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SUPPORTING POSITIVE PARENT-TODDLER RELATIONSHIPS AND REDUCING  
TODDLER TANTRUMS: EVALUATION OF PCAT-E

by

Tara M. Sjuts

A DISSERTATION

Presented to the Faculty of  
The Graduate College at the University of Nebraska  
In Partial Fulfillment of the Requirements  
For the Degree of Doctor of Philosophy

Major: Interdepartmental Area of Psychological Studies in Education  
(School Psychology)

Under the Supervision of Professor Susan M. Sheridan

Lincoln, Nebraska

May, 2014

SUPPORTING POSITIVE PARENT-TODDLER RELATIONSHIPS AND REDUCING  
TODDLER TANTRUMS: EVALUATION OF PCAT-E

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University of Nebraska, 2014

Adviser: Susan M. Sheridan

At the most fundamental level, a positive parent-child relationship is the foundation of child success. However, the toddler period may present difficulties for the parent-child relationship. As toddlers explore their autonomy, they challenge parents with noncompliance and temper tantrums, which may be difficult for the parent-child relationship. This study examined the impact of an extension of Parent-Child Attunement Therapy (Parent Child Attunement Therapy – Enhanced; PCAT-E) on parenting behaviors, toddler tantrum behaviors, and the parent-toddler relationship. This extension featured eight individual didactic and coaching sessions with parent-child dyads focused on teaching positive parenting skills, effective commands, and emotion language modeling.

Participants were four parent-toddler dyads. Dyads participated in therapy sessions wherein parents were coached by the therapist in the use of nondirective play therapy and operant conditioning strategies with their toddler. Parenting behaviors were assessed through coded video of play sessions using the Dyadic Parent-Child Interaction System-III (DPICS-III; Eyberg, Nelson, Duke, & Boggs, 2005). Toddler tantrums behaviors were tracked via daily parent report, and the parent-toddler relationship was assessed using the Parenting Relationship Questionnaire (PRQ; Kamphaus & Reynolds, 2006). A concurrent multiple probe across participants design was used to evaluate the

effect of the intervention on parenting behaviors. A within participants design was used to evaluate the effect on toddler tantrum behaviors, and changes in the parent-toddler relationship were evaluated using clinical significance. Data were analyzed through visual inspection, conservative dual criterion, calculation of percentage of all nonoverlapping data, and determination of clinical significance.

Results of the study indicated improvements in four parenting behaviors (i.e., labeled praise, behavioral description, questions, and commands), mixed results for toddler tantrums but improvements in broad toddler behaviors, and improvements in the parent-toddler relationship. Treatment integrity data suggested parent treatment integrity was generally high. Social validity data suggested high levels of perceived effectiveness and acceptability of the PCAT-E intervention. Overall, the results of the study extended the literature on Parent-Child Attunement Therapy, a promising intervention to address parent-toddler relationships and externalizing toddler behaviors.

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## Chapter 1: Introduction

Fundamentally and unequivocally, a positive parent-child relationship is the foundation for child success. However, in toddlerhood, defined as ages 12-36 months (American Academy of Pediatrics, 2013), the normal development of autonomy may also serve as a precursor to the development of negative parent-child interactions (Campbell, 1997). Young children challenge parents through behaviors that are difficult to manage, such as noncompliance, temper tantrums, whining, and hyperactivity (Bulter & Eyberg, 2006) and by asserting their independence in unsafe and inappropriate situations (Hembree-Kigin & McNeil, 1995). These negative interactions may arise as toddlers refuse to comply with parental requests (Holtz, Carrasco, Mattek, & Fox, 2009), and with time, frequent negative interactions are detrimental to the parent-child relationship. Thus, toddlerhood marks a time for increased attention to the parent-child relationship.

Toddler tantrums are particularly challenging to parents and the parent-child relationship. Tantrums are among the most common behavior problems reported by parents (McCurdy, Kunz, & Sheridan, 2006), but highly frequent, consistent, and persistent tantrums may be indicative of problems in the parent-child relationship or parenting behaviors (Einon & Potegal, 1994). Left unaddressed, the externalizing behaviors that emerge in early childhood, such as tantrums, can lead to problems in later childhood and beyond (Whittaker et al., 2011). Parents have a remarkable influence on their children's behavioral development through natural parent-child interactions, and if characterized by warmth, responsiveness, limit setting, and support (Herschell, Calzada, Eyberg, & McNeil, 2002a), these interactions can help to circumvent or address negative child behaviors.

A promising intervention developed to repair challenging parent-child relationships and address disruptive toddler behaviors is Parent-Child Attunement Therapy (PCAT; Dombrowski, Timmer, Blacker, & Urquiza, 2005; Dombrowski, Timmer, & Zebell, 2008). PCAT is a behaviorally-based play therapy model derived from the empirically documented Parent-Child Interaction Therapy (PCIT; McNeil & Hembree-Kigin, 2011) and modified for the toddler age group. The intervention aims to enhance parent-toddler relationships, teach parents appropriate behavior management techniques, and address toddler externalizing behaviors (Dombrowski et al., 2005).

PCAT draws upon developmental and social learning theories, behavioral principles, and the relationship focus of play therapy (Dombrowski et al., 2008; McNeil & Hembree-Kigin, 2011). Baumrind's (1966) developmental research regarding young children's needs for both parental nurturance and limit-setting strongly influences the structure of PCIT and PCAT, and Ainsworth's (1969) developmental work provides the foundation for the emphasis of parent sensitivity and responsiveness in the intervention model. PCIT and PCAT aim to teach parents nondirective (e.g., Axline, 1947) play therapy skills to improve the parent-child relationship (Dombrowski et al., 2008), and are guided specifically by Patterson's (1982) research on coercive interaction theory.

Thus, PCIT and PCAT aim to strengthen the parent-child bond, establish nurturance and limit setting in an authoritative parenting style, and interrupt and redirect coercive interaction cycles, and they do so by drawing from play therapy, operant theory, and social learning principles (Dombrowski et al., 2008; McNeil & Hembree-Kigin, 2011). However, previous PCAT research is limited in several ways. First, although PCAT serves to address the gap of PCIT intervention research for toddlers, there is only

one case study in the published literature on the efficacy of PCAT. This remains a significant gap in the literature due to the substantial need for relationship and behavior support in this population. The present study addressed the gap in the literature by investigating the immediate impact of PCAT strategies on parenting behaviors, toddler tantrum behaviors, and the parent-toddler relationships, and by augmenting the research conducted by Dombrowski et al. (2005). This study extended the research conducted by Dombrowski and colleagues by exploring an enhancement of PCAT as a means by which to address the parent-toddler relationship and reduce the occurrence of high frequency toddler tantrums.

The present study explored an enhancement of PCAT, Parent-Child Attunement Therapy-Enhanced (PCAT-E), which incorporates strategies demonstrated in the literature to be features of effective parenting: nurturance (Ainsworth, 1969; Baumrind, 1966) via enthusiastic praise and warm interactions in Child Directed Interaction, and guidance (Jenson et al., 2010; Mallot & Trojan Suarez, 2004; McCurdy et al., 2006) via the use of effective commands and differential reinforcement of alternative behaviors. Whereas PCAT focuses on using the child directed intervention and differential attention skills used in PCIT, PCAT-E supplemented these strategies with the use of effective commands. Additionally, extinction, or the removal of reinforcement for previously reinforced behavior (Martin & Pear, 2003), was used as the recommended response to active, ongoing tantrums (McCurdy et al.).

Furthermore, the existing model of PCAT was strengthened in PCAT-E to support emotion language development. In existing PCAT research, modeling, reflecting, and praising child verbalizations is used to promote positive parent-child interactions and

reinforce positive child behaviors. In the current study, there was an additional and distinct focus on modeling, reflecting, and praising emotion-specific language to encourage and reinforce the child's use of this language

Thus, the current study examined the impact of PCAT-E on parenting behaviors, child tantrum behaviors, and the parent-child relationship. It extended the research by incorporating effective commands and modeling and praise of verbal communication to express wants, needs, and desires in an effort to reduce toddler tantrums, while building upon the PCAT model's focus on strengthening and the parent-child relationship.

Specific research questions for this research study are: (a) What are the immediate effects of PCAT-E on parenting behaviors?, (b) What are the immediate effects of PCAT-E on toddler tantrum behaviors?, and (c) What are the immediate effects of PCAT-E on the parent-toddler relationship?

The current study examined four parent-toddler dyads aged 24-36 months. Toddlers were three males and one female, and mothers were three biological mothers and one foster mother. Dyads were recruited from Complete Children's Health in Lincoln, Nebraska. The four parent-toddler dyads participated in an eight week intervention, during which time they received training, modeling, and coaching in the PCIT PRIDE skills (i.e., labeled praise, reflection, imitation, behavioral description, and enthusiasm), avoiding skills (i.e., avoiding questions, commands, and negative talk), effective commands, and modeling of emotion language. Sessions were conducted by a trained therapist in both the home and clinic settings and occurred weekly.

Parent behaviors (select PRIDE and avoiding skills), toddler tantrums and disruptive behaviors, and the parent-child relationship were assessed as outcomes in the

study. The study was conducted using a concurrent multiple probe across participants design for parent behaviors. Parent behaviors were analyzed using visual inspection, conservative dual criterion, percentage of all non-overlapping data (PAND), and comparison of means. Toddler tantrums were tracked and analyzed using visual inspection, PAND, and comparison of means. Changes in the parent-child relationship were evaluated via changes in clinical significance on a standardized measure, as were broad toddler behaviors. Data were also collected regarding parent treatment integrity and social validity of PCAT-E.

Results of the PCAT-E study indicated improvements in four parenting behaviors (i.e., labeled praise, behavioral description, questions, and commands), mixed results for toddler tantrums but improvements in broad toddler behaviors, and improvements in the parent-toddler relationship. Treatment integrity data suggested parent treatment integrity was generally high. Social validity data suggested high levels of perceived effectiveness and acceptability of the PCAT-E intervention.



## Chapter 2: Literature Review

Healthy parent-child relationships serve as the foundation for healthy child development and are vital to the development of young children's mental and behavioral health (Lenze, Pautsch, & Luby, 2011). During toddlerhood, defined as ages 12-36 months (American Academic of Pediatrics, 2013), increased attention to the parent-child relationship is necessary due to developmental changes, the changing demands faced by parents, and the pressures these changes may place on the relationship. Specifically, parents are called to support their children as they begin to explore and master autonomy and independence, self-reflection, emotional regulation, empathy, gender identity, and connections to others (Edwards & Liu, 2002; Smetana et al., 1999). Toddlers are learning how to master skills of daily living; recognize themselves as a source of behavior, communication, and feelings; control urges, defer gratification, resist temptation, and follow rules; understand other's perspectives and needs; label and identify gender of self and others; and establish close relationships with family and/or peers and engage appropriately in social interactions (Edwards & Liu).

As toddlers develop, they begin testing their limits, expanding their boundaries, and challenging their parents through behaviors that are difficult to manage, such as noncompliance, temper tantrums, whining, and hyperactivity (Bulter & Eyberg, 2006). Their growing sense of autonomy may be at odds with adult expectations of cooperation, and their tendency to say "no" may be interpreted as noncompliance (Campbell, 1997). They begin to show externalizing behaviors (e.g., aggression, destructiveness, self-injury, temper tantrums, hyperactivity, and noncompliance) that increase until the 2<sup>nd</sup> or 3<sup>rd</sup> year of life, with a typical decrease after this age (Niccols, 2009). These externalizing

behaviors are often explained by young children's emerging self-awareness, goal-oriented behavior, a push for independence (Supplee, Unikel, & Shaw, 2007; Whittaker et al., 2011), and inability to regulate and express emotions (Giesbrecht, Miller, & Muller, 2010; Osterman & Bjorkqvist, 2010).

