-child interaction post-training.
CHAPTER I

INTRODUCTION

Background

Parenting requires no permit, license, degree or specific training. However, parenting is likely to be one of the most challenging “jobs” an individual may ever face. All parents encounter challenges when raising a child; the parents of a child with a developmental disability face even more.

Studies show, children with developmental disabilities are more likely to demonstrate problem behaviors than “typically” developing children (Emerson, 2003; Sanders, Mazzuccheli & Studman, 2004). Common behaviors include: aggression, self-injurious behavior and noncompliance. Researchers have found childhood problem behaviors are predictive of both behavior management struggles and the use of coercive parenting techniques (Floyd & Phillippe, 1993). They also found parents of children with mental retardation spent more time issuing commands and attempting to gain compliance, and demonstrated a lower rate of positive social reciprocity, when compared to families with children who did not have mental retardation.

Coercive interactions are often used because they produce short term desirable effects with little effort exerted. For example, consider a parent who is preparing dinner and requests her child clean up her toys before eating. The
child begins to whine (aversive stimulus). The mother threatens to spank the child, and the child immediately stops whining (termination of the aversive stimulus). The parent’s coercive behavior is negatively reinforced (through termination of the aversive stimulus) and is likely to be used again in the future. The next night, the parent uses the same coercive tactic in an effort to terminate the child’s aversive behavior. When the threat is ineffective the parent escalates to yelling and gives the child a spanking for not doing as she was told. The child begins to clean up her toys and no longer engages in whining behavior. The parent’s intensified coercive behavior is again negatively reinforced, and the parent assumes that she has an effective parenting tool. The child may clean up the next time she is asked to avoid physical punishment; however, she has not learned how to effectively communicate with her parent.

The use of coercion in parenting not only increases the likelihood of the child engaging in coercive acts, but has also been found to increase the probability of the development of aggression in children (Eddy, Leve & Fagot, 2001). Therefore, it is of increased likelihood that the same child, whose mother used coercive behavior, will then hit (coercion) her little brother to get him to comply with her requests.

With the maximization of short term payoffs when using coercive strategies, the coercive parent is unlikely to give up these useful strategies without sufficient training. As the cycle of coercion persists, the child begins to
receive the same payoffs. Without intervention, a coercive child is likely to become a coercive adult (Patterson, 1982).

Researchers have investigated a variety of behavioral parent training programs for use with parents of children with developmental disabilities. One researcher found that behavioral parent training not only had positive implications when considering greater decreases in maladaptive behaviors demonstrated by the child, but children whose parents received training also required lower doses when taking psychotropic medications (“Parent Training Linked,” 2010).

Statement of the Problem

Without behavior skills training, parents may rely on coercive styles of parenting due to the reinforcing effects for both parties. When coercive strategies are used, the negative behavior of both the parent and child is strengthened. Developing parenting skills and increasing positive parent-child interactions reduces the risk of child problem behaviors (Patterson, 1982). “Positive exchanges are thought to inoculate the family against resorting to coerciveness, they encourage self-esteem, self control, and peer adjustment for the child, and they make parenting a more rewarding experience” (Floyd & Phillippe, 1993, p. 674).

Behavioral parent trainings have been correlated with the display of fewer and less severe problem behaviors, less stress related to family limitations and greater quality of life for both the child and family (Feldman & Werner, 2002). It is important for parents of children who exhibit problem behaviors to be given
the knowledge and tools necessary to modify their own behavior in order to ameliorate child problem behaviors and increase more social appropriate replacement behaviors.

Purpose of the Study

This project aims to investigate the effectiveness of a current training program known as BehaviorTools™ in reducing coercive parent-child interactions and increasing positive parent-child interactions for parents of children with developmental disabilities. The Professional Crisis Management Association modified an existing caregiver training program, Tools for Positive Behavior Change, in 2009, creating BehaviorTools™. The Tools for Positive Behavior Change (TPBC) was implemented by the State of Florida’s Behavior Analysis Services Program and has been studied almost exclusively with caregivers of youth in the foster care system. Studies have demonstrated the effectiveness of the “Tools” in reducing placement disruptions (Stoutimore, Williams, Neff & Foster, 2008), improving caregiver skills (Van Camp, Lerman, Kelley, Contrucci & Vorndran, 2000), and reducing the use of restraint procedures (Crosland et al., 2008).

Research Questions

1. Will BehaviorTools™ effectively reduce the use of negative interactions in parents of children with developmental disabilities?
2. Will BehaviorTools™ effectively increase positive parent-child interactions?

3. Will parents demonstrate an increase in skill acquisition (as evidenced through pre and post testing) related to the implementation of the “tools” after participating in the training?

4. Will parents who engaged in repeated practice demonstrate a greater increase in positive parent-child interactions compared to those who practice each tool only once?

Hypothesis

The researcher hypothesizes there will be a difference in parental behavior management skill acquisition, as measured by pre- and post-course role play assessments (not written). The researcher hypothesizes an increase in positive parent-child interactions with a decrease in negative parent-child interactions after the BehaviorTools™ training.

Limitations

- Parents and children have received behavior services for varying lengths of time
- All video observations were conducted during play-based sessions with developmentally appropriate toys present. Therefore positive interactions may have been at an increased level when compared to situations that may be more provoking of “junk” behavior.
• Results may be difficult to generalize as the population in this study was comprised of only six female participants.

Definition of Terms


**Coercion in the family unit:** “The use of negative, aversive strategies by family members to bring about desired behavioral changes in each other that can lead to the escalation of reciprocal negative exchanges among the family members” (Floyd & Phillippe, 1993, p. 674).

**Coercive family process:** “Moment-by-moment, aversive, microsocial interactions in which the parent and child reciprocally reinforce, respectively, child problem behavior and ineffective parenting practices” (Lucyshyn, Irvin, Blumberg, Laverty, Horner & Sprague, 2004, p. 105).

**Externalizing behavior:** A term used in the literature to describe a variety of aversive overt behaviors including: aggression (Keenan & Shaw, 1995; Miner & Clark-Stewart, 2008) noncompliance (Keenan & Shaw), hyperactivity (Keenan & Shaw), disobedience and whininess (Miner & Clark-Stewart).

**Junk behavior:** Any age typical behavior that may be annoying, but not harmful to self, others, animals, or property (S. Neff, Neff, Cripe, Winston, Winston, 2009).
**Non-compliance:** “A person does not do what is requested of him in response to a command, command negative, or a dependency within 12 seconds of the request being made” (Patterson, 1982).

**Noncontingent Reinforcement (NCR):** “an antecedent intervention in which stimuli with known reinforcing properties are delivered on a fixed time or variable time schedule independent of the learner's behavior” (Vollmer, Iwata, Zarcone, Smith & Mazaleski, 1993 as cited in Cooper, Heron & Heward, 2007, p. 489).

**Negative reinforcement:** a contingency “in which the occurrence of a response produces the removal, termination, reduction, or postponement of a stimulus, which leads to an increase in the future occurrence of that response” (Cooper et al., 2007, p. 292).
CHAPTER II

REVIEW OF THE LITERATURE

Introduction

Parenting presents a variety of challenges. For example, as a child begins to exert his or her autonomy, parents may struggle with toilet training, sibling rivalry, sleep patterns, and “the terrible twos.” Researchers suggest that the initiation of the coercive family process may begin in the toddler period, when the parents and child engage in “power struggles” for the first time (Keenan & Shaw, 1995). Common challenges that parents encounter as a child matures include: peer pressure related to sex and drugs, school bullies, and attempts to exert one’s power and “find” his or her place in the world. Every parent faces challenges similar to these during the child-rearing process. However, parenting a child with a developmental delay presents additional challenges that the parents of a typically developing child may never experience.

