Parent-Child Interaction Therapy and High Functioning Autism: A Conceptual Overview

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Abstract

Externalizing behaviors are a common component of the clinical presentation of Autism Spectrum Disorders and are typically the initial focus of treatment for children within this population. This article examines the appropriateness of Parent-Child Interaction Therapy (PCIT) as a first-line, gateway treatment for preschoolers with High Functioning Autism who demonstrate co-occurring difficulties with aggressive and noncompliant behavior. Although PCIT has shown initial success in treating children with High Functioning Autism, much of the knowledge is based on clinical case studies thus warranting further empirical research before conclusions can be drawn.
Keywords: Parent-Child Interaction Therapy, High Functioning Autism, Externalizing Behaviors

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Autism Spectrum Disorders (ASD) are childhood psychiatric conditions characterized by a deficit in social interaction skills, communication abilities, and behavioral patterns marked with repetitive, idiosyncratic behaviors that typically function to serve as self-stimulatory actions. Due to the overlap of behavior seen in more than one diagnosis on the Autism spectrum (e.g., Autistic Disorder & Asperger's Disorder), it is sometimes difficult to differentiate between developmental disorders, particularly when the clinical presentation of problem behavior is more sophisticated and falls on the higher end of the autism spectrum. Although a discussion on how to discriminate diagnostically between developmental disorders goes beyond the scope of this article, it is worth noting that some researchers contend that children with Asperger's Disorder typically develop secondary psychiatric conditions in the form of externalizing behaviors (Polirstok & Houghteling, 2006). Though the literature suggests that a formal diagnosis of a behavioral disorder may be more unique to Asperger Syndrome, the presence of behavioral difficulties (i.e., oppositionality, aggressiveness, limited attention span) in children with ASD is widely cited and recognized. In fact, some research has demonstrated that most children who fall on the autism spectrum present to clinics with problem behavior as the primary focus of treatment (Mandell, Walrath, Manteuffel, Sgro, & Pinto-Martin, 2005). As any child with excessive problem behavior has difficulty entering or staying enrolled in a structured classroom, it is understandable that parents, in order to increase their child's school readiness, oftentimes seek treatment to target these behaviors.

As disruptive behavior is typically the primary presenting problem for children with ASD, clinicians oftentimes take a behavioral approach to treatment. Although traditionally used with typically-developing children, one intervention that has demonstrated success in improving parent-child relationships, reducing problem behavior, and increasing child compliance is Parent-Child Interaction Therapy (PCIT: Hembree-Kigin & McNeil, 1995). PCIT is an empirically-based, short-term parent training program for young children ages 2-7 who engage in disruptive problem behavior. Clinically, due to the prevalent behavioral component of developmental disorders, many children with autism spectrum disorders have been referred for PCIT in the last several years. Although the impact of PCIT has not been tested empirically with this population, the increase of referrals has raised the question of whether PCIT may be an effective gateway therapy to enhance children's readiness for more comprehensive treatments that target behavioral concerns specifically associated with autism (e.g., social skills). Clinically, we have

seen that PCIT has been a successful first-line treatment in that children become more compliant and less aggressive, thereby increasing their cooperation with more intensive and focused therapy. In addition, our clinical experience demonstrates that parents tend to be more optimistic about undertaking additional services once their child's behavior is under better control. Although PCIT is showing success with the high-functioning Asperger's/Autism population, it is important to note that not all children with ASD are expected to benefit from PCIT. For example, children with poor receptive language skills (<24 months) who do not understand simple instructions likely would not benefit from PCIT. PCIT may only be indicated for children who would be described as falling on the higher-functioning end of the autism spectrum.

This article gives an overview of the prominent behavioral and educational treatments for Autism Spectrum Disorders demonstrating a number of ways in which researchers and clinicians have conceptualized and treated these diagnoses. Next, an overview of the components of PCIT is outlined, followed by a conceptualization as to how PCIT could possibly serve as an effective adjunct to current interventions for ASD. Finally, several limitations and future directions are discussed.

Overview of Established Treatments for Autism

Applied Behavior Analysis

Applied Behavior Analysis (ABA) is a paradigm that seeks to increase socially appropriate repertoires while decreasing challenging behaviors for children diagnosed with ASD (Green, 1996). ABA uses an empirically-validated and principle-based approach to treat problem behavior, with an emphasis on functional assessment and building skills. The goal is to help the individual to develop skills that will allow that person access to the widest possible range of reinforcers. Behaviorists conceptualize autism as a disorder characterized by both behavioral deficits (e.g., communication, social skills) and excesses (e.g., ritualistic behavior, tantrums; [Green]. To modify behavior, ABA focuses on teaching specific, well-defined behaviors in a systematic manner in the context of repeated trials. For instance, behavior analysts may work on improving speech by targeting a specific skill or behavior such as labeling objects. After an appropriate response or attempt to respond, a positive reinforcer is administered. On the contrary, negative behaviors (e.g., self-injurious behavior) are not reinforced and incompatible tasks are introduced in order to reduce problematic behaviors (Green). Although teaching specific skills has resulted in improvements in specific targeted areas, these skills have often not been found to generalize to other environments and situations without additional training. For instance, studies have shown that teaching language skills to children does not result in increased social interaction unless the children also learn specific peer interaction skills (Lovaas & Smith, 2003).

Overall, ABA has been modifying its treatment procedures for over 50 years and the approach continues to be refined as new research develops. As a result, there are a number of popular and effective treatment approaches from within the ABA framework that are designed to treat problems associated with autism and several of these are outlined below.

The UCLA Young Autism Project

In order to address the difficultly with behavior generalization, Ivar Lovaas and colleagues at the University of California-Los Angeles began developing more comprehensive interventions that target all of a child's developmental and behavioral problems. Lovaas (1987) devised and studied an intensive comprehensive treatment for young children with autism who do not have profound mental retardation. This treatment, often referred to as the UCLA Young Autism Project, employs several therapists who provide 40 hours per week of one-on-one treatment at home, school and the community with the goal of

improving desirable behavior (e.g., language, social behavior) and reducing disruptive behavior (e.g., aggression, tantrums).

In addition to treatment sessions with the therapists, treatment is provided by the child's parents. Specifically, parents are part of the treatment team and learn procedures used by the therapists so that they can also provide treatment (Lovaas, 1987). During the first months of treatment, parents work alongside a therapist helping implement treatment (Lovaas & Smith, 2003). This allows the therapists an opportunity to observe the parents and provide helpful feedback so that parents can become effective therapists for their children.