Approximately half of toddlers displaying behavior problems will do so for a year or more (Campbell, 1997; Engle & McElwain, 2011). Left unaddressed, the externalizing behaviors that emerge in early childhood can worsen (Burke, Hipwell, & Loeber, 2010) and continue on to later childhood and beyond (Holtz, Carrasco, Mattek, & Fox, 2009; Niccols, 2009; Supplee et al., 2007; Whittaker et al., 2011). Further, these behaviors are associated with long-term outcomes such as antisocial behavior, adolescent delinquency, and substance abuse (Loeber, Keenan, & Zang, 1997; in Butler & Eyberg, 2006).

### **Temper Tantrums**

Toddlers' increased independence and increasingly frequent incidents of noncompliance may culminate in anger, negativity, oppositionality (Holtz et al., 2009), and challenges in the parent-child relationship. Specifically, noncompliance, opposition, and defiance may occur when the child is not responsive to parent directions, and negative affect and behaviors may subsequently escalate (Poehlmann et al., 2012). Temper tantrums are defined as negative emotional episodes containing one or more of the following behaviors: stiffening limbs, arching back, dropping to the floor, shouting, screaming, crying, sobbing, pushing, pulling, stamping feet, hitting, arm flailing, kicking, throwing, or running away (Einon & Potegal, 1994; Osterman & Bjorkqvist, 2010; Potegal & Davidson, 2003). Other behaviors may include throwing self on the floor,

deliberately hitting one's own head against something, breaking objects (Osterman & Bjorkqvist), and breath-holding (Daniels, Mandleco, & Luthy, 2012).

Some tantrums may appear suddenly in response to a minor frustration, whereas other tantrums seem to build for a period of time and are preceded by irritability and whining (Einon & Potegal, 1994). Crying is the most frequent vocal component of tantrums and occurs in 86% of tantrums, yelling occurs in 40% of tantrums, and whining occurs in 13% of tantrums (Potegal & Davidson, 2003). Visible signs of autonomic reactivity (e.g., redness, sweating, drooling, and nose running) may also occur (Potegal & Davidson). Tantrums are characterized by extreme and unjustified verbally and physically aggressive reactions, involve a child and an adult, and may occur in public (McCurdy et al., 2006). Tantrums typically include two phases: anger and distress (Giesbrecht, Miller, & Muller, 2010; Potegal & Davidson; Potegal, Kosorok, & Davidson, 2003).

**Prevalence of tantrums.** Temper tantrums in toddlerhood are normal as young children struggle between gaining autonomy and conforming to parent rules (Beers, 2003; McCurdy et al., 2006; Potegal & Davidson, 2003). Tantrums are among the most common behavior problems identified in children aged 18 months to 4 years (Potegal & Davidson; Potegal et al., 2003). In fact, in a study conducted by Osterman and Bjorkqvist (2010), 87% of parents reported that one or more of their children displayed temper tantrums, most (64.7%) beginning to tantrum at ages two and three. Tantrum prevalence has been found to increase from 87% in children aged 18 to 24 months to 91% in children aged 30 to 36 months and to decrease to 59% at 42 to 48 months (Potegal & Davidson). The most rapid decline occurs for children between three and four years of age,

coinciding with improved vocabulary and increased language development (Osterman & Bjorkqvist).

Until the age of three or four, many children have an average of one tantrum per day (Potegal et al., 2003). Twenty percent of two-year-olds and 18% of three-year-olds have at least one tantrum a day (Grover, 2008). In the study on 132 children and parents conducted by Osterman & Bjorkqvist (2010), tantrums were reported to occur once per day in 21.3% of the children, once per week in 37.3% of the children, one per month in 30.7% of the children, and once per year in 10.7% of the children.

Duration of tantrums varies. In a sample of 335 toddlers and preschoolers, 46.5% of tantrums lasted between five and ten minutes but ranged from 1 to 60 minutes (Potegal et al., 2003). Likewise, in a sample of 132 children and parents, 46.5% of tantrums lasted between five and ten minutes, whereas 8% lasted less than 5 minutes, and 6% lasted more than 30 minutes (Osterman & Bjorkqvist, 2010). Five to seven percent of children between ages one and three have tantrums at least three times per week that last fifteen minutes or more (Needleman, Stevenson, & Zuckerman, 1991).

Tantrum behaviors may persist for an extended period of time during a toddler's development. For 22.3% of the children assessed, tantrum behaviors occurred for a span of 10-12 months. In 26.3% of the children, tantrum behaviors lasted two years, and in 17.1% of children, the behaviors lasted three years (Osterman & Bjorkqvist, 2010). No sex difference is observed for age of tantrum onset, cessation, span of time, frequency, and duration (Osterman & Bjorkqvist).

**Functions of tantrums.** High emotional reactivity and underdeveloped emotional competence and regulation lead to tantrum behavior in toddlers as they experience strong

emotions with little ability to control them (Beers, 2003; Geisbrecht, Miller, & Muller, 2010). Tantrums serve a variety of functions for toddlers, but they are highly likely when a toddler is tired, hungry, ill, and upset or frustrated (Kyle, 2008). Importantly, certain situations increase the likelihood of tantrums, such as transitions (Wilder, Chen, Atwell, Pritchard, & Weinstein, 2006), denied access to desired objects or activities (Sullivan & Lewis, 2012), inconsistent expectations (Beers), and lack of limit setting or permissiveness (Goldson & Reynolds, 2011).

Toddlers may tantrum to seek attention, obtain what they want, or avoid an undesirable task or activity (McCurdy et al., 2006). Initially, a toddler might display tantrum behavior when frustrated and angry that he or she is unable to control the current situation or to communicate his or her desires effectively or negotiate for them (Grover, 2008). If a child begins a tantrum to gain access to an object or activity that has been denied, and the parent responds to the tantrum by giving in, the tantrum behavior has been positive reinforced. Likewise, if the parent asks a child to complete a task, and the child tantrums in response, the parent may withdraw the request, thereby negatively reinforcing the tantrum behavior. As children's tantrums are positively reinforced (by obtaining what they want or need) or negatively reinforced (by avoiding or escaping negative stimuli), the likelihood that they will use tantrums to meet their needs in the future increases.

Through the use of tantrums to obtain access to desired objects or activities or to avoid undesirable tasks, it is observed that tantrums may also serve as a method of communication for toddlers who are unable to verbalize frustrations in a more mature manner (Grover, 2008). When the toddler is frustrated, loses control of his or her

behaviors, and lacks the verbal skills to express and process his or her frustration, he or she may tantrum to communicate his or her needs (Durand & Merges, 2001; Osterman & Bjorkqvist, 2010). Tantrums are functional as a form of communication in that they are reinforced by others who respond to the child's tantrum and meet their needs. Thus, the tantrum becomes a learned and adaptive response (McCurdy et al., 2006).

Furthermore, this learned response to gain access to reinforcers or to avoid undesirable tasks may be indicative of a coercive cycle, or problematic interpersonal factors between a parent and child (Goldson & Reynolds, 2011; Patterson, Reid, Jones, & Conger, 1975). As children experience unclear boundaries and lack of limits on their behavior, they may engage in a power struggle with their parent(s). As they vie for power using tantrum behaviors, their parent may give in to their demands, or their parent may engage further in the behaviors, escalating his or her own behaviors (e.g., yelling or screaming) until the child stops tantruming or complies. This cycle is reinforced for the child when he obtains his desired object or activity, and the cycle is reinforced for parents when they get their child to calm or comply (Patterson et al., 1975).

**Tantrum problems and implications.** Although tantrums are a common feature of toddlerhood and are displayed by at least half of all 2-year-olds, highly frequent, consistent, and persistent tantrums may be indicative of problems in the parent-child relationship or parenting behaviors (Einon & Potegal, 1994). Frequent and prevalent tantrums may present a serious management problem for toddlers' parents. Tantrums that last longer than 15 minutes or occur more than five times per day are abnormal and problematic (Daniels, Mandleco, & Luthy, 2012; Grover, 2008), and 5-20% of children have tantrums that are severe, frequent, and/or disruptive (Goldson & Reynolds, 2011).

Furthermore, the aversive presence of frequent tantrums may challenge the parent-child relationship. Children displaying frequent and extended tantrums are likely to have parents who are angry or upset at the time of the tantrum. High tantruming children's mothers may also be likely to shout at, threaten, and strike their children (Einon & Potegal).

Just as other externalizing behaviors that emerge in early childhood can worsen (Burke, Hipwell, & Loeber, 2010) and continue on to later childhood and beyond (Niccols, 2009; Stoolmiller, 2001), it appears as though children who demonstrate long-term tantrum behavior problems are indicated early on by their high rates of tantruming (Einon & Potegal, 1994). Problematic temper tantrums exhibited in early childhood are associated with high rates of externalizing behavior problems in later childhood and adolescence (Campbell, 1995), including thumb sucking, head banging, sleep disturbances, mutism, school avoidance, underachievement, speech and eating problems, and delinquent behavior (Bhatia et al., 1990). Severe tantrums are a common behavior problem observed in children referred for psychological support (Keller & Fox, 2009), may predict future maladjustment (Stevenson & Goodman, 2001), and may serve as an early indicator of later hostility (Einon & Potegal, 1994).

**Treatment of tantrums.** Tantrums are difficult to address once started, so prevention of tantrums is most effective (McCurdy et al., 2006). Tantrums may be prevented by improving parent-child interactions, reinforcing positive child behaviors, and strengthening the parent-child relationship (Beers, 2003; Daniels et al., 2012; McCurdy et al., 2006). Positive reinforcement for the child is provided in response to appropriate behaviors such as compliance and self-calming frequently and strongly

enough to decrease the motivation of children to seek attention in other ways, such as tantrums and inappropriate behaviors (McCurdy et al., 2006).

Positive behaviors may be reinforced through brief intervals of positive attention based on the absence of negative behaviors, otherwise known as “time-in” (Christophersen & Mortweet, 2001). These displays of positive behavior may include verbal praise, warm positive touch, or positive nonverbal behaviors. Another method of reinforcement of positive behaviors is through the use of differential attention (Mallot & Trojan Suarez, 2004). Differential attention may be provided in two relevant forms: differential reinforcement of alternative behaviors (DRA; Vollmer & Iwata, 1992) and differential reinforcement of other behaviors (DRO; Poling & Ryan, 1982). When using DRA, parents identify an incompatible positive behavior to reinforce (e.g., feet on the ground as opposed to standing on a sofa), and provide reinforcement for the display of that behavior. Meanwhile, the behavior to be eliminated is ignored. In a tantrum example, incompatible behaviors such as quiet voice, calm behavior, and “accepting no” might be reinforced, whereas tantrum behaviors are ignored. With DRO, reinforcement is provided broadly based on the nonoccurrence of the tantrum behavior (McCurdy et al., 2006).

As toddlers have limited language and may resort to tantrums as a form of functional communication, teaching toddlers appropriate ways to communicate his or her needs and emotions may also serve to reduce tantrum occurrence (McCurdy et al., 2006; Vollmer et al., 1996). Functional communication training (Daniels et al., 2012; Durand & Merges, 2001) teaches children to use socially appropriate methods of communication to convey their desires, while allowing them to reach the same reinforcer previously allowed by tantrums. For example, if the child previously tantrumed to gain access to a



cookie, he would be taught to use a more appropriate form of communication and would be rewarded with a cookie. Similar to meeting needs and desires, teaching children to express feelings verbally through the modeling of words also helps to reduce tantrums (Karp & Spencer, 2004; cited in Osterman & Bjorkqvist, 2010; Vollmer et al.).