Parenting a Child with Developmental Disabilities

In addition to the everyday challenges posed by parenting a typically developing child, parenting a child with a developmental disability presents a variety of special challenges that often require professional assistance. The parents of a child with a developmental disability may be familiar with services
like behavioral therapy, speech therapy, occupational therapy, physical therapy and/or psychiatric consultation, including medication management. Parents can be overwhelmed with a variety of different medical interventions and therapy options including: Western/traditional medicine, alternative therapies (e.g. naturopathic medicine and acupuncture), mind-body interventions (e.g. dance therapy and art therapy), biologically-based therapies (e.g. gluten-free casein-free diet and herbal supplements), manipulative and body-based methods (e.g. chiropractic and massage therapy), and energy therapies (e.g. Reiki and Qi gong).

Parents of children with developmental disabilities have also struggled to understand their child’s diagnoses and felt increased guilt related to the diagnosis. Having a child with a developmental disability such as mental retardation, autism spectrum disorder, Down’s syndrome and/or cerebral palsy, may result in alienation from family and friends, isolation from community activities and a fear of planning for the future of their child. This may, in part, be due to an increase in child behavior problems.

Children with developmental disabilities are more likely than “typically developing children” to demonstrate behavior problems (Emerson, 2003; Sanders et al., 2004). For this reason, parents of children with developmental disabilities often receive behavior services. The parent of a developmentally delayed child may encounter behavior problems such as: incontinence, issues related to bedtime and/or language delays. It is not uncommon that parents refer
to these problems in the form of a category such as: noncompliance, aggression, and/or self-injurious behavior. For example, noncompliance is a very common behavior problem that refers to a desired response that has not occurred within a specific latency to an instruction and/or a desired response that has not occurred after repeated prompts.

One of the most important considerations in addressing any problem behavior is the function of the behavior. For example, noncompliance maintained by escape would not be effectively treated using a timeout procedure (Rodriguez, Thompson & Baynham, 2010). Understanding the function of behavior is important not only when considering treatment, but also when considering teaching an effective replacement behavior. It is essential that a replacement behavior serve the same function as the problem behavior.

Aggression and other serious challenging behaviors have a great impact on the family system. McGill, Papachristoforou and Cooper (2006) found that 66% of parents of a child with developmental disabilities received respite services. Although many parents found respite services helpful, one-third of the families were excluded from services due to their child’s challenging behavior. These data suggest that both parents and respite workers could benefit from behavior skills training.

In addition to needing assistance with managing child behavior problems, parents of developmentally disabled children are at increased risk for stress and mental health problems when compared to parents of typically
developing children (Emerson, 2003; Hastings & Beck, 2004 as cited in Singer, Ethridge & Aldana, 2007). Increased risk for mental health problems and high stress levels can contribute to a parent’s use of coercive interactions when attempting to manage problem behavior. Floyd and Phillippe (1993) found that depression in fathers was predictive of more coercive parent-child interactions.

McGill et al. (2006) concluded, through a meta-analysis of the research, that behavioral parent training may not only improve child behavior, but that there are consistent findings that it aids in the reduction of stress and depressive symptoms in mothers. Osborne and Reed (2009) identified a relationship between parental stress and child problem behaviors. The researchers found that parental stress is a stronger predictor of future child problem behaviors as opposed to child problem behaviors being a predictor of higher stress levels. A study by Feldmen and Werner (2002) examined the collateral effects of behavioral parent training and found that five years after training, participants reported less stress related to family limitations, fewer and less severe behavior problems, and greater quality of life for both the child and family. These participants also reported more confidence in stopping, preventing and replacing problem behaviors. Singer et al. (2007) cited consistent findings of reduction in depressive symptoms for mothers who participated in behavioral parent trainings. Given the evidence of a bidirectional relationship between parental stress and child problem behaviors, it is important to evaluate the effect
of parent training programs on improving child behavior and decreasing parental stress.

Coercive Parent-Child Interactions

Child-rearing practices and the quality of the relationship between parent and child affect on the development and continuance of a child’s externalizing behavior (Kennan & Shaw, 1995). “Externalizing behavior” is a categorical term often used in the literature to describe a variety of aversive behaviors including: aggression (Keenan & Shaw; Miner & Clark-Stewart, 2008) noncompliance (Keenan & Shaw), hyperactivity (Keenan & Shaw), disobedience and whininess (Miner & Clark-Stewart).

It is important for parents to be aware of how their interactions influence and affect their child’s externalizing behavior. Coercion theory is a term that was developed by Gerald Patterson to define the idea that aggressive acts by a child emerge from a family-system that is coercive (Patterson, 1982). According to Floyd and Phillippe (1993) coercion in the family unit refers to the “use of negative, aversive strategies by family members to bring about desired behavioral changes in each other that can lead to the escalation of reciprocal negative exchanges among the family members” (p. 674). Without proper training, parents may rely on coercive styles of parenting to manage a child’s problem behavior. These coercive interactions are often negatively reinforcing for both parties due to the attenuation of the problem behavior for the parent, and the escape from demand for the child. This inadvertently strengthens and
increases the rate of both the child problem behavior and the coercive interaction of the parent. It also increases the likelihood that the child will imitate coercive interactions as the parent models this behavior (Patterson, 1982). In a study that replicated Patterson’s Coercion Model, Eddy et al. (2001) confirmed the relationship between coercive parenting strategies and the development of aggressive behavior in children.

According to Lucyshyn et al. (2004), coercive family process refers to “moment-by-moment, aversive, microsocial interactions in which the parent and child reciprocally reinforce, respectively, child problem behavior and ineffective parenting practices” (p. 105). That is, coercive parenting is negatively reinforced by the immediate termination of aversive child problem behavior and a child’s problem behavior is negatively reinforced by avoiding/terminating aversive parental behavior (e.g. demands).

From a psychological perspective, child temperament may also influence the quality of parent-child interactions (Scaramella & Leve, 2004) and the use of coercive strategies. Children with difficult temperaments, including emotional dysregulation (Coplan, Reichel & Rowan, 2009), often evoke more negative, angry and/or coercive parenting strategies (Rubin & Mills, 1988) due to their frequent and intense negative emotional reactions to environmental changes (Scaramella & Leve, 2004). Child temperament is said to influence the quality of parent-child interactions. Temperamentally difficult children are those characterized by a lack of persistence, lack of ability to self-soothe, trouble
sustaining attention, impulsive behavior, quick and severe negativity, and/or resistance to control. These characteristics can be common to both children with and without developmental disabilities. These characteristics can affect the parenting strategies utilized, the effectiveness of those strategies and the quality of interactions between parent and child. Harsh discipline has been demonstrated to increase externalizing behavior, especially in children who had difficult temperaments (Miner & Clark-Stewart, 2008). For children whose mothers did not use harsh parenting strategies, it was common that they were able to overcome their negativity as the cycle of coercion was discontinued. Harsh parenting, negative emotionality, and intense hostility promote coercive parent-child interactions through a process of mutual reinforcement (Scaramella & Leve, 2004; Keenan & Shaw, 1995; Patterson, 1982).