Typically, children receive treatment for about three years until they begin elementary school. During this time, the children pass through several stages of treatment each with different goals (Lovaas & Smith, 2003). For instance, the first stage uses discrete trial training (DTT) to establish a teaching relationship with the goal of teaching a child to comply with one-step directions (e.g., "come here"). After a teaching relationship has been established, the next stage uses DTT to teach foundational skills, such as identifying objects, playing with toys, matching, and dressing. In the third stage, therapists use DTT and incidental teaching to target communication by teaching the child skills including imitating speech sounds and labeling objects. The next stage emphasizes communication and peer interaction. During this stage, the therapist uses DTT, incidental teaching, and dyads with peers to teach skills such as recognizing emotion and pretend play. The final stage focuses on skills to assist the child who is beginning school. In this stage, the child learns skills including language concepts (e.g., pronouns, past tense, and prepositions), how to converse with others, and how to understand the perspective of others.

The UCLA Young Autism Project has been empirically studied and replicated. Lovaas (1987) first compared three groups of children with autism: a group of children who received 40 hours per week of this intensive intervention, a group of children who received 10 hours or less per week of behavioral treatment, and a special education class. At post-treatment, Lovaas (1987) found that 47% of the children in the 40 hour per week condition achieved average IQs and performed at a satisfactory level in school compared to 3% of the children in the control condition. Replications of this study have found similar improvements (although sometimes not as large), in areas such as IQ and school performance for groups receiving an intensive intervention as compared to controls (e.g., Sallows & Graupner, 2005; Smith, 1999; Smith, Groen, & Wynn, 2000). Additionally, there is evidence that this intervention is effective in community settings (Cohen, Amerine-Dickens, & Smith, 2006). Yet, findings about the overall effectiveness of the UCLA program are not conclusive; as it is difficult to replicate this work given the great many resources and personnel demands that are required to duplicate the study methods.

Pivotal Response Training

Pivotal response training (PRT), a data-driven approach for treating children with autism, is based on applied behavioral analytic principles and is used to treat the language, social, behavioral, and play deficits that characterize children with autism (Koegel, O'Dell, & Koegel, 1987). This treatment differs from other ABA early intervention approaches in that PRT specifically focuses on improvement in broad areas of functioning that will then generalize to many other domains (e.g., Koegel & Koegel, 1995). These changes were made to the traditional ABA approach of Lovaas and his colleagues for the purpose of attempting to improve the efficiency and cost-effectiveness of treating children with autism (Koegel, Koegel, Harrower, & Carter, 1999).

The goal of PRT is to improve independence and self-education in children with autism through intervening in the key pivotal areas of motivation and self-initiation (Koegel et al., 1999). Specifically, PRT is based on the assumption that increases in child motivation and self-initiation will lead to increases in responsiveness and inquisitiveness in their natural environment. Target behavior for these responses are

individualized to each child's presenting needs. However, communication skills and appropriate social interactions are generally emphasized and taught in the child's environment (e.g., home, playroom, playground) through the use of natural stimuli (e.g., toys as opposed to flash card drills) (Koegel, Koegel, & Brookman, 2003). This treatment uses various techniques to increase child motivation such as using child-preferred activities and allowing the child to make choices among a variety of tasks (Koegel, et al., 1987). Other key characteristics of the intervention include mixing new tasks with tasks that the child has already mastered, using natural reinforcement whenever possible, and reinforcing attempts to respond correctly as opposed to only reinforcing correct responses (Koegel et al., 1987). For example, self-initiation is taught by prompting children to ask questions about their environment and providing reinforcement for these questions. For instance, children are prompted to ask, "What's that?" when they are interested in an object (Koegel et al., 2003).

Another feature of this treatment is a focus on parental involvement. Parents often play an important role in treatment by helping to implement the intervention (Koegel et al., 2003). In addition to this role, parents also attend parent education programs. In these programs, parents work with their child and receive feedback on how to improve their child's pivotal responses. Specifically, parents learn techniques and procedures to improve their child's motivation and self-initiation through teaching communication and academic skills (Koegel et al., 2003).

Research on PRT has found positive results in numerous areas including child social-emotional behavior, self-initiation, and communication as well as parental reports of stress, depression, and the quality of the parent-child interaction (see Koegel et al., 2003 for review). This research has examined both individual components of PRT and the complete treatment (e.g., Koegel, Bimbela, & Schreibman, 1996; Koegel, Camarata, Koegel, Ben-Tall, & Smith, 1998). Additionally, researchers have found these improvements in studies using a variety of research designs including single subject reversal, multiple baseline, and random assignment to experimental conditions (e.g., Koegel et al., 1996; Koegel et al., 1998; Koegel, Camarata, Valdez-Mechaca, & Koegel, 1998).

Positive Behavior Support

One of the more common ABA-based treatment models used to treat autism at both home and school is the positive behavior support model (PBS; Carr et al., 2002; Koegel, Koegel, & Dunlap, 1996). The primary goal of PBS is to assist in creating lifestyle changes which will help the children, as well as others in their environment (e.g., teachers, parents, and friends), enjoy an improved quality of life. As a secondary goal, PBS attempts to decrease undesirable behavior by helping the individual achieve their goals in a more socially acceptable and desirable manner (Carr et al., 2002). From a conceptual standpoint, PBS emerged primarily from three sources: ABA, the normalization/inclusion movement, and person-centered values. This considered, it is not surprising that positive behavior support is actually a combination of numerous procedures, most notably drawing from techniques such as behavioral family intervention, systems change models, ABA treatment strategies, and the family support movement (Newsom & Hovanitz, 2006). While an extensive description of procedures used in PBS is beyond the scope of this article (see Lucyshyn, Horner, Dunlap, Albin, & Ben, 2002 for a thorough description), the basic steps include conducting a functional assessment, developing hypotheses regarding the functions of negative behavior in a specific setting, and designing an appropriate behavior support plan. The final step involves implementing a maintainable plan that will increase the overall quality of life for both the family and the child.

Numerous studies have shown PBS to be effective. One early study by Durand and Carr (1992) compared children with developmental disabilities who received functional communication training – an important aspect of PBS – to a control group who received time out from positive reinforcement. Both groups showed overall lower rates of negative behavior, while only the PBS group showed (a) an increase

in unprompted communication, and (b) generalization of treatment gains across different settings and over time (i.e., after the intervention was completed). Dunlap and Fox (1999) used PBS with young children with autism and their families, and found that all of the participating children (N=6) showed significant reductions in problem behavior, demonstrated gains on rates of development, and had reduced frequency of autistic behavior as measured on the Autism Behavior Checklist (Krug, Arick, & Almond, 1980). Furthermore, families reported being more comfortable taking their children out in public and including their children in family activities. Similar results were found by Koegel, Stiebel, and Koegel (1998) who used PBS with three preschool-aged children with autism, finding large reductions in overall rates of aggression toward their siblings, increases in both the parents' and child's levels of happiness, and increases in strangers' levels of comfort in interacting with the family.