Finally, the environment can be modified in such a way that situations that elicit tantrums are limited. These modifications include childproofing, which reduces the need to redirect or reprimand a child (Daniels et al., 2012; Goldson & Reynolds, 2011); standardizing expectations (Beers, 2003); giving children choices; and using consistent calm parental response (Daniels et al.), and age- and ability-appropriate demands (Goldson & Reynolds). Importantly, establishing consistency in parent discipline through the use of effective commands (Jenson, Rhode, & Neville, 2010; Walker, Ramsey, & Gresham, 2004) may serve as a method to standardize expectations, and enthusiastic praise may be used to differentially reinforce compliance (Mallot & Trojan Suarez, 2004). Effective commands (Jenson et al.; Walker et al.) are a series of 12 steps that may increase the effectiveness of parents' commands, prompting higher rates of compliance and fewer tantrums (see Table 6). Following an operant conditioning model, effective commands serve as a form of antecedent control that promotes compliance, and enthusiastic praise reinforces the occurrence of this behavior (McCurdy et al., 2006).

Not all tantrums may be prevented through the use of praise and communication training. Extinction is identified as the primary effective response to ongoing tantrum behaviors (McCurdy et al., 2006). Any reaction to a tantrum from an adult may lead to an increase in tantrum behaviors in severity or duration (McCurdy et al.). Through extinction, the reinforcer of the tantrum is removed (e.g., attention, access to desired

objects or activities, avoidance of tasks; Martin & Pear, 2003). Extinction may be conducted via planned ignoring and time out (Daniels et al., 2012; Kyle, 2008; McCurdy et al.). In a study that involved teaching parents both planned ignoring and time out as a response to tantrum behaviors, nine out of ten children displayed improvement, and parents reported satisfaction with the extinction procedures (Endo, Sloane, Hawkes, McLoughlin, & Jenson, 1991). Importantly, children may display extinction bursts, or temporary increases in disruptive behavior, when extinction is used (Lerman & Iwata, 1995). However, these bursts soon dissipate given consistent extinction behaviors from parents.

In sum, tantrums are effectively addressed through prevention techniques such as using differential reinforcement of alternative behaviors, thus praising tantrum-incompatible behaviors such as quiet voice, calm behavior, and accepting “no” as well as ignoring inappropriate behaviors. Through the use of effective commands as a form of antecedent control, parents can elicit compliance more easily, which is also incompatible with tantrum behaviors. Furthermore, the use of communication training or language modeling may also serve to reduce tantrum behaviors. Finally, during the occurrence of a tantrum, extinction through the use of planned ignoring and time out may be used, with awareness for the potential of an extinction burst.

Unfortunately, following a review of the literature, there does not appear to be an intervention package for the toddler age group that effectively combines relationship-building techniques such as praise and differential reinforcement with antecedent control techniques (e.g., effective commands), emotion language modeling to build communication abilities, and extinction procedures (e.g., planned ignoring and/or time

out) as a means to prevent and reduce toddler tantrum behavior. Although many research studies have supported the use of these strategies separately, it does not appear that a single package has been evaluated in the research literature.

### **The Parent-Child Relationship**

In toddlerhood, there is increased importance on parent-child interactions such that this period requires warmth and responsiveness from parents, as well as limit setting and support as children explore their independence. Parents' interactions with their children at this stage can foster healthy development or worsen problematic behaviors (Herschell et al., 2002a). As toddlers develop their cognitive, language, and social abilities, they need both increased independence and control, and parents are prudent to provide firm limits, clear explanations, and clear expectations. Toddlers are also testing their limits, so it is necessary that parents are able to appropriately manage behaviors such as noncompliance, defiance, and aggression (Campbell, 1997). If parents are not equipped with skills to handle these behaviors, the normal development of a toddler's autonomy seeking behaviors may serve as a precursor to the onset of negative parent-child interactions (Holtz et al., 2009) and a challenging parent-child relationship.

Parent-child relationship quality informs whether parental expectations for appropriate behavior will be met (Maccoby & Martin, 1983). Thus, it is important that parents negotiate child autonomy with an appropriate level of parental control (Belsky, Woodsworth, & Crnic, 1996). Parents receive the highest level of child compliance when their approach is characterized by a combination of moderate control (e.g., clear directions, rewards for compliance) and guidance (e.g., redirections, suggestions, explanations, support). High levels of maternal negative control without guidance are

associated with defiance in toddlers, whereas guidance alone is associated with child self-assertion (Belsky et al., 1996; Crockenberg & Litman, 1990).

Toddlerhood is also an important time for later development. During this time period, attachment security is fostered, the parent-child relationship is established, and language and cognitive skills develop (Cicchetti & Toth, 1995). If attachment security is not achieved or is challenged, the child may develop internalizing behaviors (e.g., anxiety and withdrawal) or externalizing behaviors (e.g., aggression, noncompliance, and controlling behavior; Osofsky, 1995; Scheeringa & Gaensbauer, 2000). Additionally, dysfunctional parent-child relationship patterns (e.g., coercive interactional styles, abusive caregiving, exposure to violence, neglectful parenting) in toddlerhood may alter social-emotional development and elicit symptoms including extreme temper tantrums and reduced frustration tolerance (Dombrowski et al., 2008; Liberman, 2004; Osofsky, 2005).

### **Intervention to Strengthen the Parent-Toddler Relationship**

A promising intervention developed to address challenging parent-child relationships and child disruptive behaviors in early childhood is Parent-Child Attunement Therapy (PCAT; Dombrowski et al., 2005; Dombrowski et al., 2008). PCAT is a behaviorally-based play therapy intervention derived from the empirically documented Parent-Child Interaction Therapy (PCIT; McNeil & Hembree-Kigin, 2011) and modified for the toddler age group that aims to enhance parent-toddler relationships, teach parents appropriate child management techniques, and address toddler externalizing behaviors through parent coaching sessions (Dombrowski et al., 2005).

Coaching sessions teach parents to provide positive attention to children's appropriate behavior, decrease attention to inappropriate behavior, and use play therapy skills that improve the parent-toddler relationship (Dombrowski & Timmer, 2001; in Dombrowski et al., 2005). Through consistent attention to appropriate behavior, parents not only increase the frequencies of these appropriate behaviors, but also become more accessible to the toddler. Additionally, the behavior of the both parents and the toddlers becomes more predictable, decreasing toddler externalizing behaviors (Dombrowski et al., 2008).

Thus, PCAT uses differential attention to increase positive behavior and decrease negative behavior while improving the parent-child relationship insomuch that it may reduce toddler tantrums. However, PCAT does not incorporate other effective means of prevention and reduction of tantrums, such as effective commands, emotion language modeling. Differential attention alone may not be enough to prevent tantrums in toddlers. Furthermore, although PCAT is derived from the well-established and strongly-supported PCIT research literature, there is a scarcity of experimental research evaluating the effectiveness of PCAT.

Although there is need for additional research, PCAT promises to be effective for challenging parent-toddler relationships, toddler externalizing behaviors, and toddlers who may suffer from attachment difficulties (Dombrowski et al., 2005; Dombrowski et al., 2008). PCAT may serve as a foundation to address the parent-child relationship and toddler tantrums if other key intervention features (e.g., effective commands, language modeling) are integrated. More specific detail regarding PCAT will be provided following an exploration of the theoretical framework supporting the model.

## **Theoretical Framework for Understanding Parent-Child Attunement Therapy**

PCAT is derived from PCIT and thus shares the theoretical perspective of PCIT. Specifically, PCIT draws upon components of developmental and social learning theories and integrates behavioral principles with the relationship focus of play therapy (Dombrowski et al., 2008; McNeil & Hembree-Kigin, 2011). PCAT maintains a similar theoretical approach but modified for the toddler developmental stage (Dombrowski et al., 2005).

PCIT was directly influenced by Constance Hanf's (1968, 1969; cited in Dombrowski et al., 2008; McNeil & Hembree-Kigin, 2011) work on a two-stage operant model to address child oppositional behaviors. In this two-stage model, the first stage focuses on teaching differential attention to parents (i.e., attend to positive behavior and ignore undesirable behaviors), whereas the second stage focuses on teaching parents direct behavior management skills (e.g., effective instructions, praise for compliance, and consequences for non-compliance). Sheila Eyberg adopted the two-stage operant model and integrated it within a play therapy approach (McNeil & Hembree-Kigin, 2011). Consistent with Hanf's approach, both PCIT and PCAT use an in vivo coaching model to direct parent-child interactions in a live session (Dombrowski et al., 2008). More explicit detail on the theories supporting PCIT and PCAT is provided below.

### **Developmental Theory**

PCAT and PCIT are grounded developmental theory, specifically Diana Baumrind's (1966) parenting styles and Mary Ainsworth's (1969) attachment theory. Baumrind's research regarding young children's needs for parental nurturance and limit-setting strongly influenced the two-part structure of PCIT, and Ainsworth's work

elucidated the importance of sensitivity and responsiveness in parenting, founding the focus of relationship-building in PCIT. The intervention aims to promote nurturing environments that align with Baumrind's parenting styles and Ainsworth's attachment theory through behavioral mechanisms (Dombrowski et al., 2008).

**Baumrind's parenting styles.** Baumrind's parenting styles are based on four important characteristics of parenting: disciplinary strategies, warmth and nurturance, communication styles, and expectations of maturity and control. Of these, two main characteristics drive the classification of parenting styles: parental acceptance/responsiveness and demandingness/control (Grolnick, 2003; Maccoby & Martin, 1983). Based on the unique combinations of the presence and absence of these two dimensions, four distinct parenting styles have been identified. They are uninvolved (rejecting/unresponsive, permissive/undemanding), permissive (warm/responsive, permissive/undemanding), authoritarian (rejecting/unresponsive, restrictive/demanding), and authoritative (warm/responsive, restrictive/demanding; Baumrind, 1996, 1967; Maccoby & Martin).

The first of these styles, uninvolved, describes a style in which the parent poses few demands, demonstrates little response to the child, and communicates infrequently. These parents may fulfill their child's basic needs or may be rejecting or neglectful (Maccoby & Martin, 1983). This style is more likely to be observed in parents of adolescents than in parents of young children (Rinaldi & Howe, 2012). The second style, permissive, is characterized by parental attempts to be accepting, non-punitive, and non-confrontational. A permissive parent affirms the child's impulses, desires, and actions, involves the child in decisions, explains rules, and strives to be a friend to their child.

Few demands or responsibilities are placed on the child, and little maturity or self-control is expected of him or her. Permissive parents may use love manipulatively (e.g., withdrawal of love and ridicule versus power or reason; Baumrind, 1996, 1967).

Authoritarian is the third style and describes an approach through which the parent attempts to shape and control the child. High standards are set and strictly enforced for the child, and punitive, forceful responses are used to correct child behaviors and beliefs. Authoritarian parents tend to not be nurturing and involved, use firm control and power freely, and offer little support or affection. They do not use reason or encourage the child to express him or herself, are not sympathetic and approving, and may be frightening (Baumrind, 1967).