The Early Childhood Coercion Model (ECCM), developed by Scaramella and Leve (2004), described the interplay of negative emotional reactivity, harsh parenting, and poor emotional regulation in children. The model was built upon two existing theories, attachment theory and social interactional theory. Social interactional theories emphasize the relationship between poor parent-child interactions and the increased risk of developing behavior problems later in life (Keenan & Shaw, 1995) while attachment theory highlights the formation of internal working models through a young child’s interactions with their caregivers.
The ECCM demonstrated how the inability to control a child’s negative emotional reactions led to harsher parenting. Consequently, these “harsh” parenting strategies, often expressed through coercive interactions, act as a model for the child who then imitates the same coercive behaviors. These interactions, behaviors and emotional responses are largely responsible for shaping the parent-child relationship. Coercion theory goes on to discuss how intense, aversive parent-child interactions mutually reinforce child problem behavior and harsh parenting strategies (Patterson, 1982).

Attachment theory describes how a young child’s early interactions with his caregivers assist in the formation of internal working models for future relationships. This is demonstrated more clearly when discussed in behavioral terms. In early infancy, a child engages in behaviors that evoke specific responses from the parent (e.g. crying when scared). A parent who is likely to assist in the formation of a “secure” attachment, responds to these behaviors consistently, thus reinforcing the behavior and assisting the child in learning how to get their needs met. A parent who is inconsistent in responding to these behaviors, and/or respond to these behaviors in a punishing manner, often creates attachments that are disorganized or insecure. If the parent has been consistently paired with aversive stimuli and has become a conditioned punisher, it is likely that the child will attempt to avoid and/or escape the parent because of his or her coercive behavior. Both parental sensitivity and the child’s emotional response play key roles in the development of attachment.
Behavioral Parent Training

There are many behavioral parent training (BPT) programs available. The content and format vary widely from group to individual parent training, live instruction to video format. These programs vary in duration, intensity, and even populations served. Behavioral training programs have not only served to minimize problem behaviors but also to minimize the use of psychotropic drugs. The use of risperdone in conjunction with parent training proved to be more effective in decreasing serious maladaptive behavior (including tantrums, aggression, and self-injury) than risperdone alone. In fact, lower doses were required when combined with BPT and problem behavior was more significantly reduced when compared to individuals who were given medication alone (“Parent Training Linked,” 2010).

The overall goal of BPT is to develop behavior management skills and increase positive parent-child interactions, thereby reducing the risk of childhood problem behaviors and/or childhood behavior disorders (Patterson, 1982). Individual therapies have the benefit of employing function-based approaches to individuals who are already experiencing behavior problems.

The Incredible Years Parent Training with modifications for parents of children with developmental disabilities (IYPT-DD), the Parents Plus Program (PPP) and Stepping Stones Triple-P (SSTP) are three of many BPT programs reviewed in the literature. This author looked specifically at the topics covered within each training, as well as whether or not the training is evidence-based.
This author also reviewed the methods used in each training including, but not limited to: modeling, role play, feedback, and pre/post role play assessments to evaluate the performance of participants.

The Parents Plus Program (PPP) is a group-administered cognitive behavioral training model designed for parents of typically developing children but also used widely with parents of developmentally delayed children. Quinn, Carr, Carroll and O’Sullivan (2007) evaluated the effectiveness of the program for parents of children with developmental disabilities. The typical program involves eight weekly sessions, each two hours in length, but was modified by the researcher because parents were reluctant to commit to more than a six-session program. PPP is a video-based course in which a facilitator runs the program according to session plans and handouts. The program involves video modeling, role play skills and rehearsal. Parents who received the program reported high levels of satisfaction. The treatment group demonstrated significant goal attainment; however, the treatment did not lead to significant changes in child problem behavior as measured by the Achenbach Child Behavior Checklist (Quinn et al.).

The Incredible Years Parent Training (IYPT) is an evidence-based parent training program created and widely used to support families of children with or at risk for behavior problems. McIntyre (2008) implemented this program with a cohort of parents with children with a developmentally disability. The study included only a treatment group as it was a feasibility study of the modified
program (IYPT-DD). The adaptations McIntyre made were guided by behavioral theory, specifically applied behavior analysis. The training, after modifications, consisted of 12, two and a half hour sessions covering topics like praise, rewards, limit setting, and handling challenging behaviors. Post-training data demonstrated a reduction in both inappropriate parent behaviors (i.e. intrusion on child’s independence, inappropriate play behavior, attention/rewards for child’s inappropriate behavior, lack of follow through, criticism and aggression) and child maladaptive behavior (i.e. physical aggression, disruption, screaming). Results of the feasibility study suggested that the modifications may be effective in reducing negative parent and child behaviors. However, McIntyre reported that the results may not generalize due to the exclusion of parents of children with severe intellectual disabilities.

Stepping Stones Triple-P is a program designed and based upon the Triple P- Positive Parenting Program. It was designed specifically for families of developmentally disabled children. The program consists of five levels, with increasing in intensity. Each level is designated to address specific target populations and behaviors (Sanders et al., 2004). The amount of instruction varies from 80 minutes to 16.5 hours. The SSTP program has five specific goals: increasing parental ability to manage problem behavior, decreasing coercive interactions, improving coping skills, reducing stress, improving parental communication and developing parent’s problem solving skills. Roberts, Mazzucchelli, Studman and Sanders (2006) utilized the SSTP curriculum with 47
randomly assigned treatment and wait-list control families. Results of behavioral observations and maternal reports demonstrated reductions in child problem behavior, namely oppositional behavior. SSTP was also associated with an increase in praise statements by parents, fewer lax discipline strategies by fathers, and less overactive responses by mothers.

BehaviorTools™

Behavior skills training (BST) is a behavior analytic approach comprised of four specific components: modeling, instructions, rehearsal and feedback. The Essential Tools for Positive Behavior Change (“Tools”) is a performance-based curriculum designed to increase positive interactions and decrease coercive interactions between caregivers and children (Stoutimore et al., 2008). The “Tools” curriculum was a 15-hour course that taught caregivers six behavior management tools. Group training occurred in the classroom and individualized training occurred in the homes of caregivers.

The “Tools” were created by a team of behavior analysts, in conjunction with Dr. Glenn Latham, author of The Power of Positive Parenting. The training was implemented by the Behavior Analysis Services Program (BASP), a program responsible for providing training, services and consultation to Florida’s foster care system. BASP was given the task of reducing placement disruptions (Stoutimore et al., 2008), improving caregiver skills (Van Camp et al, 2008), and reducing the use of restraint procedures (Crosland et al., 2008). The use of the “Tools” has been studied almost exclusively with caregivers of abused
and neglected youth in foster care. Positive, appropriate parent-child interactions are of vital importance because of the influence on their future behavior and relationships (Scaramella & Leve, 2004).