More recent reviews of the literature (Carr et al., 1999) show that over 100 studies conducted between 1985-1996 demonstrate the effectiveness of PBS in reducing problem behaviors in children with mental retardation, mental retardation with other diagnoses, and children with autism – in many cases with problem behaviors being reduced by upwards of 80%. Treatment gains found in single-subject studies of children with autism have been even larger in recent years, with average percentage of behavior reductions being 94.6% (see Horner, Carr, Strain, Todd, & Reed, 2002).

Despite widespread support for PBS, questions have been raised as to whether positive behavior support actually constitutes a new or novel treatment approach (Mulick & Butter, 2005), and if using solely non-aversive techniques is truly effective for optimal child development (Newsom & Kroeger, 2005). Also, some researchers have expressed concern assert that accommodation alone may be effective in reducing behavioral problems primarily because of the reduction in new demands. While placing fewer demands on the child reduces opportunities for the child to experience oppositionality, providing fewer challenges and expectations could slow the child's maturation.

TEACCH Method

Another treatment approach in the behaviorist tradition is the TEACCH Model (Treatment and Education of Autistic and Related Communication Handicapped Children; Mesibov, 1994; Schopler, 1994; Schopler & Reichler, 1971), an approach which emphasizes structure in teaching new behaviors, targeting specific skills, and defining conditions and consequences of behaviors through shaping. Similar to the PBS approach, the TEACCH model takes a comprehensive, holistic view of autism treatment. According to TEACCH, comprehensive services are required across the lifespan (Mesibov, 1983) and must be specific to the individual and their personal environment, skills deficits, and unique family situations (Mesibov, 1994). A key factor in the TEACCH method is the child's parents, who are seen as integral to the treatment process and part of a larger collaboration of parents and professionals working separately, but for the common benefit of the child. Four aspects of communication are underscored with this model. The first is functionality, where teaching goals are selected based on their usefulness in daily adult living, with a focus on making communication more meaningful and rewarding for the child. The second is incidental learning, as children are taught new language skills after naturally occurring, child initiated behaviors bring about an opportunity to learn new skills (e.g., asking for a soda from the vending machine). Another aspect is the teaching of non-verbal, alternative forms of communication for children who have difficulties with language or speech production. Finally, the TEACCH method has been strongly influenced by the psycholinguistic literature, which has helped with assessment, improving the communication of behavior, and helping further define communication strategies.

From a philosophical standpoint, the TEACCH approach focuses on tolerance, compromise, acceptance, and personal enhancement rather than normalization or inclusion (Mesibov, 1994). The program accepts that there are differences between people with autism and the general population, yet it

stresses that these differences do not suggest inferiority. The focus is on the individual and working with a person's strengths to assist them in reaching personal goals.

Early research on the effectiveness of TEACCH demonstrated improvements in learning and behavior following the introduction of a structured learning environment in classrooms (Schopler, Brehm, Kinsbourne, & Reichler, 1971) and significant increases in both child compliance and parent teaching skill when used in a home-based program (Marcus, Lansing, Andrews, & Schopler, 1978). Short (1984) found similar results with a home-based TEACCH program, with significant treatment effects for appropriate child behavior and play, communication, and improved parent-child interaction and involvement as compared to wait-listed children. A questionnaire study of 348 parents of children in the TEACCH program found high levels of satisfaction with the treatment, with large numbers of individuals with autism who had completed the program still functioning well in the community following completion of treatment (Schopler, Mesibov, & Baker, 1982).

While initial studies supported the TEACCH method, most failed to include an appropriate control group making it difficult to assess the amount of change brought about by the treatment program versus developmental maturation alone. A more recent study of 22 children with autism by Ozonoff and Cathcart (1998) compared the effects of home-based TEACCH services with a control group who received no supplemental TEACCH services. All children were attending day treatment programs in the community. After four months of services, children in the TEACCH group showed significantly more improvement than children in the control group on tests of fine motor skills, imitation, gross motor skills, and cognitive performance, as well as overall scores on the Psychoeducational Profile-Revised (PEP-R; Schopler, Reichler, Bashford, Lansing, & Marcus, 1990). Furthermore, children in the treatment group averaged 9.6 months of developmental gain during the four month treatment despite the fact that most of the children were also diagnosed with mental retardation.

DIR/Floortime

Developed by Stanley Greenspan, the "Developmental, individual-difference, relationship-based model" (DIR; Greenspan, 1992; Greenspan & Wieder, 1999; Wieder & Greenspan, 2006) is a developmentally sensitive, functionally based approach that attempts to help children "climb the developmental ladder" and reach important developmental milestones. Six major functional milestones, or functional emotional developmental capacities are outlined as being necessary for normal emotional and cognitive development: 1) self-regulation and interest in the world, 2) engaging and relating to others, 3) intentionality and two-way communication, 4) social problem-solving, mood regulation, and formation of a sense of self, 5) creating symbols and using words and ideas, and 6) emotional thinking, logic, and a sense of reality. In addition to the six primary stages, three advanced stages characterize later development throughout adolescence and adulthood: 1) multicausal and triangular thinking, 2) gray-area and emotionally differentiated thinking, and 3) a growing sense of self/reflection on an internal standard (Greenspan & Wieder, 2006). The intervention is designed to facilitate and promote progression through each of these stages by addressing strengths and weaknesses at each stage of development, helping the child acquire and master new skills, and creating learning relationships that are tailored to a child's individual needs.

The DIR model is an intensive program that requires parents to work with their children across multiple settings, often 8 or more times a day for twenty minutes or more at a time. At the core of the DIR model is Floortime, a specific technique where the caregiver literally gets down on the floor to interact with the child, one-on-one, for at least twenty minutes or more in child-directed play or interactions. One of the overlying principles throughout Floortime and DIR is the focus on the child, attending to their needs and creating mutually enjoyable, shared experiences between child and caregiver. Through this, the child is encouraged to reduce their social and emotional isolation, with the rationale being that a child will

feel closer to the caregiver if the caregiver respects and participate in what interests the child. The major steps in Floortime include observing the child's actions, approaching and opening circles of communication by acknowledging the child's emotional tone and gestures, following the child's lead and allowing them to feel like they have an impact on the world, extending and expanding play through supportive comments and careful, empathic questioning, and allowing the child to close the circles of communication (i.e., responding in a manner that completes or compliments the activity at hand) formed during the Floortime activities.

Greenspan and Wieder (1997) examined treatment outcome findings of over 200 children with varying impairment levels treated using the DIR/Floortime approach. After two or more years of intervention, 58% of children demonstrated significant gains in numerous domains of social skills, cognitive tasks, and academic ability. These gains were paired with significant decreases in the amount of self-absorption, avoidance, self-stimulation, and perseveration observed in the children (Greenspan & Wieder, 2006). In addition, these children no longer fell into the Autistic range on the Childhood Autism Rating Scale (CARS). Of the 200 children examined, 25% made moderate gains across most areas of development, and the remaining 17% showed very slow gains from the treatment (Greenspan & Wieder, 2006). While these results are promising, the authors contend that the majority of the families involved in these cases were highly motivated and the children not necessarily representative of most with Autism Spectrum Disorders. A follow-up study was conducted 10-15 years after treatment (Greenspan & Wieder, 2006) on 16 of the children who showed good to outstanding improvements initially. Treatment gains were still apparent after time, with this subset of children still exhibiting little or none of the core deficits and symptoms of Autism Spectrum Disorders at follow-up. While long-term studies have shown promising results, many of the studies examining DIR have lacked appropriate control groups, bringing the validity of the results under some question.