Finally, authoritative is the fourth style and describes an approach through which the parent strives to direct the child's activities in a rational manner. Rules and guidelines are established, but the parent encourages the child to ask questions, provides reasoning for decision making, and solicits feedback. Authoritative parents balance firm control and high demands with increased support and clear communication. High nurturance is balanced with high control, and high demands are balanced with clear communication. If the child fails to meet expectations, the authoritative parent responds in a supportive, nurturing, and forgiving manner. An authoritative parent uses reason and shaping by reinforcement to direct the child (Baumrind, 1996, 1967).

The above-described parenting styles each uniquely predict long-term child functioning and outcomes. Specifically, children of uninvolved parents tend to lack self-control, have low self-esteem, and demonstrate less competence than peers with involved parents (Maccoby, 1992). Children of permissive parents are dependent and immature,



often have low happiness and self-regulation and are likely to experience problems with authority (Baumrind, 1967). Children of authoritarian parents are typically obedient and proficient (Baumrind) but have low happiness, social competence, and self-esteem (Maccoby), as well as increased risk of obsessive-compulsive symptoms and beliefs (Timpano, Keough, Mahaffey, Schmidt, & Abramowitz, 2010) and hostility under stress (Baumrind). Finally, children of authoritative parents are typically happy, capable, and successful (Maccoby). They have effective social skills and school success, and they tend to be self-reliant, self-controlled, explorative, content, socialized, independent, assertive, and competent (Baumrind).

Toddlerhood marks a time for increased focus on parenting style. As they develop, toddlers increase their autonomy seeking behaviors, challenging parents as they become more assertive (Rinaldi & Howe, 2012). Parental support, structure, and guidance are critical elements of parenting toddlers (Edwards & Lui, 2002), as well as integral to an authoritative parenting style. Other parenting styles may be less effective with toddlers; for example, permissive parenting predicts toddler externalizing behavior (e.g., aggression, tantrums), whereas authoritative parenting predicts adaptive behaviors and supports the development of healthy autonomy in toddlers (Rinaldi & Howe, 2012).

PCIT and PCAT are strongly influenced by Baumrind's research demonstrating positive outcomes for children whose parents balance limit-setting and nurturance, otherwise understood as an authoritative parenting style (Butler & Eyberg, 2006). In accordance with Baumrind's theory and research, PCIT and PCAT aim to strengthen the parent-child bond and increase positive parenting, as well as increase parental consistency, predictability, and fairness in discipline. However, the current PCAT model

is limited in that it relies primarily on differential attention to convey limit-setting. The approach of effective commands is not employed, weakening the model's ability to coach parents to convey expectations consistently and predictably, thereby reducing situations that may elicit tantrum behavior.

**Ainsworth's attachment theory.** Attachment is the bond between a child and his or her caregiver and is observed in young children by behaviors exhibited when upset or frightened (Bowlby, 1969). Attachment behaviors include proximity-seeking (e.g., following, clinging, climbing, leaning, and reaching) and signaling (e.g., smiling, crying, and calling; Ainsworth & Bell, 1970). Children's attachment style can be classified based on their anxiety, exploration, and reunion behaviors in the absence of their caregiver. Attachment classification is most frequently assessed through the "Strange Situation" procedure, during which a parent and stranger progress through a sequence of leaving a child and returning. During the procedure, the child's anxiety, exploration, reunion behaviors are observed (Ainsworth & Bell). The child's reactions during the procedure are classified into four attachment styles: secure, resistant, avoidant (Ainsworth & Bell; Ainsworth, Bell, & Stayton, 1971; Ainsworth, Blehar, Waters, & Wall, 1978), or disorganized (Main & Solomon, 1990), and are thought to stem from the history of dyadic interactions that influence his or her expectations of the caregiver's responsiveness (Madigan et al., 2007).

Children displaying secure attachments tend to be upset when their mother leaves and exhibit a happy response when their mother returns, whereas children displaying resistant attachment show intense distress when their mother leaves but resist her upon her return. Likewise, children displaying avoidant attachment show no sign of distress

when their mother leaves and little interest in her return (Ainsworth, 1979; Ainsworth & Bell, 1970; Ainsworth et al., 1971), and children demonstrating disorganized attachment with their caregiver appeared to have lapses in the organization of their attachment behaviors (Madigan et al., 2007). Disorganized children may show strong attachment behavior followed by avoidance or disorientation; strong contradictory behaviors (e.g., strong avoidance with strong contact-seeking, distress or anger); freezing or “slow-motion” movements and expressions; apprehension regarding the parent; and disorganization or disorientation in the presence of the parent (Henninghausen & Lyons-Ruth, 2005).

Parental infant care practices are the primary predictor of attachment style. Mothers of securely attached infants are sensitive, accepting, cooperative, and accessible (Ainsworth, 1973), allowing their infants to form expectations that determine their responses to events (Ainsworth, 1979). Conversely, babies whose mothers are inconsistent and ineffective do not conceptualize the mother as accessible and responsive, leading to anxiety (Ainsworth, 1979). Parents of children with disorganized attachments display withdrawal, disoriented responses, and frightened or frightening behaviors (Henninghausen & Lyons-Ruth, 2005; Main & Solomon, 1990). The caregiver may be not only the child’s source of attachment, but also a source of fear, resulting in conflicting child tendencies to approach and flee the caregiver (Main & Hesse, 1990).

As an infant matures into a toddler, the patterns of sensitivity and responsiveness established by parents lead the toddler to develop a cognitive-affective working model informing them of the dependability of others to respond to needs. This internal working model holds the conceptualizations of self and others and influences the quality of later

attachment relationships by guiding and structuring cognition, language, affect, and behavior (Ainsworth et al., 1978; Kennedy & Kennedy, 2004). Parents who are warm, responsive, and sensitive to child needs promote a secure working model in their child that helps the child use effective emotional regulation. Children with secure attachments generally hold positive internal working models whereby they perceive caregivers as supportive, helpful, and positive, and themselves as competent and worthy of respect. However, children whose parents are not warm, responsive, and sensitive develop an insecure working model and rely on externalizing behaviors to meet their needs (Ainsworth et al., 1978; Kennedy & Kennedy). Children with insecure attachment who experience inconsistent, hostile, or rejecting caregiver behaviors are at increased risk for internalizing and externalizing behavior problems (Kennedy & Kennedy).

Attachment theory asserts that the parent-child relationship is critical to the child's cognitive, social, and emotional development, and research has demonstrated that children with different attachment styles have vastly different outcomes. Children with avoidant attachments may have low self-worth and ineffective management of negative affect, be unlikely to seek help from others, fail to develop trusting relationships, and show externalizing and aggressive behaviors (Kennedy & Kennedy, 2004). Likewise, children with resistant attachments may maintain a negative self-image, exaggerate emotional responses to get attention when under stress, and show an increased risk of social and emotional behavioral problems. They may be easily overstimulated, reactive, impulsive, restless, easily frustrated, and may be likely to have internalizing problems (Kennedy & Kennedy).

Children with disorganized attachments may show controlling attachment patterns in early childhood as they gain increased cognitive capabilities to reason about the caregiver's emotional state and may attempt to maintain parental attention and involvement through hostile, coercive, or embarrassing behaviors (Henninghausen & Lyons-Ruth, 2005; Main et al., 1985). They are likely to show behavior problems in toddlerhood (Madigan et al., 2007) and beyond (Van IJzendoorn, Schuengel, & Bakermans-Kranenburg, 1999), including externalizing disorders (e.g., oppositional defiant disorder, conduct disorder, and attention deficit hyperactivity disorder) and internalizing disorders (e.g., depression). With age, children with disorganized attachments are at risk for borderline personality and dissociative disorder (Henninghausen & Lyons-Ruth; Main & Solomon, 1990).

Conversely, securely attached children likely have positive relationships with peers and adults, show flexible and appropriate emotional control and expression, earn higher grades (Kennedy & Kennedy, 2004), are cooperative with and affectively positive toward their mothers, and are competent, sympathetic, explorative, enthusiastic, persistent, curious, self-directed, and accepting of help (Ainsworth, 1979). These positive characteristics are maintained through adolescence and beyond (Kennedy & Kennedy).

Important to the parenting of toddlers, a secure relationship, characterized by warm and responsive parenting, also elicits an eager, willing stance in the child and fosters parent-child cooperation. Securely attached children are likely receptive to their parents and easily internalize parent rules (Kochanska et al., 2010). PCIT and PCAT aim to maximize these positive impacts of the parent-child attachment relationship, and thus promote parental warmth and sensitivity to elicit positive child behaviors. In doing so,

they aim to restructure challenging parent-child relationships and provide a secure attachment for the child. Parents are taught skills that increase the warmth, sensitivity, and responsiveness of their behaviors, fostering a positive and nurturing interaction pattern.

### **Play Therapy**

Play therapy is defined as “the systematic use of a theoretical model to establish an interpersonal process wherein trained play therapists use the therapeutic powers of play to help clients prevent or resolve psychosocial difficulties and achieve optimal growth and development” (Association for Play Therapy, 2001; p.20) and is a commonly used approach to treat emotional and behavioral health problems in children. Children naturally express themselves in play and activity (Bratton, Ray, Rine, & Jones, 2005). Caregivers are able to connect with their child through play (VanFleet, 2005), and it helps to build a stronger relationship between the caregiver and child (Topham & VanFleet, 2011).

A meta-analysis of 93 studies on play therapy (Bratton et al., 2005; Ray, Bratton, Rhine, & Jones, 2001) indicated that it appears to be an effective treatment for a variety of children’s problems, with a mean effect size of .80. Play therapy has been demonstrated as effective for a variety of referral concerns, including abuse and neglect, aggression, attachment, and emotional disturbance (Landreth & Bratton, 1999). Parent involvement in play therapy was found to be a significant predictor of play therapy outcome (Bratton et al.; Ray et al.).

PCAT and PCIT interactions are embedded within and strongly depend upon play therapy. Both PCAT and PCIT aim to teach parents nondirective (e.g., Axline, 1947) play

therapy skills, such as allowing the child to lead, describing the child's play activities, imitating the child's play, providing praise for appropriate and desirable behaviors, reflecting child statements and behaviors, and demonstrating enthusiasm for the child's play (Dombrowski et al., 2008). Nondirective play therapy is one of many forms of play therapy. Drawn from Carl Rogers' (1951) person-centered therapy and attachment theory, it is characterized by unconditional acceptance, attention, and empathetic reflections of the child's feelings and actions in play (Topham & VanFleet, 2011). Nondirective play therapy sessions are child-led (i.e., the child directs the content of the session), and although limits are set on inappropriate behaviors, the therapist interacts with the child with an attitude of unconditional positive regard and is warm, accepting, and responsive (Ryan & Bratton, 2008).

During nondirective play sessions, children are given the opportunity to talk about and play out the issues that they desire with minimal direction from adults. The adult role is to respond to child thoughts and feelings in an accepting manner and strive to establish a stable and stress-free environment (Ryan, 2007). Nondirective play therapy with children is based on eight objectives that the therapist aims to achieve: (1) develop a warm, friendly relationship with the child, (2) accept the child unconditionally, (3) allow the child to express him or herself freely, (4) recognize and reflect the child's feelings, (5) allow the child to solve his or her own problems, (6) allow the child to lead the play and conversation, (7) do not rush the child, and (8) set limits only to maintain the child's safety (Axline, 1947). The play therapy process is said to foster a relationship between the therapist and the child and is thought to allow the child to use play to make contact with the therapist in a way that is safe to the child. As a child plays, the therapist is

presented with opportunities to help the child learn appropriate behaviors by responding with predictable limit setting procedures (Landreth & Bratton, 1999).