In 2009, the Professional Crisis Management Association modified the “Tools” curriculum for caregivers of individuals with disabilities. To minimize instructor drift and streamline the training, the behavioral content and technical concepts were recorded in a digital video disk (DVD) format. This reduced the previous 15-hour training to 12 hours, which is now typically taught in two, six-hour sessions (B. Neff, personal communication, April 24, 2011). The BehaviorTools™ training is based on behavior analytic principles and is frequently offered to staff, caregivers, and parents of developmentally disabled children and adults. The BehaviorTools™ curriculum focuses largely on reducing coercive interactions and promoting positive interactions between caregiver and child because negative interactions between parent and child can lead to the emergence and maintenance of problem behavior (Patterson, 1982). This is accomplished through the teaching and practice of six key tools:

- **Strengthen Relationships:** This is the foundation for all of the BehaviorTools™ and helps the caregiver to strengthen the parent-child relationship so that all the other tools are more effective (S. Neff et al., 2009).
- **Use Reinforcement:** This tool focuses on teaching parents how to reinforce or “strengthen” behavior that they want to happen more often (e.g.
desirable behaviors like washing the dishes or saying “thank you”) (S. Neff et al., 2009).

- Pivot: In this tool, caregivers learn about “junk behavior.” The tool focuses on pivoting away from junk, and pivoting back to a replacement behavior (i.e. withholding attention for an attention-seeking behavior and using reinforcement for an alternative behavior) (S. Neff et al., 2009).

- Redirect: This is another tool used to teach replacement behaviors for dangerous or harmful behavior. (B. Neff, Neff, Cripe, Winston & Winston, 2010).

- Set Expectations: The focus of this tool is on teaching caregivers how to be clear, direct, and consistent when setting expectations and getting important (e.g. safe) behaviors to happen more often (B. Neff et al., 2010).

- Use a Contract: This is a specific tool that teaches a caregiver how to create a visual prompt that depicts expectations and consequences (B. Neff et al., 2010).

The BehaviorTools course also teaches specifics related to: defining “behavior”; learning to identify antecedents, behaviors, and consequences; determining the function of behavior; reducing coercive interactions; recognizing “junk” behavior; teaching replacement behaviors; and understanding motivation. When these skills are applied, parents can manage child behavior more effectively and teach their children socially acceptable and functionally equivalent replacement behaviors.
BehaviorTools™ is both an evidenced-based program and is conceptually systematic in that it teaches proven principles of behavior that are based on 50 years of behavioral research that was conducted both in laboratory and applied settings (B. Neff, personal communication, April 24, 2011). BehaviorTools™ incorporates effective teaching methods like: modeling, rehearsal, feedback, and active student responding. BehaviorTools™ is a competency-based course that utilizes pre- and post-course role play assessments in order to assess participant’s acquisition of behavior management skills.

Behavior Analysis

Behavior analysis, also known as the science of behavior, systematically manipulates independent variables and measures how changes in environmental stimuli affect the dependent variable (behavior). Behavioral science has been used in a variety of applications and continues to be used extensively within the fields of developmental disabilities and mental health. Cooper et al. (2007) define behavior as “the activity of living organisms” (p. 25). In humans, this is anything a person does, including actions, thoughts and feelings that can be observed or measured. Behavior is analyzed in terms of its interactions with the environment.

Applied behavior analysis (ABA) involves the study of human behavior in social settings and attempts to determine functional relations between a person’s behavior and environmental events. Functional relations can
be determined by systematically manipulating environmental stimuli, one variable at a time, and measuring the changes in or effects on a person’s behavior. Once the function of a target behavior is determined, environmental changes can be made to alter the frequency, duration, and/or magnitude of the behavior.

According to Baer et al. (1968), ABA interventions must be “applied, behavioral, and analytic; in addition it should be technological, conceptually systematic, and effective, and it should display some generality” (p. 92). Positive reinforcement is an example of a functional relation whereby a stimulus is presented following a behavior and increase the probability of that behavior occurring in the future.

Various studies have demonstrated the effects of positive reinforcement procedures on problem behavior. Token economy systems are proven effective in reducing commonly observed behavior problems (e.g. children refusing to assist with household chores, bickering amongst siblings and engaging in verbally inappropriate behavior towards their parents) by reinforcing alternative behaviors (e.g. completing chores, treating parents respectively, etc.) (Christophersen, Arnold, Hill, & Quilitch, 1972). Non-contingent reinforcement has also proven effective in ameliorating problem behavior that is maintained by social positive reinforcement (Van Camp et al., 2000; Rasmussen & O’Neill, 2006).
CHAPTER III

METHODOLOGY

Participants

Participants were recruited through a non-profit agency in California that provides behavior services to children with developmental disabilities and their families. Eighteen participants were invited by phone to participate in the study. Of those invited, 14 expressed interest and were mailed a detailed letter explaining their role in the training and the study. To participate in the study, parents had to meet the following three criteria: (1) they had to be the parent or caregiver of a child with a diagnosed developmental disability (2) the child had to be between the ages of 3 and 18 (3) they had to agree to have the researcher observe them in their home and videotape a minimum of six, ten minute, parent-child interactions for analysis throughout the study (both pre- and post-training). Seven parents consented to participate and met eligibility criteria. One subject dropped out of the study during the baseline stage due to plans to leave town during the scheduled training.

Child Characteristics and Family Demographics

Family demographics were obtained via a questionnaire that accompanied the informed consent form and through personal interview by the researcher at the initial home visit. Variables of interest included: child age,
diagnosis, primary method of communication used, primary problem behaviors being demonstrated, age at onset of problem behavior, and the effects of child problem behavior on parents and family. See Table 1 for information related to child and family demographics.

Table 1

*Child and family demographics (N=6)*

<table>
<thead>
<tr>
<th>Variable</th>
<th>N (%)</th>
<th>M (Range)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Child characteristics</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age (years)</td>
<td>9.5</td>
<td>(3-17)</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-Female</td>
<td>3 (50)</td>
<td></td>
</tr>
<tr>
<td>-Male</td>
<td>3 (50)</td>
<td></td>
</tr>
<tr>
<td><strong>Diagnosis</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-ASD/PDD-NOS</td>
<td>2 (33)</td>
<td></td>
</tr>
<tr>
<td>-Down Syndrome</td>
<td>2 (33)</td>
<td></td>
</tr>
<tr>
<td>-Prader Willi Syndrome</td>
<td>2 (33)</td>
<td></td>
</tr>
<tr>
<td><strong>Method of Communication</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-Verbal</td>
<td>4 (66)</td>
<td></td>
</tr>
<tr>
<td>-Sign and guiding</td>
<td>2 (33)</td>
<td></td>
</tr>
<tr>
<td><strong>Primary caregiver</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-Mother (% biological)</td>
<td>6 (100)</td>
<td></td>
</tr>
</tbody>
</table>

*Note.* ASD= Autism Spectrum Disorder; PDD-NOS= Pervasive Developmental Disorder-Not Otherwise Specified

Six out of six parents reported a history of or a current demonstration of aggressive behavior by their child. “Aggression” was defined as acts of kicking, hitting, scratching, biting, breaking things, and/or slamming doors.
Noncompliance was reported in 33% of cases. "Noncompliance" was defined as continuing with an activity after being asked to stop and/or not engaging in the requested behavior. Tantrums and screaming were reported by 67% of subjects and cussing by 17%. “Tantrums” were defined as episodes of flailing, crying, screaming and/or throwing oneself on the floor. Depending on the family, problem behaviors were reported to have been present for between one and 12 years ($M= 3.91$, $SD= 4.13$).