Parent-Child Interaction Therapy

Parent-Child Interaction Therapy is based on Hanf's (1969) two-stage treatment model, social learning theory, and attachment theory. PCIT consists of two phases, child-directed interaction (CDI) and parent-directed interaction (PDI). Like other parent training programs based on Hanf's model, PCIT includes a relationship enhancement component and a behavioral approach to reducing disruptive behavior. However, PCIT differs from many other parent training programs because the treatment incorporates both parents and children in the sessions and involves live coaching. Another feature that distinguishes PCIT from other parent training programs is that treatment progress is data-driven. Specifically, parents must first demonstrate mastery of the CDI skills before progressing to the second phase, PDI. Likewise, mastery of the PDI skills is a pre-requisite to therapy completion.

The two phases of PCIT are conducted in weekly 1-hour sessions. Both phases contain didactic and experiential components. The first session of both phases is didactic, in which the therapist teaches, models, and role plays the skills with the parents alone. The subsequent sessions begin with a brief check-in with the parents, in which a therapist discusses the homework from the previous week and also reviews learned skills. After the check-in, the therapist coaches the parent to help improve their skills using a bug-in-the-ear microphone device from an observation room while the parent and child play together. During the coaching, the therapist helps the parents master the skills by providing support, reinforcement, and corrective feedback.

CDI, the first phase of PCIT, is similar to play therapy because the child leads the play as the parents provide support in an effort to enhance the parent-child relationship. During CDI, parents learn communication skills for creating or strengthening their bond with their child, increasing their positive parenting, and improving their child's social skills. Specifically, the therapist teaches parents to follow the child's lead in play by using the PRIDE skills: Praising the child for a specific behavior (labeled praise),

Reflecting the child's statements, Imitating the child's play, Describing their child's behavior, and using Enthusiasm throughout the play. They also learn to avoid asking questions, criticizing, and giving their child commands because these behaviors prevent the child from leading the play and create an unpleasant environment. After the therapist teaches the parent these skills, the parent practices both in clinic sessions (while being coached) and at home for five minutes daily. With regard to behavior management, parents learn to use selective attention by responding to appropriate behaviors with the PRIDE skills while ignoring negative behaviors. In order to move onto the next phase of treatment, parents must demonstrate mastery of these skills. Specifically, they have to provide 10 descriptions of child behavior, 10 labeled praises, and 10 reflections, while providing 3 or less commands, questions, and criticisms in a 5-minute play situation without the therapist's help.

After the parents have mastered the skills taught in CDI, they progress to PDI, the second phase of PCIT. In this phase, parents continue to use the skills taught in CDI but also learn skills to increase child compliance and pro-social behaviors and decrease inappropriate behaviors. The therapist teaches the parents how to give effective instructions and consistently provide different consequences for child compliance and noncompliance. Additionally, parents learn strategies for enforcing house rules and controlling their child's behavior in public settings.

The first skill that the parents learn in PDI is how to give effective, developmentally-appropriate commands or instructions. Parents learn to give clear, direct commands that let the child know exactly what is expected. In order to increase the child's understanding of the direction, instructions typically involve a visual cue such as pointing or imitating the desired action in addition to the verbal direction. Also, parents are taught to give commands they are certain the child comprehends and is able to perform. For example, at the outset of therapy, children's developmental capabilities are assessed in terms of ability to differentiate colors, identify toys, and perform the appropriate motor actions (e.g., please put the crayon in my hand). Next, parents learn specific steps to follow based on the child's response to the commands. They learn to use these steps every time they give a command so that discipline becomes consistent and predictable. For instance, if the child complies with the command, they learn to give an enthusiastic labeled praise. However, if the child does not comply, they learn to wait five seconds and then issue a warning. If the child still does not comply with the initial command, parents place the child in a timeout chair. In instances when the child does not stay on the timeout chair, a back-up consequence is used to teach the child to stay in timeout (e.g., back-up timeout room). Parents must also master PDI skills, including giving effective commands and following the timeout procedure. In order to master PDI, parents' commands must be effective (i.e., direct, clear), and followed through correctly (i.e., labeled praise for compliance, warning then timeout for noncompliance) at least 75% of the time, and the child must exhibit a compliance rate of at least 75%.

PDI is similar to CDI in that the parents practice these skills in session while a therapist coaches them to ensure that they are following the procedure correctly. Additionally, like CDI, parents practice PDI outside of treatment sessions by giving their child commands during daily compliance exercises that are conducted at home. As skills in PDI progress and parents begin using these skills throughout the day, they are taught to use PDI only when it is important that the child complies and when they are able to follow through with a timeout, if necessary.

Another feature of PDI is that the therapist individualizes the program based on the parent's goals for the child. Specifically, PDI can be used to increase desired behaviors. For instance, if the parents want to increase child eye contact, the therapist could have the parents issue a command directing the child to look at the parent. Then, if the child complies, the parents would follow through with a labeled praise. For instance, they might say, "Thank you so much for looking at me. Now I know you are ready to listen."

PCIT has empirical support for treating young children with disruptive behavior. Specifically, researchers have compared PCIT to both wait-list and classroom controls (McNeil, Capage, Bahl, & Blanc, 1999; Schuhmann, Foote, Eyberg, Boggs, & Algina, 1998; McNeil, Eyberg, Eisenstadt, Newcomb, & Funderburk, 1991) and have found significant reductions in disruptive behavior in children who received PCIT. Evidence shows that the effects of PCIT generalize to untreated siblings (Brestan, Eyberg, Boggs, & Algina., 1997) and to other settings, such as school (McNeil et al., 1991). Additionally, research demonstrates that treatment gains are maintained over time (Eisenstadt, Eyberg, McNeil, Newcomb, & Funderburk, 1993; Eyberg et al., 2001). See Herschell, Calzada, Eyberg, & McNeil (2002a, 2002b) for a more detailed description of clinical procedures and treatment outcome research.