Filial therapy is a form of nondirective play therapy that involves the parent as the therapeutic agent (Guernsey, 1964), with the primary goal to improve the parent-child relationship. In filial therapy, parents are said to learn to help verbally structure new situations for their children, show empathetic listening skills (e.g., reflecting, which communicates acceptance), participate in child-led imaginative play, and set limits on behavior to maintain safety (Ryan, 2007). In theory, by using reflection, empathy, and validation in interactions with children, parents are able to show acceptance of the child's feelings and build trust (Ginsberg, 1976; Topham & VanFleet, 2011). Filial therapy is thought to improve parent-child relationships by helping parents relate to their child in new ways, enhance their understanding of their child, and re-conceptualize themselves as parents (Wickstrom, 2009).

PCIT and PCAT draw upon the same benefits of relying on the parent as the therapeutic agent of change in nondirective play therapy, but unlike filial therapy, PCIT and PCAT do not focus on the parent's perception of their child's and their own feelings. Nondirective play therapy with the parent as therapeutic agent of change is utilized in PCIT and PCAT because play is a primary medium through which children develop problem-solving skills and work through developmental problems (Eyberg, 1988), and it is one way that they learn perspective taking, language skills, memory, creativity, self-confidence, motivation, and an awareness of the needs of others (Topham & Van Fleet, 2011). The affective quality of parent-child interactions is emphasized as a critical focus in the play-based therapeutic intervention (Davenport & Bourgeois, 2008) because



Eyberg conceptualized play therapy with the parent-child dyad as the most rapid and effective way to address behaviors in children. Thus, parents are coached in the application of established therapeutic skills used by play therapists within a behavioral (e.g., operant and social learning) framework.

### **Operant and Social Learning Theories**

PCIT and PCAT are guided specifically by the work of Patterson (1982) on coercive interaction theory, which asserts that child problem behaviors may be inadvertently fostered by dysfunctional parent-child interactions (Herschell, Calzada, Eyberg, & McNeil, 2002b). These interactions are negative, habitual, aversive and escalating, and together, they are conceptualized as a coercive interactional cycle. Coercion refers to the “contingent use of aversive behaviors of another person” (Patterson, 2002; p. 25) and implies that coercive behaviors depend upon and predict the behaviors of others. Negative reinforcement drives this process as family members use aversive reactions to exert short-term control over each other, and these coercive interactions function to temporarily terminate family conflicts (Dombrowski et al., 2008; Herschell et al., 2002b).

Negative reinforcement is an integral component of operant and social learning theory. Operant theory, originally conceptualized by B.F. Skinner, posits that behaviors are learned based on interactions with the immediate environment. Operant conditioning pertains to the manipulation of consequences (e.g., reinforcement and punishment) in the environment to promote behavior change. By providing reinforcement (e.g., attention) or removing an aversive stimulus after a specific behavior, that behavior is subsequently strengthened; likewise, by removing reinforcement (e.g., ignoring) or providing exposure

to an aversive stimulus after a specific behavior, that behavior is subsequently weakened (Miltenberger, 2008).

Thus, within parent-toddler dyads, coercive interactions may arise when the toddler is presented with a demand and does not comply. The parent then increases the strength of his or her approach (e.g., yelling) as he or she continues to assert the demand, and the child responds by increasingly negative behaviors, such as a tantrum (Patterson, Reid, Jones, & Conger, 1975). Once the child reaches the point of tantruming, the parent may withdraw the demand, negatively reinforcing the child's use of tantruming to escape the demand. These interactions represent a power struggle in the parent-child relationship where members of the relationship attempt to control each other through their aversive behaviors (Dombrowski et al., 2008; Herschell et al., 2002b; Patterson et al., 1975). Specifically, externalizing child behaviors (e.g., tantrums, aggression) are reinforced by parent behaviors (e.g., withdrawal of demands), and parent behaviors (e.g., yelling) are reinforced by child behaviors (e.g., momentary compliance; Herschell et al., 2002b). This coercive cycle is repeated, resulting in a cycle of anger and aggression and a negative parent-child relationship.

Within the context of play therapy and throughout the duration of the intervention, PCAT and PCIT apply operant theory to positively change this negatively reinforced coercive interaction style. Specifically, through analysis of the environment surrounding a child's behavior, one may identify the environmental variables that if modified, will elicit behavioral change. These variables will either serve as an antecedent (an event that precedes the behavior) or as a consequence (e.g., punishment or reward). When these antecedents and consequences are modified, children learn to change their

behaviors based on the cues (i.e., antecedents) and consequences that they begin to expect to surround their actions (Miltenberger, 2008). For example, parents may apply a strong antecedent (e.g., an effective command). Then, they may identify what is reinforcing to a child and apply that reinforcement to their child's behaviors they wish to see increase or continue. Specifically, most toddlers find parental praise to be incredibly valuable, so when parents are able to provide praise for desirable behaviors (e.g., complying on the first request, not throwing a tantrum), the child will increase their performance of that behavior to receive the desirable consequence (e.g., praise). Likewise, parents might remove attention (i.e., planned ignoring/extinction) following the specific child behavior they would like to decrease (e.g., tantrums). Thus, to facilitate behavioral change, specific, observable, and overt behaviors are targeted by identifying specific environmental events that are functionally related to the behavior and modifying those events to effect behavioral change.

Importantly, the use of effective commands is indicated here. Effective commands serve as a powerful form of antecedent control that increases the likelihood of compliance, thereby reducing the likelihood of tantrum behaviors (Jenson et al., 2010; Walker et al., 2004). However, although PCIT and PCAT utilize other components of operant theory (e.g., differential attention) to increase positive behaviors and decrease negative behaviors, PCAT does not employ effective commands as a form of antecedent control. This weakness in the model may decrease its effectiveness to address and prevent toddler tantrum behaviors.

PCIT and PCAT also draw from social learning and operant theories to elicit and build positive behaviors and increase the frequency of their occurrence. In social learning

theory, behavior is theorized to be influenced through modeling, observational learning, and cognitions. Specifically, children attend to the people in their lives behaving in various ways and imitate their behaviors based on what they observe. Further, when children are reinforced or punished for imitating a model's behavior, they will increase or decrease its occurrence, respectively, given that they value the reinforcement. For example, if a child observes her mother using words to convey the emotions she is feeling, and attempts to use words herself, she has imitated her mother. Moreover, if her mother praises her for trying to describe her feelings and says, "You were able to tell me you were feeling frustrated! I'm so proud of you! Let me help you solve that problem!" the child will find that rewarding and will be more likely to try to convey her feelings verbally in the future. Here the strength of the relationship between the child and her mother increases the likelihood that not only will the child imitate her mother's behaviors, but also that she will value the praise her mother provides and find it reinforcing (Bandura, 1961).

Parents can also use modeling and reinforcement to shape a child's behavior toward a desirable target behavior. Specifically, through modeling, parents may elicit a child behavior that is unlikely to occur spontaneously. Once that behavior is demonstrated by the child, parents may reinforce the behavioral event using a reinforcer the child finds valuable. Parents may continue to shape and strengthen positive child behaviors by providing consistent reinforcement (e.g., praise) while applying increasingly higher standards to elicit that praise.

The use of modeling and reinforcement is particularly important in both improving the parent-child relationship and challenging child behaviors. Specifically,

through the use of modeling, parents can demonstrate positive interaction behaviors with their children, potentially eliciting positive interactions from their children that may be unlikely to occur spontaneously. Further, once those behaviors are demonstrated by the children, parents may praise the children. As this modeling and reinforcement continues, it is likely that the children's positive behaviors will increase, their inappropriate behaviors will decrease, and the parents and children will begin to behave more positively toward each other and improve their relationship.

The use of modeling to foster the development of emotion language is indicated here. Specifically, parents may model the use of emotion language when their child is upset or prone to tantrum behaviors to convey understanding and to prompt learning of verbal communication to express emotions. Such a method was used by Karp and Spencer (2004; cited in Osterman & Bjorkqvist, 2010); parents were taught to describe children's feelings with words, with positive results. The PCAT model does not specifically teach parents to model emotion language for their children. The model may be strengthened by the inclusion of this feature to prevent and reduce tantrum behaviors.

### **Summary of the Theoretical Foundation**

Temper tantrums are highly concerning to parents and are a common feature of toddlerhood. However, highly frequent tantrums that are consistent and persistent may be indicative of problems in the parent-child relationship or parenting behaviors (Eino & Potegal, 1994). The literature suggests that tantrums are maintained by adult attention and/or may serve as a form of escape behavior maintained by negative reinforcement (e.g., the removal of demands or another aversive stimulus; Carr & Newson, 1985). This is particularly important given Patterson's (1982) coercive interaction theory; temper

tantrums have been conceptualized in some cases as a behavior upon which children may rely in coercive parent-child interactions (Patterson). Importantly, in a survey conducted by Einon and Potegal, parents reported that tantrums were likely when they persistently made the same request and it was repeatedly refused by the toddler.

It is with this understanding of coercive interaction styles that PCIT and PCAT draw upon social learning theory to address dysfunctional parent-child interactions. The model assumes that child behavior problems are inadvertently fostered by parent-child interactions characterized by attempts to control the other member of the dyad, and inappropriate parent and child behaviors are negatively reinforced by reciprocal parent and child behaviors. PCIT aims to directly disrupt this cycle by utilizing the positive operant behavior principles and by promoting consistency in the discipline approach.

Such consistency within the discipline approach and parent-child relationship is emphasized in Baumrind's parenting theory. The importance of consistent parenting in Baumrind's work is particularly important given that children's externalizing behaviors are strengthened by inconsistent parenting approaches (power-assertive and lax; Herschell et al., 2002b). Research stemming from her authoritative parenting theory (Baumrind, 1991) has demonstrated that children of parents who do not meet their needs for both nurturance and consistent limits are less successful across a variety of domains (Foote, Eyberg, & Schuhmann, 1998). For example, permissive parents who fail to establish consistent limits are likely to have aggressive children (Baumrind, 1967; Maccoby & Martin, 1983), potentially encouraging a relationship characterized by coercive dyadic interactions. Likewise, harsh parenting practices lacking warmth and responsivity are a hallmark of challenging parent-child relationships (Munz, Wilson, &

D'Enbeau, 2010). PCIT directly addresses this problematic pattern by establishing a consistent approach to child discipline and by improving parental warmth and sensitivity.

The importance of the parent-child relationship in addressing problematic child behaviors is strengthened by the research on attachment. Research on attachment has demonstrated that parent-child relationships during infancy and toddlerhood strongly influence behavioral adjustment (Bowlby, 1982; Bronfenbrenner, 1977). In fact, it has been hypothesized that many behaviors labeled as problematic are in actuality adaptive behaviors the child uses to engage the attachment/caregiving behaviors of parents, although these behaviors are maladaptive generally (Speltz, Greenburg, & Deklyen., 1990). Thus, children who have insecure attachments may engage in coercive interactions simply to ensure that their needs are met by their caregivers. By improving the parent-child relationship and the ways in which a parent interacts with a child, the child may develop a secure attachment with his or her parent, disrupt the coercive interaction cycle, and avoid many of the negative outcomes associated with insecure attachments.

In conclusion, many behaviors that are symptomatic of disorders in school age children (e.g., noncompliance, tantrums, and aggression) are typical in toddlers and preschoolers and result from struggles over autonomy. Parent behaviors such as warmth, support, and appropriate control help direct the toddler to master the autonomy-seeking stage, but without these parenting practices, toddlers may develop behavior problems (Campbell, 1997). PCIT and PCAT effectively draw upon a strong theoretical framework consisting of components from play therapy, operant and social learning theories, and developmental theories to effect the necessary changes in parenting practices and child behaviors. PCIT and PCAT teach effective behavior management strategies within a play

therapy model and draw upon the relationship-enhancement skills advocated by Axline (1969) to improve the parent-child relationship.