Setting

Seven parents agreed to participate and met with the researcher in their home during the baseline stage. One subject dropped out following the baseline stage due to other obligations during the scheduled training. Six parents, all mothers of developmentally disabled children, participated in two Saturday trainings held in a 15’ x 14’ room that contained a table, seven chairs, television, DVD player and white board at the non-profit agency.

Each class was held from 8:30 a.m. to 5:00 p.m. Pre- and post-training role play assessments were conducted in a room separate from the training room. All observations were conducted in participating families' homes or in a play-based setting (i.e. park, play room).

Procedure

The author has 10 years of experience working with children with developmental disabilities and their families. The author began conducting
BehaviorTools™ trainings 13 months prior to this study. A number of BehaviorTools™ trainings were conducted before the implementation of this study.

This study was conducted with ethical approval of a California State University and informed consent of all participants. Participants were contacted by phone to ask if they were interested in participating in a behavior skills training. Participants who reported interest were mailed a letter outlining their participation in the study and an informed consent form.

After the informed consent forms were received, the author conducted two or three home visits with each family to complete a questionnaire regarding child problem behaviors and to videotape at least three 10-minute observations. On two consecutive Saturdays, participants attended eight hours of group training, for a total of 16 hours. Each participant was presented with a workbook at the beginning of each day of training that included all material that would be covered that day. Written reviews and a final written examination were also included in the manual. During the course of the training, parents were asked about how specific tools and concepts applied to their own children. Each tool was modeled in the DVD presentation and by the instructor before participants were given the opportunity to practice each of the six tools in role play format. The number of role play practices varied by participant (1, 3, or 9). Those participants who were required to complete more than one role play per tool met with the instructor at a later time or date in order to complete role play practices.
At the end of each training day, each participant completed a written exam, role play post course assessment (if role play practices were complete), and a consumer satisfaction questionnaire. The researcher completed three to four in home observations of each subject in the post-training phase.

Instruments/Measures

The assessment protocol included use of the following instruments and data collection procedures:

- Parent-reported child behavior problems
- Observer rated parent-child interactions pre and post
- Pre and post role play test
- Consumer evaluation of training

Observation Procedures and Behavior Definitions

Parent-child interactions were observed and video-taped during 10-minute periods of play-based activity. The researcher provided a bag of developmentally appropriate toys of which the parent and child were encouraged to investigate. An observational system was developed in which 30-second partial-interval recording was used to collect data on child behavior (appropriate, harmful or junk) and parent interactions (positive, negative, neutral or no interaction). See Table 2 for definitions of both child and parent behaviors.

Data was graphed according to rate of each interaction per minute. Due to the artificial ceiling imposed by the data collection method, data was translated and reported in tables and in text according to the percent of intervals
containing each type of interaction. These data were also used in statistical analyses.

Two observers reviewed each video segment and coded the first parent-child interaction during each 30-second interval. A two hour training, in addition to behavior definitions, was provided to the researcher’s reliability observer before coding began. The observer-rated parent-child interaction data was collected both pre- and post-training in order to determine if the training effectively increased positive interactions and decreased coercive/negative interactions.

**Pre and Post Course Role Play Assessments**

A pre and post course role play assessment is included in the BehaviorTools™ curriculum. These role play assessments focus on parental response to given role play situations. These tests were used to measure increased knowledge and skill acquisition.

**Consumer Evaluation of Training**

The researcher developed an evaluation form for each participant to rate the effectiveness of five categories: DVD presentation, worksheets, instructor, role play/skills practice, and training manual. The rating scale used a Likert-scale format from 1-5, with 1 being “Not at all helpful” and 5 “Very helpful”. The researcher also included open-ended questions such as: Do you feel the information presented will be relevant/helpful when interacting with your own child?
Table 2

*Parent and child behavior definitions for coding parent-child observations*

<table>
<thead>
<tr>
<th>Parent/Child</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parent behaviors</td>
<td>Positive Interaction:</td>
</tr>
<tr>
<td></td>
<td>- Any appropriate use of a tool with a child</td>
</tr>
<tr>
<td></td>
<td>- Doing something for a child when the child’s presence is required</td>
</tr>
<tr>
<td></td>
<td>- Agreeing to do something for a child when the child requests it</td>
</tr>
<tr>
<td></td>
<td>- Interactions with a child that include a calm/pleasant tone of voice</td>
</tr>
<tr>
<td></td>
<td>- Offers to help</td>
</tr>
<tr>
<td></td>
<td>- Holding the child in one’s arms</td>
</tr>
<tr>
<td></td>
<td>- Smiling at the child</td>
</tr>
<tr>
<td></td>
<td>- Expressions of concern</td>
</tr>
<tr>
<td></td>
<td>- Eye contact with appropriate facial expression</td>
</tr>
<tr>
<td></td>
<td>- Active listening</td>
</tr>
<tr>
<td></td>
<td>Negative Interaction:</td>
</tr>
<tr>
<td></td>
<td>- Use of any of the 12 coercives defined in the BehaviorTools™ training</td>
</tr>
<tr>
<td></td>
<td>- Any interaction that makes the child seem scared, fearful or guilty</td>
</tr>
<tr>
<td></td>
<td>- Any interaction which may cause harm to the child</td>
</tr>
<tr>
<td></td>
<td>- Any interaction during which the child is engaging in “junk” behavior</td>
</tr>
<tr>
<td></td>
<td>- Any initiation of interaction by the child which is not responded to in any manner within 5 seconds</td>
</tr>
<tr>
<td></td>
<td>Neutral Interaction:</td>
</tr>
<tr>
<td></td>
<td>- Listening with no physical or verbal exchange (i.e. touch, smile or comment) for 30 seconds</td>
</tr>
<tr>
<td></td>
<td>- Speaking with neutral content or tone</td>
</tr>
<tr>
<td></td>
<td>No Interaction:</td>
</tr>
<tr>
<td></td>
<td>- No positive, neutral or negative interaction for 30 seconds</td>
</tr>
<tr>
<td></td>
<td>- If the “Pivot” tool is used for “junk” behavior lasting longer than 30 seconds, then “No Interaction” must be checked</td>
</tr>
<tr>
<td>Child behaviors</td>
<td>Appropriate: Any behavior that would not be considered “Junk” or “Harmful”; otherwise positive or neutral</td>
</tr>
<tr>
<td></td>
<td>Junk: Any age typical behavior that may be annoying, but not harmful to self, others, animals, or property</td>
</tr>
<tr>
<td></td>
<td>Harmful: Any behavior that is dangerous and may cause minor or severe injury to self, others, animals or property</td>
</tr>
</tbody>
</table>
Interobserver Agreement

Interobserver agreement was calculated for observational data, pre-course assessment scores for the basic level of BehaviorTools™, post-course assessment scores for the basic level of BehaviorTools™, pre-course assessment scores for the practitioner level of BehaviorTools™, and post-course assessment scores for the practitioner level of the BehaviorTools™ training. An agreement was scored if both observers scored the parent and child behavior the same with respect to parent-child observations. An agreement was scored on the pre/post-course assessments if both observers scored the step the same. Reliability was calculated using the formula: number of agreements divided by number of agreements plus disagreements, multiplied by 100.