Theoretical Similarities

PCIT is unique in that it contains a blend of therapeutic techniques seen in a number of therapies devised for children with ASD. For example, PCIT, like Floortime and TEACCH, recognizes the importance of consistent, one-on-one parent-child interaction and stresses that the quality of a parent-child bond is important to demonstrate acceptance and support for the child's behaviors and verbalizations. In addition, PCIT is similar to pivotal response training in that it emphasizes the importance of using familiar play objects in an environment that is comfortable for the child in an effort to promote generalization. Indeed, families in PCIT are instructed to use their parenting skills at home on a consistent basis with familiar activities and stimuli that encourage parent-child interaction. A common theme inherent within many interventions for children with ASD is to take a comprehensive approach by allowing parents to play an integral part in therapy. By increasing parental involvement, skills learned within a clinic are then generalized to other settings such as the home and public environments. Likewise, PCIT views the parent as the agent of change in a child's life and therefore trains parents to a mastery level in each component of treatment. In having stringent mastery criteria, requiring consistent practice and providing ample live feedback to parents, PCIT places a great deal of emphasis on treatment fidelity, generalization across environments and maintenance over time. Lastly, PCIT not only stresses the importance of relationship-building through enriching and rewarding parent-child interactions, but also contains an intensive compliance training component (i.e., command-consequence sequence) similar to the discrete trials seen in ABA protocols.

Overall, due to its overlap with current specialized treatments, PCIT presents a number of components that may prove to be helpful for children with ASD. More specifically, PCIT may serve to prepare a child for more intensive therapy by serving as a necessary primer that enhances the parent-child relationship and increases child compliance, thereby setting the stage for greater success across a variety of treatment modalities (e.g. social skills training, academic tutoring).

The Utility of PCIT

Overall, PCIT strives to increase school-readiness skills by using techniques designed to enhance the parent-child relationship, improve language and social skill capabilities, increase attention span, expand the play repertoire with age-appropriate tasks (as opposed to self-stimulatory behaviors), increase the compliance rate, and decrease oppositional and aggressive behaviors. Although our clinical experience has shown initial success in accomplishing these goals, it is important to note that PCIT may not be an effective treatment for all children with ASD in that it relies on social reinforcement as a way to modify behavior (see the "Social Reinforcement" section of this article for a complete overview). Therefore, assessing for a child's capability to respond to social attention is an important aspect of the intervention. One advantage of PCIT is that each session is essentially a continuous functional assessment as therapists are coaching parents through systematic manipulations of antecedents and consequences and monitoring the changes in the child's behavior (Greco, Sorrell, & McNeil, 2001). For example, it is common for a therapist to coach a parent to turn away from the child and ignore a disruptive behavior

(e.g., screaming) and then to assess whether social attention was reinforcing that behavior by determining whether the behavior increased or decreased over time and with repeated trials. Our clinical experience has demonstrated that the behaviors of children with high language ability (e.g., Asperger's) usually display a range of behaviors that are reinforced by social attention. On the other hand, it is recognized that some children with ASD are less responsive to social contingencies. Given that PCIT is based in large part on social reinforcers (e.g., labeled praise, reflection of speech, imitation) the approach may only be effective and appropriate for the portion of children with ASD who can easily be taught to consistently respond to social contingencies. Therefore, PCIT may be limited for a specific portion of the ASD population.

Child-Directed Interaction

Similar to the theoretical implications of Floortime, child-directed play improves the parent-child relationship by allowing the child to lead the play situation, in turn, conveying a message that the child's verbal and behavioral expressions are not only accepted but also encouraged and rewarded through social reinforcement. Children choose the play activities, while parents express approval and interest by following the child's lead through the use of skills like imitation and reflection. As the parent-child relationship improves and the bond is strengthened, it creates a situation in which the child views playtime as a rewarding experience and seeks to increase time spent with the parent and constructive play behaviors develop. Such naturalistic teaching procedures are common in ABA based natural language training programs, which have shown extensive research supporting their use for maintance and generalization (Peterson, 2007).

In addition to increasing the value of one-on-one time, CDI is also effective in building language and conversational skills. Reflective statements are useful in that they provide immediate attention for any verbal expression increasing the likelihood the child will talk more often during special playtime. For example, a child with ASD in our clinic initially presented with limited verbalizations providing few words during the first several sessions. However, as his mother began to reflect the child's utterances and words on a regular basis, the number of vocalizations increased. After a number of therapy appointments, the child was consistently verbalizing throughout the entire session.

In addition to increasing the number of expressed verbalizations and words, CDI also helps motivate a child to use language in order to obtain desired snacks or objects. For example, in our clinic, one child with language capability often pointed, screamed, or physically guided his parent when he desired a particular object. We taught the parent to ignore the child's inappropriate attempts to acquire particular objects, to prompt his use of words, and then to praise the child for using words. If parents reward inappropriate, yet efficient methods of getting demands met (e.g., yelling, pulling parent toward object), the children will not be motivated to use language, as this requires more effort and concentration. The less the child uses appropriate communication, the more delayed the language functioning is likely to become.

Next, the use of CDI skills increases a child's attention span and ability to remain seated and focused on the task at hand. To accomplish this, parents employ behavioral descriptions (a running commentary of the child's behaviors) which allow a child to focus on an activity for longer periods of time, thereby diminishing the likelihood of off-task behaviors (e.g., repetitive, stereotyped behaviors). Theoretically, the social reinforcement resulting from the parent's focus on the child's play increases time spent on that particular activity. In a particular case of ASD seen in our clinic, CDI skills greatly increased the child's time spent engaged in appropriate play. This, in turn, expanded his play repertoire as he obtained more exposure to objects such as crayons and toys, while spending less time engaging in repetitive, self-stimulatory behaviors (e.g., twirling, opening and closing doors). Overall, CDI establishes a situation for making parent-child interactions more reinforcing to both the parent and child by teaching

the parent to follow the child's lead and demonstrate interest and acceptance of the child's activities. An improved parent-child relationship sets the stage for success during the compliance training phase of treatment (i.e., PDI).

Working with stereotyped, repetitive behavior during CDI

When conducting CDI with children with ASD in our clinic, we have had to address an important theoretical issue with respect to repetitive behaviors. CDI involves two parallel objectives: (a) to improve the parent-child relationship by following the child's lead, and (b) to modify behavior through selective attention (i.e., ignoring inappropriate behavior, redirecting the child's inappropriate activities, and providing attention to incompatible prosocial behaviors). If repetitive, self-stimulatory activities (e.g., frequently reciting the pledge of allegiance, lining up toys) are categorized as "inappropriate," these activities should be ignored and redirected during CDI. However, during functional assessments in our clinic, we have found that many of these behaviors serve a self-stimulatory function and are not maintained by parental attention. Therefore, when we coached the parent to ignore and redirect, the behaviors were extremely resistant to redirection. Additionally, in some cases, the children had few if any behaviors that were "appropriate," such that ignoring repetitive behavior equated ignoring most of the child's behavior repertoire. Thus, when we defined repetitive behaviors as "inappropriate," a great deal of CDI was spent ignoring rather than joining with the child. Attempts to modify the repetitive behaviors clearly interfered with the equally important goal of improving the parent-child relationship, therefore we decided to define self-stimulatory behaviors as "appropriate" during CDI as long as they were not dangerous or destructive. For example, one parent in our clinic was coached to imitate, describe, and praise her child's repetitive pen-spinning behavior. In addition, she was coached to reflect her child's echolalic comments in order to keep him in the lead. Although this seemed somewhat contradictory to the parent, she was reassured that upon mastery of CDI skills she would then lead the play and be able to redirect her son's ritualistic behavior and encourage more age-appropriate tasks and behaviors. By teaching parents skills to keep their child in the lead, it allows children with ASD to engage in familiar and soothing behaviors and to experience parental acceptance in the form of parental imitation, praise, and description of the child's preferred activities.