Thus, the goal of PCIT and PCAT is to strengthen the parent-child bond and foster attachment, establish nurturance and limit setting in an authoritative parenting style, interrupt and redirect coercive interaction cycles, and do so by drawing from play therapy, operant theory, and social learning principles. By using nondirective play therapy techniques, parents are able to build a therapeutic relationship with their child and apply techniques that will strengthen the parent-child bond. Through modeling, differential attention, and positive reinforcement, parents are presumed able to effect positive changes in their children's behaviors and further support the gains made in improving the parent-child relationship.

### **Parent-Child Attunement/Interaction Therapy**

#### **Parent-Child Interaction Therapy**

Parent-Child Interaction Therapy (PCIT; McNeil & Hembree-Kigin, 2011) is a theoretically and empirically supported behaviorally-oriented parent training intervention suited to strengthen the parent-child relationship and address problematic child behaviors for children aged 3-6. PCIT is supported by more than 20 years of research and practice and aims to improve parents' relationships with their children through child-focused play and to help them learn appropriate behavior management techniques. It is based on early child development, operant and social-learning theory, and play therapy (McNeil & Hembree-Kigin) and uses a play-based approach to individually instruct, model, and practice techniques with parents.



In PCIT, parents are taught authoritative parenting skills to develop a warm and secure relationship with their child and facilitate constructive, consistent, and predictable limits and discipline (Herschell et al., 2002a). PCIT is divided into two phases: Child-Directed Interactions (CDI) and Parent Directed Interactions (PDI). In accordance with Baumrind's research regarding parenting styles and Ainsworth's research regarding attachment, CDI aims to strengthen the parent-child bond, increase positive parenting (Butler & Eyberg, 2006), and promote a secure attachment and a positive and mutually rewarding relationship.

CDI begins with a didactic session during which parents are taught the skills and rationale to be used during CDI. In the following sessions, parents are directly coached using bug-in-the-ear technology during live play sessions. Parents are coached in CDI to follow their child's lead in play and to provide ample praise and verbal support for the child. Through this coaching, parents learn to use differential attention to attend to positive behaviors and ignore inappropriate behaviors. The therapist prompts parents to adjust their speech and behavior toward the child and provides parents immediate feedback and praise for their interactions. By the end of this phase, parents become much more aware of their child's positive behaviors, and they consistently attend to and praise this behavior (McNeil & Hembree-Kigin, 2011; Timmer, Zebell, Culver, & Urquiza, 2010).

The second stage, PDI, aims to increase parental consistency, predictability, and fairness in discipline, as demonstrated by authoritative parents in Baumrind's theory and research. During PDI, the parent and therapist begin with a didactic session to discuss the skills to be used during PDI and the rationale behind their use. Parents and therapists then

engage in coaching sessions, wherein parents learn to effectively manage their child's behavior using behavioral and social learning strategies. Parents learn to effectively direct interactions with their child and to use evidence-based discipline strategies. Parents learn to deliver clear and direct commands, reward compliance, and implement effective timeout for noncompliance. If a parent has specific concerns, they are addressed as well. For example, if a parent is concerned about whining, the therapist may use role-play opportunities to instruct and model for parents how to ignore that whining, and then allow the parent to practice the skill (Herschell et al., 2002a). Importantly, during PDI, therapists continue to direct parent attention toward positive child behaviors. By the end of PDI, the processes of giving commands and gaining compliance are predictable and safe (Dombrowski et al., 2005, Eyberg, 1988).

PCIT addresses difficulties in the parent-child relationship because it guides parents toward establishing warmth, autonomy, and limit setting. The intervention has been found effective in improving the parent-child relationship, reducing parent stress, increasing child compliance, improving parenting skills, and decreasing dysfunctional parent-child relationship patterns (Eyberg & Robinson, 1982; McNeil & Hembree-Kigin, 2011). Specifically, in a sample of 64 clinic-referred 3- to 7-year-old children diagnosed with Oppositional Defiant Disorder, PCIT was demonstrated to increase positive parent interactions, decrease negative parent verbalizations, and improve parent-rated assessments of child behavior problems and role-related stress, and results remain stable after four months (Schuhmann et al., 1998), one to two years (Nixon, Sweeney, Erickson, & Touyz, 2004), and up to three or six years (Hood & Eyberg, 2003) after treatment completion.

PCIT has also effected reductions in negative parent-child interactions in a sample of 110 physically abusive parents and their 4- to 12-year-old children and reduced allegations of physical abuse within 850 days of treatment (Chaffin et al., 2004), and this success with maltreated and at-risk children has been replicated (e.g., Borrego et al., 1999; Chaffin, Funderburk, Bard, Valle, & Gurwitch, 2011; Thomas & Zimmer-Gembeck, 2011; Urquiza & McNeil, 1996). Additionally, studies have demonstrated the success of PCIT in decreasing disruptive child behaviors in immigrant families exposed to domestic violence (Pearl, 2008).

PCIT has been evaluated in abbreviated versions (Nixon et al., 2004), community-based settings (Lanier et al., 2011; Lyons & Budd, 2010; Timmer, Urquiza, Zebell, & McGrath, 2005), home-based settings (Masse & McNeil, 2008; Ware, McNeil, Masse, & Stevens, 2008), and with foster parents (McNeil, Herschell, Gurwitch, & Clemens-Mowrer, 2005; Timmer, Urquiza & Zebell, 2006), with positive outcomes on relationships, child behaviors, and parent stress across the board. Ample evidence also exists attesting to the efficacy of PCIT for a range of children and families, including ethnic minorities (e.g., African American, Chinese, Mexican American, Puerto Rican; Fernandez, Butler, & Eyberg, 2011; Leung, Tsang, Hueng, & Yiu, 2009; Matos, Bauermeister, & Bernal, 2009; McCabe & Yeh, 2009) and those at risk due low-socioeconomic status (Fernandez et al., 2011). It has also demonstrated increases in positive parenting behaviors and reductions in child behavior problems and parent stress levels with a Spanish-speaking dyad (Borrego, Anhalt, Terao, Vargas, & Urquiza, 2006).

PCIT is effective in treating children and parents with behavioral and mental health issues (e.g., ADHD, Autism Spectrum Disorders, separation anxiety, depression,

developmental disabilities; Lenze et al., 2011; Matos et al., 2009; McDiarmid & Bagner, 2005; Pincus, Santucci, Ehrenreich, & Eyberg, 2008; Solomon, Ono, Timmer, & Goodlin-Jones, 2008). For example, preschoolers diagnosed with ADHD saw changes in hyperactivity and temperament and were less likely to meet criteria for ADHD following PCIT. At a six-month follow-up, their behaviors were comparable to typically functioning peers (Nixon, 2001).

Despite the extensive literature base supporting PCIT across a wide range of populations and settings, little attention has been paid to the developmental appropriateness of PCIT for toddlers. Most research has been conducted with children preschool-aged (3-5 years) through middle childhood, and the PCIT model is recommended for use with children aged 3 to 6 (McNeil & Hembree-Kigin, 2011). Although some literature suggests that PCIT is appropriate for children aged 2 to 6 with age modifications including a variety of age-appropriate toys and the use of age-appropriate communication (Herschell et al., 2002a), research regarding the appropriateness and effectiveness of PCIT modifications with young children is lacking (Dombrowski et al., 2008). Specifically, there is little understanding of the age-appropriateness of PCIT discipline strategies given the developmental and cognitive capacities of young children.

### **Parent-Child Attunement Therapy**

Parent-Child Attunement Therapy (PCAT; Dombrowski et al., 2005) is a developmentally modified version of PCIT appropriate for children younger than 30 months of age. PCAT is structured similarly to PCIT in that it begins with a didactic session followed by coaching sessions. However, PCAT is not a two-phase model and

maintains a primary focus on PCIT's CDI phase while integrating age-appropriate discipline strategies throughout the duration of the intervention. The didactic session includes teaching, modeling, and role-playing the skills to be learned throughout the PCAT intervention process (e.g., PRIDE skills, differential attention). The following sessions are coaching sessions. Table 1 describes the sequence of sessions used in previous research.

Table 1.  
*Structure of PCAT*

Session	Content
Session 1	Didactic session
Sessions 2-3	Coaching sessions: setting rules, positive communication, and modeling
Sessions 4-6	Coaching sessions: redirection, active ignoring
Sessions 7-9	Coaching sessions: incentives, logical consequences, review
Session 10	Review and termination assessment

PCIT and PCAT share a number of other similarities and differences. These similarities and differences are displayed in Table 2 (Dombrowski et al., 2005). PCAT and PCIT share a strong assessment feature with the collection of observational data of the parent-child dyad in interaction and on parent and child behaviors at baseline and intervention. In both models, the first intervention session is a didactic training session, with following sessions focused on coaching Child Directed Interaction (CDI) skills in real time using bug-in-the-ear technology and two-way mirrors. The CDI skills taught in PCAT differ slightly from those taught in PCIT, as they are developmentally modified for the toddler age group. Specifically, PCAT uses praise, descriptions, and reflections of

appropriate behavior using simple words, short sentences, and much enthusiasm, but due to limited toddler speech, there is less emphasis on reflecting the child's speech (Dombrowski et al., 2008).

Table 2.  
*PCAT and PCIT Similarities and Differences*

Similarities	Unique to PCAT
Initial coaching/training sessions	Simpler, more developmentally appropriate language
Similarly technology (e.g., remote hearing device, two-way mirror)	Reduced session length (30 to 45 minutes)
Collection of data	Greater emphasis on parent enthusiasm, including nonverbal indicators of approval (e.g., clapping)
Avoidance of criticism, commands, and threats	Using behavior management strategies appropriate for the level of the child's cognitive abilities
Increased praise, reflections, and descriptions	Flexibility to deal with diaper soiling
Limiting of questions	Fatigue of toddler and caregiver
Daily homework assignment (i.e., practice of PCAT skills)	Greater emphasis on increasing positive touching (e.g., hugs)
Emphasis on nondirective play	Developmentally younger toys

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In both PCIT and PCAT, the therapist coaches the parent to differentially reinforce appropriate child behaviors and allow the child to lead the interaction. The therapist coaches and models verbalizations and behavioral techniques that serve to improve the parent-child relationship and decrease toddler behavior problems. During

initial coaching sessions, parents are asked to repeat therapist comments verbatim, and as coaching progresses, parents are given less structure and more freedom in their interactions. Commands and questions are discouraged, as are threats and criticisms. When commands are necessary, they are coached to be simple, direct, and positively stated. Regardless, verbalizations that require a behavioral or verbal response from the child are minimized, as these present an opportunity for noncompliance, increased parent frustration, and escalating interactions characteristic of Patterson's (1982) coercive interaction style (Dombrowski et al., 2008).

PCIT and PCAT are also similar in that in both, the parent is coached to increase the power of his or her attention by describing child actions in a way that conveys interest in the child's play. Mild negative child behaviors are ignored, and the therapist provides a strong rationale to the parents to support changes in well-established patterns of parent-child interactions (Dombrowski et al., 2008). PCAT differs from PCIT in that less emphasis is placed on the practice of time-out in PCAT. Time-out is thought to be developmentally inappropriate for toddlers; differential attention and redirection may prove more appropriate and effective for this age group (Dombrowski et al., 2008).