Experimental Design

The study was an AB single-subject, parametric design, in which the level of role play practice was varied. The purpose of the current study was to conduct a parametric analysis of three different levels of role play practice in order to measure the effects of repeated practice on the ratio of positive to negative interactions.
CHAPTER IV

RESULTS AND DISCUSSION

Introduction

This chapter will review the results derived from the study of six parents of children with developmental disabilities who participated in BehaviorTools™ training as they related to four research questions. Due to the small sample size, and as it is customary to conduct single-subject studies in the field of applied behavior analysis, visual analysis will be used to read and interpret graphed results of each participant. The mean reliability for all parent-child observations was 91% (range 65% to 100%).

Results

In question one, the researcher investigated the effectiveness of BehaviorTools™ for reducing coercive interactions in parents of children with developmental disabilities. Among the six participants, pre-training measures of negative interaction rates ranged from 0-1.9 per minute. The rates of positive and negative interactions, by subject, are presented in Figures 1-6. As detailed in the methodology, these measures were translated to interval percentages and ranged 0% to 95%. Post-training rates of negative interaction ranged from 0-0.9
per minute, 0% to 45% of intervals. These data revealed a significant decrease in negative parent-child interactions, \( t(5) = 2.71, p = 0.04 \).

![S1- Parent-Child Interactions](image)

*Figure 1.* Rate of positive and negative parent-child interactions for Subject 1
Figure 2. Rate of positive and negative parent-child interactions for Subject 2
Figure 3. Rate of positive and negative parent-child interactions for Subject 3
Figure 4. Rate of positive and negative parent-child interactions for Subject 4
Figure 5. Rate of positive and negative parent-child interactions for Subject 5
Table 3 demonstrates the mean and standard deviation, by subject, for pre- and post-training percentage of intervals containing negative interactions. Data collected in the post-training phase revealed a significant decrease in negative parent-child interactions, with four out of six parents demonstrating zero negative interactions in at least one 10-minute observation period. The percentage of pre-training and post-training intervals containing negative interactions is represented in Table 3. Five out of six parents demonstrated a
decrease in the average percentage of intervals containing negative interactions from pre-training to post-training phases.

Table 3

*Percentage of intervals containing negative interactions, by subject*

<table>
<thead>
<tr>
<th>Subject</th>
<th>Pre-training</th>
<th>Post-training</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$M$</td>
<td>$SD$</td>
</tr>
<tr>
<td>1</td>
<td>15.0</td>
<td>13.5</td>
</tr>
<tr>
<td>2</td>
<td>9.0</td>
<td>11.9</td>
</tr>
<tr>
<td>3</td>
<td>33.0</td>
<td>22.0</td>
</tr>
<tr>
<td>4</td>
<td>41.3</td>
<td>7.5</td>
</tr>
<tr>
<td>5</td>
<td>45.0</td>
<td>33.9</td>
</tr>
<tr>
<td>6</td>
<td>10.0</td>
<td>14.1</td>
</tr>
<tr>
<td>Total</td>
<td>25.6</td>
<td>16.2</td>
</tr>
</tbody>
</table>

Interobserver agreement was conducted for 100% of observations. Therefore, IOA scores were obtained for all 47 observations. The mean percentage of agreements was 91.2% (range 65% to 100%). The mean reliability score for each individual subject were as follows: Subject 1, 98.1% (range 90% to 100%); Subject 2, 93.1% (range 80% to 100%); Subject 3, 83.3% (range 70% to 95%); Subject 4, 93.1% (range 90% to 100%); Subject 5, 92.5% (range 85% to 100%); Subject 6, 86.7% (range 65% to 100%).
In question two, the researcher investigated the effectiveness of BehaviorTools™ at increasing positive interactions in parents of children with developmental disabilities. Pre-training measures of the rate of positive parent-child interactions ranged 0-1.8 per minute, 0% to 90% of intervals. Prior to training, some parents were already engaging in high rates of positive parent-child interactions. Despite this fact, all parents demonstrated an increasing trend in interacting positively from baseline to post-training. Post-training measures of rate ranged from 0.6-2.0 per minute, 30% to 100% of intervals. These data revealed a significant increase in positive parent-child interactions, \( t(5)= 6.78, p=0.001 \).

One hundred percent of subjects demonstrated rates at or above initial baseline levels. The percentage of intervals containing positive interactions from pre-training to post-training increased from an average of 18.8% to 56.3%. Table 4 reports the mean and standard deviation, by subject, for pre- and post-training percentage of intervals containing positive interactions.

Figures 7-12 represent the rate of parent-child interactions by type (positive, negative, neutral or no interaction) as rated during pre-training and post-training observations. As shown in Figures 7-12, the BehaviorTools™ training had a desired effect, not only on increasing positive parent-child interactions and decreasing negative parent-child interactions, but the BehaviorTools™ increased the overall amount of time parents spent interacting with their children. For example, Subject 6 interacted very little with her child
during pre-training and for one observation period did not interact with her child at all (see Figure 12). However, immediately following training both her positive and negative interactions increased. Differentiation quickly occurred and an increasing trend in positive interactions continued while simultaneously a decreasing trend in negative interactions was observed.

Table 4

*Percentage of intervals containing positive interactions, by subject*

<table>
<thead>
<tr>
<th>Subject</th>
<th>Pre-training</th>
<th>Post-training</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$M$</td>
<td>$SD$</td>
</tr>
<tr>
<td>1</td>
<td>80.0</td>
<td>12.2</td>
</tr>
<tr>
<td>2</td>
<td>25.0</td>
<td>15.4</td>
</tr>
<tr>
<td>3</td>
<td>19.0</td>
<td>9.6</td>
</tr>
<tr>
<td>4</td>
<td>20.0</td>
<td>10.8</td>
</tr>
<tr>
<td>5</td>
<td>31.3</td>
<td>37.5</td>
</tr>
<tr>
<td>6</td>
<td>5.0</td>
<td>7.1</td>
</tr>
<tr>
<td>Total</td>
<td>30.1</td>
<td>26</td>
</tr>
</tbody>
</table>

In the third research question the researcher investigated whether subjects would demonstrate an increase in skill acquisition (as evidenced through pre- and post-testing) related to the implementation of the “tools” after participating in the training. The BehaviorTools™ course was taught in two,
eight-hour training sessions. The first is referred to as the “basic course” and the second, as the “practitioner course.” Prior to and immediately following both training sessions, each parent was given a pre-training role play assessment and a post-training role play assessment. Scores are reported in Figure 13.

Figure 7. Rate of parent-child interaction by type for Subject 1
Figure 8. Rate of parent-child interaction by type for Subject 2
Figure 9. Rate of parent-child interaction by type for Subject 3
Figure 10. Rate of parent-child interaction by type for Subject 4
Figure 11. Rate of parent-child interaction by type for Subject 5
Figure 12. Rate of parent-child interaction by type for Subject 6
Figure 13. Pre- and post-course assessment scores by subject and overall mean.
Interobserver agreement was conducted on 100% of pre- and post-course assessments. The mean percentage of agreements calculated across four tests, using reliability scores from each of the six participants were as follows: BehaviorTools™ Basic pre-course assessment, 93% (range 81% to 100%); BehaviorTools™ Basic post-course assessment, 93% (range 88% to 94%); BehaviorTools™ Practitioner pre-course assessment, 92% (range 89% to 100%); BehaviorTools™ Practitioner post-course assessment, 94% (range 78% to 100%).