Parent-Directed Interaction

PDI presents a number of benefits for children with ASD in that it targets noncompliance and allows parents to redirect idiosyncratic play to more developmentally appropriate activities. In this phase of treatment, parents are instructed to give short, simple commands and then subsequently follow-through with appropriate consequences. For compliance, a parent gives verbal praise and then allows the child to lead the play for a brief time period. For non-compliance a structured timeout sequence takes place that ends with compliance to the original command (i.e., no escape). The command-reward or command-timeout sequence is comparable to the applied behavior analysis approach as it parallels the one-step direction employed in discrete trial training such that a basic command is given ("look at me," "please hand me the block") followed by a consequence. In contrast to ABA, PCIT does not typically employ tangible or edible reinforcers but instead uses social rewards in the form of labeled praise and CDI. Also, in contrast to the hand-over-hand prompting used in many ABA programs, PCIT employs a timeout sequence. The timeout is conducted such that the initial command must be met before therapy can progress. In this way, a child cannot learn to escape from having to comply with the initial command. In PDI, compliance is over-trained to the point where it becomes a well-rehearsed habit in the child with High Functioning Autism. Compliance training begins with the use of simple "play" commands (e.g., "please put the man in the house") and progresses to real-life instructions (e.g., "please sit at the table"). Children over-learn compliance by practicing to comply at very high rates in both the clinic and in the

home. During "listening exercises," children are given a command almost every minute for the 40 minute weekly clinic coaching and for the 10 minute daily home practices.

In our clinical experience, PDI has proven to be helpful in not only reducing a number of oppositional and aggressive behaviors commonly associated with High Functioning Autism, but also has been useful in targeting self-stimulatory behaviors. By administering a simple command while a child is engaging in a self-stimulatory behavior, a parent can redirect that behavior and expand the child's behavioral repertoire. For example, a child with ASD in our clinic would repeatedly write a series of phone numbers and would spend most of the CDI coaching sessions (and much of the day at preschool) writing the numbers over and over. In CDI, his mother would give him positive attention by using the PRIDE skills: describing his behavior ("Now you are writing a 6"), imitating his writing, enthusiastically praising ("You write your numbers so well!"), and reflecting all verbalizations. However, during PDI the child's mother was coached to direct her son away from his self-stimulatory behavior to another task (e.g., "Please draw me a tree"). By learning the compliance sequence and not allowing her son to escape from original commands, the parent was not only able to reduce oppositional and self-stimulatory behaviors, but was also able to teach the child different tasks and activities that would never have been possible before (e.g., drawing age-appropriate pictures, playing cards, participating in sports). By redirecting self-stimulatory behavior and managing behavioral difficulties, the parent taught her child skills that increased his capacity to learn and be successful in structured classroom environments. If PDI was not used to disrupt the self-stimulatory behavior, the child may have never expanded his behavioral repertoire and may have fallen even further behind his peers developmentally.

Overall, the blend of PDI and CDI skills is advantageous to the child in that it establishes a rhythm or expectation that the child and parent will alternate leading and following during their daily practice sessions . By establishing that the child does not lead the entire play session, an element of flexibility is established for the child. In this way, the child learns that there are times when listening and complying are necessary. Also, the combination of PDI and CDI allows for children with ASD to take a break from demands and again lead the play as they wish. These breaks seem to be important for children with ASD as their anxiety and frustration decrease when they have opportunities to engage in their preferred activities while receiving attention and acceptance from their parents. Alternating between the parent's lead and the child's lead also makes the parent-child interactions more reinforcing and compliance less aversive. Ultimately, the rhythm established during PCIT sessions (i.e., one minute of CDI-20 seconds of PDI-one minute of CDI, etc.) may generalize to additional settings, establishing an expectation that a balance is to be struck between behaviors that the child finds comfortable and demands given to the child. As compliance becomes more consistent, greater demands can be placed on the child in turn expanding the behavioral repertoire and improving school-readiness.

Timeout Component

For over 40 years, researchers have debated the appropriateness of the use of aversive procedures in children with developmental disabilities creating a division within the ASD research community. This debate has generated a number of arguments including the definition of aversive:a term that could potentially have a number of meanings ranging from physical pain to temporary mild irritation. In an effort to grant a more precise definition of the term, Turnbull (1986), while delivering his presidential address at the American Association on Mental Deficiency (AAMD), stated that "not every intervention that is unwelcomed by the client or that may cause unpleasant consequences should be regarded as presumptively questionable. To take that approach would be to exclude, for example, timeout, seclusion, medications, or modest repetitions of skill building tasks" (p. 266). Currently, researchers contend there remains ambiguity about a valid definition of this term but recognize that some use of punishment may be necessary for childhood learning and development (Newsom & Kroeger, 2005). Going further, some researchers propose that a solely-positive approach may not be as effective as one that employs a

combination of positive methods and punishment, recognizing that punishment is a necessary first step in establishing an environment where positive consequences can become reinforcing (Sidman, 1989).

Employing a timeout procedure for difficult behaviors is a technique that is widely accepted and used in behavioral parent training programs. In order to insure a safe and accurate implementation of the timeout procedure, PCIT requires clinicians to dedicate a session solely to teaching and practicing the timeout sequence with parents. In addition, parents receive in-vivo coaching during the first timeout sequence in the clinic and are coached to a mastery level (see description of PCIT). Overall, PCIT has been widely accepted within the clinical and research community and has been used with a variety of clinical problems including parents referred for child abuse (Chaffin et al., 2004).

Based on Baumrind's (1971) research, it has long been recognized that an authoritative parenting style (one that is characterized not only by warmth and praise, but also consistent limit setting) enhances the likelihood of more positive child outcomes. Further, as aversive contingencies (e.g., restricted privilege) are commonly used to modify behavior in the natural environment (e.g. workplace, classroom), a solely positive approach may not be comprehensive enough for helping children with high-functioning autism to cope with societal demands (Newsom and Kroeger, 2005).