**Behavior management in PCAT.** PCAT emphasizes the importance of developmental stage and cognitive capabilities in the determination of the most appropriate behavior management strategy to use with toddlers. Dombrowski et al. (2008) provide the information displayed in Table 3 as a guide for selecting the most developmentally appropriate behavior management strategy to use with each individual toddler in PCAT, based on developmental stage.

Table 3.  
*Behavior Management Strategies in PCAT*

Behavior Management Strategy	Cognitive Prerequisites	Developmental Considerations
Childproofing	---	Removing dangerous or treasured objects from the reach or vision of the child protects the child, removes a source of worry and/or annoyance from the relationship, and facilitates positive child behavior.
Redirecting (3 months +)	Child must be able to adjust behavior in response to external events and stimuli.  As child becomes able to recall the memory of the disallowed pleasurable activity, parent will need to accompany redirecting with heightened enthusiasm, and possibly a reasoned explanation for the change in activities.	Allows the parent to effectively maintain a stable and positive level of emotional arousal, forestalling the need for more coercive management strategies.
Direct Commands (9-12 months +)	Child must be able to respond to warning signals (“Hot! Don’t touch!”), showing the ability to comply with simple commands.	Children will self-initiate inhibitive behavior (i.e., parents’ “Don’t” commands like “No”) before the self-initiate “Do” commands.
	Child must understand the words and syntax the caregiver uses when giving the command (e.g.,	Most situations requiring children to comply are situational (e.g., “Please wash your hands”), depend on



	if the child does not know “red” from “blue,” he or she will not be able to identify a red bag and take it to the caregiver).	the demands of the moment, and do not assume the child will know what to do without parental guidance. To maximize compliance, commands should be stated simply and positively. The more complex the command, the greater the load on memory capacity, and the greater the chance of noncompliance.
Establishing Rules (9-12 months +)	Some memory capacity is essential for remembering prohibited and allowed behaviors.	Complying with “Don’t” rules concerning safety emerges early, and children are generally compliant with these rules.
	Child must show at least rudimentary self-control or impulse control.	Establishing rules helps to organize both parents’ and children’s beliefs and expectations for appropriate social behavior.
Active Ignore/Selective Attention (12-18 months +)	Child must show at least rudimentary self-control or impulse control.  Child must value attention from an adult more than the pleasure of performing a disallowed task.	This strategy is effective if the reinforcing value of caregiver attention is greater than the value of the immediate pleasure of doing the disallowed activity. Selective attention should not be used if the activity is dangerous or highly stimulating.
	Child must recognize the association between losing the adult’s attention and the inhibition of the prohibited act.	

<p>Two Choices, Time-Out, Removal of Privileges (30 months +)</p>	<p>Child must be able to symbolically represent two competing activities and outcomes, and recognize that he or she must choose one option.</p>	<p>Parents may use the two-choice strategy with children who are not cognitively mature enough, and it may appear as though they are making a choice when they are simply complying with the first request.</p>
<p>If child cannot self-soothe, time-outs should not be used.</p>		<p>Time-outs are most effective as a way of removing a child from a highly arousing but undesirable activity, giving the child time to calm down. At the same time, this strategy is a punishment (removal of the privilege of playing at that moment) and should not be relied upon as a behavior management strategy.</p>
<p>To effectively use the strategy of removing privileges, child must be able to symbolically represent the choices and the effect of losing a privilege. Child also must associate the inhibition of the undesirable behavior with retaining the privilege.</p>		

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For very young infants, childproofing requires no cognitive considerations. Childproofing allows adults to control the child's environment and limit access to dangerous or precious objects. This behavior management strategy is generally not necessary until the child is mobile and able to grab objects but is useful because it can help minimize parent and child anger and frustration. Redirecting requires the child be able to perceive and respond to environmental input, which begins at approximately 3 months of age (Kopp, 1982). Specifically, to be redirected from an undesirable to a more desirable activity, infants must be able to respond to external events and stimuli (e. g., show interest in toys dangling in front of them). Redirection is an effective way to maintain a consistent level of positive arousal because the original positive stimulus is substituted with an equally attractive positive stimulus (Dombrowski et al., 2008).

Older infants (i.e., 9 to 12 months) begin to respond to warnings and prohibitions (Kopp, 1982). The ability to respond to warnings demonstrates the development of internal self-control and signals to parents that their child is able to comply with simple rules and commands. Such direct commands may be used to manage behavior, but with the awareness that memory capability, receptive language ability, and developmental ability may impede full compliance (Dombrowski et al., 2008).

Between one year and 18 months, infants begin to initiate self-inhibitory behavior (Kochanska, Coy, & Murray, 2001) and control their behavior in accordance with rules (Dombrowski et al., 2008). This desire to please caregivers and follow rules is believed to be related to the parent-child relationship (Kochanska & Aksan, 1995). The ability to control impulses and follow rules demonstrates memory capacity that allows parents to effectively use differential attention to address undesirable behavior. This strategy may

be further effective if the parent cues the child to the situation verbally (e.g., “When Sally plays gently, then I can play with her) as well as through behaviors (e.g., playing alone and not interacting with child). Following the child’s return to appropriate behaviors, the parent enthusiastically returns attention to the child and may choose to verbally state why he or she returned attention to the child (e.g., positive behavior). This strategy requires that the infant have a sense of social awareness, an understanding of the effects of their behavior on the environment and the way their behavior must be modified, ability to perform the desirable behavior, and ability to control the impulse to do the undesirable behavior (Dombrowski et al., 2008).

The final behavior management strategy used in PCAT requires the highest level of cognitive maturity (Dombrowski et al., 2008). It directs the parents to respond to undesirable behavior by giving their child two choices: to perform the appropriate behavior or receive a time-out/removal of privileges. The two choices/time-out/removal of privileges sequence requires that the child is able to recall engaging in each option as well as evaluate each option’s desirability. This recall and representational thinking is thought to begin around 18 months of age, but the child may not be able to evaluate the options until around 24 months of age. Specifically, between 18 and 24 months, children are able to understand social rules (Gralinski & Kopp, 1993), recall associated emotions (Wellman & Woolley, 1990), and connect emotions to decisions (Repacholi & Gopnick, 1997), allowing the child to understand the two-choice sequence. However, toddlers may not successfully complete the two-choice sequence, given their limited self-control and ability to maintain less stimulating appropriate behavior (Kopp, 1989).

A time-out may be an effective behavior management strategy for a toddler if his or her memory, self-control, and emotional regulation are appropriately developed. Many toddlers may have a strong emotional reaction to being removed from a highly stimulating inappropriate activity and being placed in time-out. This may defeat the purpose of time out, which is to calm the child in an unstimulating environment. Therefore it is recommended that time-out only be used if other behavioral strategies (e.g., redirection, selective attention, removal of privilege) are ineffective (Dombrowski et al., 2008). It is also necessary that the toddler is able to navigate the two-choice sequence. This ability develops between 30 and 36 months, as they should be able to understand that they have broken a rule or earned a negative consequence. They must be able to demonstrate effortful control to stop the desired activity and engage in an undesired activity (e.g., Putnam, Garstein, & Rothbart, 2006) and sustain a stimulating activity (e.g., sitting in time-out) for a specified period of time (Kochanska et al., 2001). Finally, they must be able to demonstrate effortful control again by complying or behaving appropriately following a time-out.

**PCAT research.** PCAT has received very little research attention to date. Preliminary case study research with maltreated toddlers and their mothers demonstrates that the implementation of PCAT improves parent-child interactions, reduces parent stress, and decreases dysfunctional relationship patterns (Dombrowski et al., 2005). The case study featured a 23-month-old toddler and his 25-year-old biological mother referred for therapy due to temper tantrums and aggression.

The study evaluated PCAT effectiveness through the Dyadic Parent-Child Interaction Coding System (DPICS; a behavior coding system designed to address quality

of parent-child interactions), the Achenbach Child Behavior Checklist (CBCL; an assessment of problem child behaviors), the Eyberg Child Behavior Inventory (ECBI; an assessment of specific behavior problems), the Parenting Stress Index – Short Form (PSI-SF; an assessment of parent stress), and the Emotional Availability Scales (EA; a measure of parent sensitivity, non-hostility, non-intrusiveness, and skill in structuring interactions, and child responsiveness and degree of parent involvement). The mother was taught and coached to follow the child's lead and use CDI skills in accordance with PCAT. She was taught to use praise, limit questions and commands, ignore inappropriate behaviors, and use redirection (Dombrowski et al., 2005). Parent-child interactions were coded at baseline and at post-treatment, and the parent was asked to complete rating scales at baseline and at post-treatment as well.

Results of the case study demonstrated extreme increases in the mother's use of praise (5 times at baseline 5-minute observation, 46 times at post-treatment 5-minute observation), descriptions (12 at baseline, 59 at post-treatment), and reflections. Questions were decreased from 50 at baseline to 2 at post-treatment. The child demonstrated increased compliance from baseline to post-treatment, however, parent ratings on the ECBI and CBCL showed problem behaviors as having increased from baseline to post-treatment. Parent stress scores decreased very slightly from baseline to post-treatment. It is noteworthy, though, that elevated levels of defensive responding were detected. Emotional availability scores improved from baseline to post-treatment, shifting to the optimal range. By post-treatment, the parent and child were able to play together in an engaging manner, with the child in the lead. The mother was less directive, more positive, more creative, more comfortable, and more involved. She appeared less

disturbed by the child's noncompliance and was able to effectively "active ignore." The child was more cheerful and talkative, he spent more time interacting positively with his mother, and he was able to control negative quickly (Dombrowski et al., 2005).

**Limitations of PCAT.** Previous literature indicates that tantrums are effectively addressed through prevention techniques. These include a strong parent-child relationship and the use of strategies such as differential reinforcement of alternative behaviors, effective commands as a form of antecedent control, and communication training or language modeling. Ongoing tantrums may be addressed using extinction procedures such as ignoring and time out. However, although PCAT uses the child directed intervention and preventative differential attention skills used in PCIT, the model neglects to incorporate the use of effective commands and language modeling as supporting prevention strategies. Effective commands (Jenson et al., 2010) are demonstrated to be efficient and effective way to manage tantrum behaviors because they serve as antecedent control and prevent problematic tantrum behaviors (McCurdy et al., 2006), but they are not taught or coached to parents through PCAT. Furthermore, and important to the PCAT focus on the toddler period, direct commands are indicated as a positive behavior management strategy appropriate for toddlers (Dombrowski et al., 2008).

Likewise, there is research support for the use of teaching children to express feelings verbally through the modeling of words in order to reduce tantrums (Karp & Spencer, 2004; cited in Osterman & Bjorkqvist, 2010; Vollmer et al., 1996). It is thought that by providing to and modeling for young children a verbal mode of expression, they may be better able to use words to describe their wants, needs, and feelings, rather than

relying on tantrum behaviors to meet these needs. In existing PCAT research, modeling, reflecting, and praising child verbalizations is used to promote positive parent-child interactions and reinforce positive child behaviors. However, the specific modeling of emotion language is neglected as a point of focus in the existing PCAT model.

Finally, the existing PCAT model does not specifically identify tantrums as a target behavior. Therefore its use to modify toddler tantrum behavior remains unevaluated. The use of differential reinforcement of alternative behaviors in Child Directed Interaction has not been evaluated with respect to tantrum-specific behaviors, nor has the coaching of planned ignoring and extinction of toddler tantrums.