All six participants demonstrated a substantial increase in their ability to implement the BehaviorTools™. In the basic course, scores increased from pre-course assessment ($M= 17.7\%$; range, 0% to 43.8%) to post-course assessment ($M= 85.4\%$; range, 56.3% to 100%). These data revealed a significant increase in post-course assessment scores, $t(5)= 7.25, p= 0.001$.

A similar result was demonstrated in the practitioner course with scores increasing from pre-course assessment ($M= 26.9\%$; range, 0% to 50%) to post-course assessment ($M= 77.8\%$; range, 61.1% to 94.4%). These data revealed a significant increase in post-test scores, $t(5)= 7.05, p= 0.001$.

Last, the researcher investigated the effects of repeated practice on positive parent-child interactions. Six participants were randomly assigned a specific number of repeated practices as a requirement of the training. Each subject was assigned either one, three or nine role play practices per tool. Subjects 1 and 6 engaged in nine role play practices for each of the six tools, a
total of 54 practice trials. Subjects 3 and 5 were assigned three practice trials per tool, a total of 18 total role plays throughout the training. Finally, as is standard with the BehaviorTools™ training, Subjects 2 and 4 participated in one practice role play for each of the six tools. Role plays were counted toward the total trials when performed correctly. If incorrect, feedback was given and corrections were made by the participant.

No relationship was found between increased practice of the tools in training and increased positive parent-child interactions in the home. Subjects who practiced more did not show a greater increase in percent of intervals containing positive interactions or a greater decrease in percent of intervals containing negative interactions (See Tables 5 and 6).

Table 5

*Mean and standard deviation, by number of practice rehearsals, for pre- and post-training percentage of intervals containing positive interactions*

<table>
<thead>
<tr>
<th>Rehearsals per tool</th>
<th>Subject</th>
<th>Pre-training</th>
<th>Post-training</th>
<th>Percent Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
</tr>
<tr>
<td>9</td>
<td>1</td>
<td>80.0</td>
<td>12.2</td>
<td>98.8</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>5.0</td>
<td>7.1</td>
<td>58.8</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>19.0</td>
<td>9.6</td>
<td>47.5</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>31.3</td>
<td>37.5</td>
<td>67.5</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>25.0</td>
<td>15.4</td>
<td>85.0</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>20.0</td>
<td>10.8</td>
<td>73.6</td>
</tr>
</tbody>
</table>
Subject 6, who practiced each tool nine times, and Subject 4, who practiced each tool one time, demonstrated roughly the same increase in percentage of intervals containing positive interactions from pre-training to post training, 53.8% and 53.6% respectively (See Table 5). Additionally, Subject 4, who practiced each tool only one time, and Subject 5, who practiced each tool three times, demonstrated a similar decrease in percentage of intervals containing negative interactions from pre-training to post training, 41.3% and 39.2% respectively (See Table 6).

Table 6

*Mean and standard deviation, by number of practice rehearsals, for pre- and post-training percentage of intervals containing negative interactions*

<table>
<thead>
<tr>
<th>Rehearsals per tool</th>
<th>Subject</th>
<th>Pre-training</th>
<th>Post-training</th>
<th>Percent Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
</tr>
<tr>
<td>9</td>
<td>1</td>
<td>15.0</td>
<td>13.5</td>
<td>1.3</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>10.0</td>
<td>14.1</td>
<td>15.0</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>33.0</td>
<td>22.0</td>
<td>12.5</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>45.5</td>
<td>33.9</td>
<td>6.3</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>9</td>
<td>11.9</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>41.3</td>
<td>7.5</td>
<td>0</td>
</tr>
</tbody>
</table>
Consumer Evaluation of the Training

Consumer evaluation forms were distributed immediately following the training. The trainer requested that forms remain anonymous. The evaluation contained eight questions. The first five listed components of the training to be ranked on a Likert scale (1= "Not helpful at all" and 5= "Very helpful"). The five components included: the DVD presentation, worksheets, role play/skills practice, training manual, and instructor. See Table 7 for the mean ranking and standard deviation of each component. The remaining questions addressed how participants felt their questions were answered, if the information would be relevant when interacting with their own child, which component (of the five listed above) would be most helpful, as well as an area to make suggestions for future trainings. One-hundred percent of participants reported that their questions were answered adequately. One participant rated the training manual and DVD presentation as the most helpful aspects of the training, two participants rated the instructor as the most helpful component, another two participants rated the role play/skills practice as the most important part of the training, and one rated all aspects as equally important. One participant included that the group format was key to her learning. She reported that the interaction with peers was very valuable.
Table 7

*Consumer evaluation of the training*

<table>
<thead>
<tr>
<th>Component</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>DVD Presentation</td>
<td>4.83</td>
<td>0.41</td>
</tr>
<tr>
<td>Worksheets</td>
<td>4.67</td>
<td>0.52</td>
</tr>
<tr>
<td>Role/Play/Skills Practice</td>
<td>4.83</td>
<td>0.41</td>
</tr>
<tr>
<td>Training Manual</td>
<td>4.67</td>
<td>0.52</td>
</tr>
<tr>
<td>Instructor</td>
<td>5</td>
<td>0</td>
</tr>
</tbody>
</table>

Discussion

All subjects within the study demonstrated an increase in positive interactions and a decrease in negative interactions from the pre-training phase to post-training phase. Analysis of the results produced by this study seemed to reveal four categories of parenting styles. “Positive parents,” like Subject 1, demonstrated consistent positive parent-child interactions prior to training. As shown in Figure 7, Subject 1 increased her rate of positive interactions even further and eliminated all negative interactions following training.

The second type of parenting style, the “limited-interacter,” is demonstrated by Subjects 2 and 6 (see Figures 8 and 12). These subjects interacted infrequently with their child during the pre-training phase. For Subject 2, an average of 37% of intervals were coded “no-interaction” in the pre-training phase; while Subject 6 had no interactions with her child for over 80% of the
observed intervals. Following training, both parents increased their rate of interacting positively by over 50%.

The third type of parenting style, the "coercive parent," is illustrated by Subjects 3 and 4. These parents entered the training phase demonstrating more negative than positive interactions. Post-training, the behavior of these parents differentiated dramatically. They learned to respond positively to appropriate child behavior and minimized or completely eliminated reacting coercively to inappropriate child behavior.

Subject 5 represents the last parenting style represented in the study, the "reactive parent," whose child controls the environment more than the parent. This parent was responsive to all types of child behavior, positive and negative, thus the data were undifferentiated in the pre-training phase. When Subject 5's child engaged in "junk" behavior the parent consistently paid attention and reacted. The parent also consistently responded to, and initiated, positive interactions. Through the training, Subject 5 learned how to withhold attention for "junk" behavior, how to reinforce appropriate behavior and how to effectively set limits. In the post-training phase, Subject 5 increased her positive interactions (from $M=31.3\%$ to $M=67.5\%$ of intervals) and decreased her negative interactions (from $M=45\%$ to $M=6.3\%$ of intervals).

In the pre-training phase, four subjects exhibited a decreasing trend in negative interactions just before the intervention phase. This researcher proceeded with the introduction of the training as further analysis revealed that
for Subjects 2, 3, 4, and 6 it was possible that the decrease in negative interactions was due to a lack of overall interaction. In the 5th session, Subject 2 engaged in zero negative interactions, a dramatic decrease from the previous session. During this same session, the rate of positive interactions decreased as well due to 15 out of 20 periods being coded without any parent-child interaction.