To summarize, PCIT incorporates both positive parenting skills and limit setting and it has been successful in reducing difficult behaviors with typically-developing children (see the "description of PCIT" section of this paper for a list of treatment outcome studies). PCIT has been shown to have clinical efficacy with a high degree of caregiver acceptability. Yet, in families of children with High-Functioning ASD, there exists need for further empirical research to examine if this treatment is a beneficial gateway intervention. It is possible that PCIT opens the gateway for children to be better able to benefit from more comprehensive and multi-component treatments. In other words, PCIT is expected to improve compliance and social responsivity, two fundamental skills that provide a gateway for treatment that addresses a variety of adaptive behaviors (e.g., social skills training). If children with ASD do not learn at an early age to attend and comply, they remain distracted by stereotypical interests and behaviors that prevent them from progressing with treatments addressing higher-order concerns such as identifying the feelings of others and social reciprocity.

Limitations/Clinical Considerations

Client Characteristics

As PCIT is a specialized treatment that targets specific behaviors, it is important to clarify that it is not an appropriate intervention for all children on the Autism spectrum. Instead, our experience has demonstrated PCIT to be an effective treatment for children with a particular clinical presentation. For instance, PCIT has shown to have preliminary success with High-Functioning Autism and/or Asperger's Disorder. As the delivery of PCIT requires parent-child communication, success of the intervention is dependent on a child's language capability. For example, a child must be able to understand simple instructions and sentences for PCIT to be effective. Children with receptive language capabilities below a 24-month-old level may not be appropriate candidates for PCIT.

Therapist Characteristics

As children with ASD present with a variety of complex behaviors coupled with the fact that PCIT has not been conducted with a large amount of clients from this particular population, it is recommended that only experienced PCIT clinicians attempt to treat children with ASD until more data can be gathered. Although definitive conclusions have not yet been reached regarding the minimum

training requirements for a PCIT therapist, most members of the PCIT Advisory Board advocate that PCIT trainees obtain at least 40 hours of initial training, as well as an advanced training component and/or supervision after completion of approximately 4 to 8 cases (Eyberg & Brestan, 2006). Due to the complexities of the disorder, it is suggested that clinicians with limited PCIT experience refer ASD cases to a more experienced PCIT therapist or to a local agency specializing in treatment of ASD. If future research supports the use of PCIT with ASD, then specialized training programs should be developed to assist advanced PCIT therapists in adapting the program to meet the needs of this population.

Social Reinforcement

One aspect that needs to be thoroughly assessed in considering the appropriateness of PCIT for children with autism is whether social attention is reinforcing. As PCIT utilizes social approval (labeled praise) as a reinforcer, it is important to consider the effect this has on a child's behavior prior to starting therapy. In other words, a functional assessment should be conducted to determine whether behaviors increase when followed by social attention and approval. Some children with autism may find social praise slightly aversive and may seek to avoid or escape parental attention.

As a byproduct of social reinforcement, clinicians must also assess the effectiveness of selective attention and timeout. In our experience, systematically ignoring (the parent turning his back to the child after she engages in undesired behavior) during CDI sometimes does not result in behavior change in children with ASD. In some cases, children did not seek attention when parents turned their backs, but instead used the "break" in play to engage in self-stimulatory behavior. For example, one child with a limited behavioral repertoire would engage in self-stimulatory behavior for a considerable portion of a CDI session. When the child's behavior was ignored, he did not seek to regain his mother's attention but continued with self-stimulatory behavior. In addition, as some children with autism may find timeout to be a place of retreat and one not requiring social demands, it may be counter-intuitive to employ this particular technique. For instance, a child does not comply with a command to hand his mother a red block and is given a warning that he must comply or go to timeout. Upon non-compliance, the child receives a time out where he can "escape" the command for a certain time period and engage in other behaviors such as rocking or flapping. Although the child eventually needs to comply with the command, the timeout chair may serve as a relief from playtime with his mother. In this way, child compliance is negatively reinforced as it results in escape from social demands.

Although timeout may not be effective with some children with ASD, our clinical experience has shown that it typically serves as a more powerful aversive than ignoring. Therefore, it may be necessary for a clinician to begin therapy with the PDI portion first and then progress to CDI (see Eisenstadt et al., 1993). In our experience, the most robust behavioral changes with children on the autism spectrum have taken place during PDI (i.e., compliance training). As PDI establishes a play situation where a child can only escape the social interaction through a timeout, more opportunity to experience social attention is granted in this phase of therapy. Also, in cases when oppositional behavior is destructive or extreme, compliance training may be indicated as an initial part of treatment in order that the child may participate in therapy. For example, one child with ASD would refuse to engage in any behavior and would place his hands over his ears and yell at his mother for a majority of the session. As his refusal was so extreme, PDI needed to initially be implemented in order to increase his receptiveness to parental attention and constructive play activities.

Communication and Social Skills Component

One adjunctive component to PCIT that seems important for increasing and/or enhancing communicative repertoires in children with ASD is social skills training. In a PCIT approach, parents are

coached in different ways to prompt their child to answer questions, ask questions, use eye contact, and initiate/maintain conversations. By administering social skills training at the end of therapy, it allows the parent to teach these critical skills after a child has become more receptive to social interactions and also more likely to comply when prompted to speak. In addition, teaching parents to provide the social skills training is useful in that the parent then serves as co-therapist and can help/prompt the child to use the skills in a more generalized fashion. For example, after successfully mastering CDI and PDI, a parent can be coached in a variety of methods for motivating their child to improve their social competency and can help the child to be exposed to situations in which he/she can use the skills (e.g., restaurant, bowling alley).

In the context of communication and social skills training, it is important to consider the possible distinction between verbal delays and noncompliant behavior. In other words, some children with ASD may not have the capability to use more advanced language and failing to initiate (e.g., saying hello to a teacher or friend) or maintain social communication may not be a refusal behavior. As verbal behavior cannot be physically guided and refusing to engage in a social activity is typically not an act of defiance in children on the high end of the autism spectrum, administering a timeout is seldom warranted when teaching or coaching parents social and communication skills. As a prerequisite amount of language capabilities is needed to ask or answer questions, the social skills component of PCIT is best indicated for children who demonstrate both receptive and expressive language abilities equivalent to or above 24 months.

Answering Questions

In terms of answering questions, it is important for parents to not allow their child an opportunity to escape from responding. Answering questions could be aversive to a child with ASD for several reasons. First, it may require the child to suspend a self-stimulatory behavior and attend to the social interaction. Second, the pragmatic language skills of children with autism spectrum disorders are different than typically-developing children, thus requiring greater effort to understand a question and respond. Lastly, answering a question often results in additional social demands that may be uncomfortable for the child. Thus, it is typical for a child with ASD to ignore the parent in order to escape the demands of answering the question. If a parent fails to repeat the question, then the child's ignoring behavior is negatively reinforced such that the child becomes increasingly unresponsive to conversational demands.

As answering questions is a difficult endeavor for children with ASD, parents are taught to ask questions strategically. For example, in order to reduce the frequency of questions asked, parents are coached to recognize and eliminate them during the CDI portion of therapy. In addition, parents are coached to decrease questions that they do not necessarily need to have answered (i.e., "filler" questions). By reducing the amount of questions asked, the value of questions and the motivation to answer are increased. When asking questions, parents are instructed to ask only questions the child is developmentally capable of answering. For example, the question, "What did you do at school this morning?" may be inappropriate for a child who has difficulty understanding the concept of time (e.g., past or future) and trouble formulating responses to open-ended questions. Also, questions concerning perceptions or attitudes should be avoided in the early stages of social skills training as it may be difficult for the child to convey ideas about these abstract concepts. Instead, parents are coached to begin with questions that are more concrete and easily comprehended (e.g., "What color is this block?") and to reinforce answers with praise as well as breaks in which the child is able to lead the play and be temporarily free from another question.

In addition to asking developmentally-appropriate questions, parents are also taught a broken record method in which the same question is asked repeatedly (with a 5 second pause in between questions) until an answer is received. If the question is not answered after the third delivery, the child is

prevented from engaging in the preferred activity until the child provides an answer. For example, if the child is drawing, the parent would remove the crayon from the child's hand or hold the child's hand until the child answers. Similarly, if a child is running his/her hand back and forth across a table, the parent would pull the chair away from the table and continue to ask the question until the child verbally answers. By repeating the question, it becomes aversive to the child to avoid answering and the lack of response is not negatively reinforced by the parent disregarding the question. Our clinical experience has shown us that the broken record has been effective in obtaining verbal responses. For example, one child's rate of answering questions increased from 10% prior to teaching parents the broken record technique to 90% following implementation of the technique. It is worth noting that occasionally a child may not respond to the broken record. In these cases, a timeout is not an appropriate technique since a verbal response cannot be physically guided. Since a child could possibly escape from answering questions (e.g., sit on the timeout chair for a lengthy period of time until parent allows child off the chair despite the lack of compliance), there exists the possibility that the effectiveness of the timeout procedure would decrease. Instead, it is usually recommended that the parent return to the question, or an easier question, after a brief break.

Suspension of Privilege

Answering Questions

Another technique parents are taught and coached to use are "when-then" statements. A "when-then" statement suspends preferred activity until the requested behavior is performed. For example, one child in our clinic oftentimes sought to play with toys in the laboratory's attached room. Following a question, he would sometimes attempt to escape the play situation to engage in his preferred activity, playing in the attached room. In this situation, the parent was coached to tell the child, "When you answer my question, then you may play in the other room." If the child answered the question, he was verbally praised. If the child would not answer the question, he was unable to engage in his desired activity until he complied with the original request. As stated above, questions should be developmentally-appropriate in that the child has the capability to provide the answer. If uncertain, the therapist should coach the parents to prompt the child with the required words (i.e., "Say, may I please go into the other room?").

Asking Questions

Similar to using suspension of privilege to answer questions, parents are also coached to use the technique to have their child ask questions. Like answering questions, parents are coached to teach their children the particular words necessary to ask the question, if necessary. For instance, when a child reaches to get an object without permission, a parent is coached to say, "When you say can I please have the block, then you may play with it." By having the child use their words for each instance when he/she prefers an object or activity, asking questions becomes a greater part of their verbal repertoire and begins to generalize to a variety of environments (e.g., school, home).

Initiation of Social Interaction

Another social skill we found to increase when using suspension of privilege combined with social reinforcement is initiation of social interaction. Children with high functioning autism oftentimes have difficulty with a number of behaviors required to initiate social interaction such as making eye contact and appropriately beginning or ending conversations (i.e., saying "hello" or "goodbye"). By coaching parents to have their children make eye contact and say "hello" and "goodbye" at every opportunity for social interaction, social skills are over-trained and are likely to generalize to other contexts void of prompts or requests. Typically, parents are trained and coached to teach these behaviors

gradually so that only saying "hello" is required for each social initiation with the social requirements expanded as the child begins to show mastery of the skill. For instance, after a child is saying "hello" on a consistent basis, a parent is coached to have the child make eye contact while saying "hello." Eventually, the child learns more advanced communication skills that help begin a conversation (e.g., "Do you want to see my picture?").

Pronoun Reversal

Pronoun reversal is commonly seen in preschoolers with high functioning autism. By withholding preferred activities until desired behavior was performed and verbally prompting the child with the correct word (e.g., "I want to get a drink" as opposed to "You want to get a drink"), pronoun reversals were shown to decrease over time with one child in our clinic. Similar to other social and communication skills described, prompting and "when-then" statements are decreased over time as children produce more correctly-stated pronouns more independently. In addition to "when-then" statements, non-verbal prompting has demonstrated success in reducing pronoun reversal. For example, parents can be coached to extend their index finger as a cue for the use of an "I" statement and then to praise their child for saying "I" in response to the visual cue.

Overall, both the broken record technique and "when-then" statements have led to clinical success when teaching social and communication skills as an adjunct component following the completion of PCIT. In many instances, both techniques can be used in conjunction with one another. For example, a parent may administer a "when-then" statement in a broken record fashion by waiting for 5 seconds between statements and then repeating the "when-then" statement for three consecutive trials. In using these techniques, parents are granted a method in which they are able to decrease their child's social and communication avoidance by providing a more immediate negative consequence in the form of suspending current preference until behavior is performed. The child, then, learns to respond quickly and consistently to social demands in order to regain access to preferred activities.

Future Directions

Although modifications to PCIT may be necessary to address the complex behaviors commonly seen with children displaying High Functioning Autism, it is important to first empirically test the validity of the standard PCIT model prior to making changes (McCabe, Yeh, Garland, Lau,, & Chavez, 2005). There exists a paucity of clinical data (Stevens et al., 2005) and a void of empirical studies examining PCIT with this population, thus further research employing randomized control trials to compare the traditional PCIT models and modified models are necessary.

Conclusion

Historically, cases of ASD have been excluded from participation in PCIT as it was assumed that the treatment would not be effective with this population because of PCIT's reliance on social contingencies. Yet, many behaviors of children with ASD who are in the high functioning range (e.g., those with the diagnosis of Asperger's) are reinforced by social attention. Thus, over the past several years, there has been an increase in the number of children with ASD referred to PCIT clinics. As externalizing behaviors are very common in a clinical presentation of ASD, many parents desire to initially treat their child's noncompliance and aggression before treating other behaviors. Thus, the question has been raised as to whether PCIT should be more readily available as a gateway intervention for preschool children with High Functioning Autism who display co-occurring problems with noncompliance/defiance and aggression. As we have had some success employing PCIT within this population, it has caused us to reconsider whether all children with ASD should automatically be excluded from participating in PCIT. Yet, the appropriateness of using PCIT with this population is only

speculative at this time as information is based on uncontrolled clinical case studies. Research is greatly needed in this area to assist community providers in determining the appropriateness of PCIT as a component of an intensive, multifaceted treatment protocol with children on the autism spectrum.

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