Continuing into the post-training phase, Subject 5 increased positive parent-child interactions and decreased periods without interaction while the rate of negative interactions remained at zero (see Figure 11). Analysis of the pre-training data for Subject 6 revealed a similar situation. The graph in Figure 6 presents a decreasing trend in negative interactions. Although this is true, further analysis of the data presented in Figure 12 show that, the rate of negative interactions decreased to zero per minute in the second session as a result of the parent not interacting with her child at all during the 10 minute observation. The decrease in negative interactions prior to training was not accompanied by an increasing trend in positive interactions in any of the four cases (S2, S3, S4 or S6). All subjects demonstrated a decreasing trend in positive interactions before the implementation of the BehaviorTools™ training.

In the post-training phase, all participants demonstrated an overall increase in positive parent-child interactions that ranged from an average of 18.8% to 53.8%. This representation can be somewhat misleading as it would appear that Subject 1, who demonstrated only an 18.8% increase from pre-training to post-training, did not gain as much from the training as the other five
participants. However, Subject 1 engaged positively with her child during an average of 80% of intervals in a pre-training phase. Post-training, Subject 1 positively engaged during an average of 98.8% of intervals, with the three out of four post-training sessions at 100%. This demonstrates that the training is not only effective for parents who interact negatively with their children, but also for parents like Subject 1, who came into the training as a positive parent and increased positive parent-child interactions even more through the use of the tools.

In addition to all subjects demonstrating an increase in positive parent-child interactions, five out of six participants demonstrated a decrease in negative parent-child interactions. Subject 6 did show a slight, five percent increase in the rate of negative interactions. However, this parent was not interacting with her child much at all prior to training (82.5% of intervals had no interactions). Post-training, Subject 6 interacted positively with her child during 58.8% of intervals and lacked interaction in only 25% of intervals. Further, there was a decreasing trend in negative interactions post-training. As can be seen in Figures 7-12, there was an initial increase in both negative and positive interactions, but negative interactions decreased overtime, while positive interactions continued to increase. This supports her ability to learn and respond positively to appropriate behavior, while ignoring “junk” behavior. This reduction in negative parent-child interactions may lead to a subsequent decrease in child problem behaviors.
(Patterson, 1982). This discussion leads to several implications for future research which will be discussed in the following chapter.
CHAPTER V

SUMMARY, CONCLUSION, RECOMMENDATIONS

Summary

The principal investigator used this research project to analyze the effects of repeated practice using the BehaviorTools™ model with parents of children with developmental disabilities. This purpose of the study was to investigate the effectiveness of the BehaviorTools™ training in reducing coercive parent-child interactions and increasing positive parent-child interactions for parents of children with developmental disabilities. Four primary research questions were answered through evaluation of the results of this study: 1) Will BehaviorTools™ effectively reduce the use of negative interactions in parents of children with developmental disabilities? 2) Will BehaviorTools™ effectively increase positive parent-child interactions? 3) Will parents demonstrate an increase in skill acquisition (as evidenced through pre and post testing) related to the implementation of the “tools” after participating in the training? 4) Will parents who have engaged in repeated practice demonstrate a greater increase in positive parent-child interactions as compared to those who practice each tool only once?

The researcher hypothesized a difference in parental behavior management skill acquisition, as measured by pre- and post-course role play
assessments. In addition, the researcher hypothesized an increase in positive parent-child interactions with a decrease in negative parent-child interactions after the BehaviorTools™ training. Eighteen parents were recruited to participate in the study, seven agreed to participate and six parents completed the training. The training yielded desired effects for all six participants. An increase in skill acquisition was correlated with an increase in positive parent-child interactions and a decrease in negative (coercive) parent-child interactions from baseline to intervention phase. The researcher’s hypothesis was confirmed.

Conclusion

Due to the challenges a parent of a child with a developmental disability may face, it is imperative that he or she be provided with training that will give them the “tools” necessary to facilitate positive parent-child interactions. This study is significant in that it demonstrates the importance of behavior skills training for parents of children with developmental disabilities. Before behavior skills training, parents were shown to rely more on coercive strategies and demonstrated lower rates of positive parent-child interactions. Post-training, parents had both increased positive parent-child interactions and decreased negative interactions. This demonstrated both skill acquisition and implementation. The results have positive implications as increasing positive parent-child interactions reduce the risk of child problem behaviors (Patterson, 1982).
Recommendations

This research has numerous implications for both practitioners and future researchers. The following recommendations are made for practitioners in the field:

- It is recommended that at least one practitioner at each agency or organization serving children with a developmental disability and their families, become a BehaviorTools™ instructor as it is likely the skills parents in the study acquired would generalize to practitioners.

- It is recommended that BehaviorTools™ trainings be offered to parents, especially those who are experiencing difficulty managing child problem behaviors due to the reduction in negative interactions and increase in positive interactions shown in this study.

- It is recommended, if time and resources permit, that observations of parent-child interactions be conducted by the instructor or another trained observer for participants both pre- and post-training so that effects of the training can be measured and relayed to participants.

- It is also recommended that staff working with parents or families be provided with the BehaviorTools™ training. This would provide staff with the ability to respond appropriately to maladaptive behaviors, as well as desirable behaviors, while reinforcing parents’ skill acquisition.
The field would benefit from future research to answer the following questions:

- What effect do increases in positive interactions and decreases in negative interactions have on child problem behavior?
- Do increased positive parent interactions result in more positive child behavior?
- Does a reduction in coercive interactions result in a decrease in child problem behavior?
- Do parents of children with developmental disabilities demonstrate similar training results to parents of “typically” developing children?
- If the sample size were increased, would the parametric design produce statistically significant differences in positive parent-child interactions?
- Does increased role play practice demonstrate a significant difference in the ratio of positive to negative parent-child interactions?
- Are booster trainings needed in order to maintain skills?
- Are the four types of parenting styles that seemed to emerge from this study consistent among the general population?
- What effect do parent-child interactions in the home have on child behavior in other settings (e.g. school)?
REFERENCES CITED


Evaluation Form

Date:

Please rate the following:
1= Not helpful at all
2
3
4
5= Very helpful!

1. DVD Presentation _____

2. Worksheets _____

3. Role Play/Skills Practice _____

4. Training Manual _____

5. Instructor _____

6. Were your questions answered adequately?
   ___________________________________________________________
   ___________________________________________________________
   ___________________________________________________________

7. Do you feel the information presented will be relevant/helpful when interacting with your own child? If so, which of the above named components (1-5) will be most helpful?
   ___________________________________________________________
   ___________________________________________________________
   ___________________________________________________________

8. Any other comments/suggestions for the next training?
   ___________________________________________________________
   ___________________________________________________________
   ___________________________________________________________
Participant Interview

1. How many children do you have?

2. How many have a diagnosed developmental disability?

3. Diagnosis?

4. Does your child use verbal speech? Yes  No

5. If not, what method(s) of communication does s/he use?
   - Sign
   - Picture communication
   - Guiding

6. What are the primary behavior problems your child is demonstrating?

7. How long have they been present?

8. What effects has the behavior had on your family? (Check all that apply)
   - restriction of social activities
   - increased parental stress
   - alienation from family activities
   - isolation from community activities