### **Summary and Purpose of the Study**

Although tantrums are a common feature of toddlerhood and are displayed by at least half of all 2-year-olds, highly frequent tantrums that are more consistent and persistent may be indicative of problems in the parent-child relationship or parenting behaviors (Einson & Potegal, 1994). Furthermore, high rates of tantruming may indicate children who are likely to persist in their tantruming behaviors (Einson & Potegal). Untreated, these behaviors are associated with a variety of long-term outcomes such as antisocial behavior, adolescent delinquency, and substance abuse (Butler & Eyberg, 2006). Thus, there is a significant need to address problematic tantrum behaviors in early childhood.

Parent-Child Interaction Therapy (PCIT) is an intervention designed to help parents develop a warm and loving relationship with their child, to help parents teach their child prosocial skills, and to decrease inappropriate child behaviors. However, research on PCIT is limited in that the process of treatment for toddlers is under-



developed and the efficacy of the model of toddlers is unaddressed (Dombrowski et al., 2008). Parent-Child Attunement Therapy (PCAT) is a developmentally modified version of the well-established PCIT that aims to improve challenging parent-toddler relationships and ameliorate toddler externalizing behaviors (Dombrowski et al., 2005). A case study on PCAT (Dombrowski et al., 2005) suggested that the model is a promising program that increases the number of positive parent-child interactions and may contribute to enhancing the parent-child relationship. This research is important because by establishing strong parent-child relationships, the parent-child dyad may be buffered from coercive interactional patterns (Urquiza & McNeil, 1996).

PCAT serves to address the gap of PCIT intervention research for toddlers, but there is only one case study in the published literature on the efficacy of PCAT. This remains a significant gap in the literature due to the substantial need for relationship and behavior support in this population. The present study addressed the gap in the literature by investigating the immediate impact of PCAT strategies on parenting behaviors, toddler tantrum behaviors, and the parent-toddler relationships, and by augmenting the research conducted by Dombrowski et al. (2005). This study extended the researched conducted Dombrowski and colleagues by exploring an extension of PCAT as a means by which to address the parent-toddler relationship and reduce the occurrence of high frequency toddler tantrums.

The present study explored an enhancement of PCAT, Parent-Child Attunement Therapy-Enhanced (PCAT-E), which incorporates strategies demonstrated in the literature to be features of effective parenting: nurturance (Ainsworth, 1969; Baumrind, 1966) via enthusiastic praise and warm interactions in Child Directed Interaction, and

guidance (Jenson et al., 2010; Mallot & Trojan Suarez, 2004; McCurdy et al., 2006) via the use of effective commands and differential reinforcement of alternative behaviors. Whereas PCAT focuses on using the child directed intervention and differential attention skills used in PCIT, PCAT-E supplemented these strategies with the use of effective commands.

This study extended the research on PCAT through the use of antecedent control to reduce tantrums. Specifically, the intervention was enhanced by teaching parents methods to focus on establishing consistency in discipline through the use of effective commands, and enthusiastic praise to differentially reinforce compliance (Mallot & Trojan Suarez, 2004). Previous PCAT research has not included teaching and coaching of parents in the application of effective commands (Jenson et al., 2010) as a component of behavior modification. Following an operant conditioning model, effective commands served as a form of antecedent control that promoted compliance and enthusiastic praise served to reinforce the occurrence of this behavior (McCurdy et al., 2006). Additionally, extinction, or the removal of reinforcement for previously reinforced behavior (Martin & Pear, 2003), was used as the recommended response to active, ongoing tantrums (McCurdy et al.). Thus, if a tantrum was used to gain attention, access tangibles, or avoid or escape negative stimuli, this reinforcement was removed to reduce tantrum behavior.

Likewise, the existing model of PCAT was strengthened in PCAT-E to support emotion language development. In existing PCAT research, modeling, reflecting, and praising child verbalizations is used to promote positive parent-child interactions and reinforce positive child behaviors. In the current study, there was an additional and distinct focus on modeling, reflecting, and praising emotion-specific language to

encourage and reinforce the child's use of this language. Importantly, there was no requirement or expectation that the child would do so independently. It is thought that by providing young children with a verbal mode of expression, they may be better able to use words to describe their wants, needs, and feelings, rather than relying on tantrum behaviors to meet these needs. This supported the goal of this study to reduce toddler tantrums through PCAT-E.

Thus, the current study examined the impact of PCAT-E on parenting behaviors, child tantrum behaviors, and the parent-child relationship. It extended the research by incorporating effective commands and modeling and praise of verbal communication to express wants, needs, and desires in an effort to reduce toddler tantrums, while building upon the PCAT model's focus on strengthening and the parent-child relationship. Specific research questions for this research study are: (a) What are the immediate effects of PCAT-E on parenting behaviors?, (b) What are the immediate effects of PCAT-E on toddler tantrum behaviors?, and (c) What are the immediate effects of PCAT-E on the parent-toddler relationship? Positive parenting behaviors were assessed through coded video of play sessions using the Dyadic Parent-Child Interaction System-III (DPICS-III; Eyberg et al., 2005). Toddler tantrum behaviors were tracked via parent ratings, and changes in the parent-toddler relationship were assessed using the Parenting Relationship Questionnaire (PRQ; Kamphaus & Reynolds, 2006).

## Chapter 3: Methods

### Setting and Study Context

All research activities were completed in Lincoln, Nebraska, a medium-sized Midwestern community, and the surrounding area. Child participants and their families were recruited through flyers and referring pediatricians at Complete Children's Health (CCH), a group pediatric practice with three locations in Lincoln, Nebraska. More information regarding the recruitment procedures is available on p. 74. The principal investigator and a second therapist conducted all intervention activities at the UNL Counseling and School Psychology Clinic and in families' homes. Intervention procedures and behavioral observations were implemented in both home and clinic settings.

### Participants

#### Selection Criteria

Four parent-toddler dyads in the Lincoln, Nebraska community and surrounding area served as participants. Each dyad was referred for participation in the program by his or her physician based on concerns raised by parents during regular well-child visits. Mothers and toddlers participated jointly in the project. *Inclusionary criteria* for the dyads were the following:

1. Parent-child dyads demonstrated a challenging relationship. The relationship was considered to be challenging if parent ratings on the Parenting Relationship Questionnaire (PRQ; Kamphaus & Reynolds, 2006) were in the "at-risk" range, specifically if T-scores on the PRQ were below 40 (at-risk classification cutoff) on adaptive scales (i.e., attachment, discipline practices, involvement, and parenting

- confidence) or above 60 (at-risk classification cutoff) on the maladaptive scale (i.e., relational frustration).
2. Toddler participants demonstrated an average of five or more tantrums per day, defined as “stiffening limbs and arching back, dropping to the floor, shouting, screaming, crying, pushing/pulling, stamping, hitting, kicking, throwing, or running away” (Potegal & Davidson, 2003, p. 141).
  3. Toddler participants were ages 24-36 months, male or female, and lived in Lincoln, Nebraska and/or the surrounding area.
  4. The families of child participants provided voluntary, informed consent for their participation and their child’s participation in the study.
  5. English was the primary language spoken by both child participants and their families.

*Exclusion criteria* for parent and toddler participants were the following:

1. Significant child developmental delays and medical conditions that could preclude participation in assessment or intervention.
2. Parent perception of serious barriers to their full and consistent participation in the study.
3. Serious parental psychiatric disorder (e.g., schizophrenia) or intellectual disorder that could preclude participation in assessment or intervention.

### **Toddler Participant Information**

Four toddlers ages 24-34 months participated. Participating toddlers were limited by age and language spoken in the home to limit confounding variables within a restricted sample for this study. See Table 4 for demographic information for each child

participant. Pseudonyms are used to represent each child participant. Pertinent narrative information about each child's background is also noted below.

Table 4.  
*Toddler Participants' Demographic Information*

Participant	Gender	Age (months) at start of project	Ethnicity
Kyle	M	34.1	White
Billy	M	33.9	Multi-racial
Ryan	M	24.4	White
Molly	F	32.9	African American

**Kyle.** Kyle, age 34.1 months, lived with his biological mother and father. They reported no concerns regarding Kyle's development. His mother and father were expecting Kyle's first biological sibling, a sister, to arrive in six months. Kyle's mother and father worked full-time outside of the home. Kyle's parents reported that Kyle displayed tantrum behaviors during transitions, when he did not get what he wanted, and when he was redirected. He became "instantly upset" and became aggressive. Tantrum behaviors included crying, screaming, pushing, throwing himself on floor, and running away to his room, and they occurred 10 or more times per day, lasting approximately five minutes on average.

**Ryan.** Ryan, age 24.4 months, lived with his biological mother, father, and baby sister. Ryan's mother reported no concerns with his development. Ryan's mother and father worked full-time outside of the home. Ryan's mother reported that he displayed tantrum behaviors when he could not communicate, did not get his way, was redirected, or was given a task to complete. Tantrum behaviors included crying, screaming, making

his hands into fists, stomping, and hitting. Tantrums were reported to occur 8-10 times per day, and crying fits were reported to occur 20 or more times per day. Average length of a tantrum was estimated to be 3-15 minutes.

**Billy.** Billy, age 33.9 months, lived with his biological mother and no siblings. Billy's step-father lived in the home part time. Billy's mother reported that she had concerns regarding his development and that the family was involved with Early Head Start. Billy's mother and her husband were unemployed and looking for work. The family received assistance in the form of Food Stamps, WIC, and disability benefits. Billy's mother reported that he displayed tantrum behaviors when he was asked to complete a task or to stop an activity but also that they "come out of nowhere." Tantrum behaviors included head banging, running away, grunting, throwing items, screaming, hitting, and pulling the dog's hair. Tantrums characterized by "throwing" were reported to occur two times per day and lasted approximately 30 minutes. Tantrums characterized by "screaming" were reported to occur six time per day and lasted until he obtained what he wanted.

**Molly.** Molly, age 32.9 months, lived with her foster mother and father and three foster siblings. Molly's foster mother initially reported plans to adopt Molly, but prior to the completion of the study, she indicated that the family would no longer be completing the adoption process. Molly's foster mother reported concerns with delays in her development. Molly's foster mother was unemployed, and her foster father worked full time outside of the home. The family received assistance in the form of WIC and foster care payments. Molly's foster mother reported that she displayed tantrum behaviors when seeking attention, told not to engage in an activity, completing a routine or transition, or

struggling to communicate. Tantrum behaviors included clenched fists, screaming, throwing herself on the ground, hitting her head on the wall, kicking, and crying.

Tantrums were estimated to last five minutes and occur 8-10 times per day.

### **Parent and Consultant Information**

Six family members participated in therapy sessions with the principal investigator and/or the second therapist. Five participating family members were biological parents, and one was a foster mother. Kyle's mother and father participated, although his mother was the primary participant. Billy's mother and stepfather participated, and his mother was the primary participant. Ryan's mother participated, and Molly's foster mother participated. Five parents were White and one was multi-racial (i.e., Billy's stepfather), and all parents were between the ages of 26 and 35 years. All parents were married, but Billy's stepfather lived in the home part time.

The PI and a graduate student served as the therapists in this study. The PI was a 27-year-old White female. She received her Master's degree in Educational Psychology from the University of Nebraska-Lincoln and was a doctoral candidate in the School Psychology Program. She received training in family and child interventions, including PCIT. She met mastery criteria in using PCIT parenting skills, and was trained in coaching by a PCIT therapist. The PI recruited participants, coordinated therapy sessions with families, analyzed information regarding outcomes, and monitored treatment implementation. The graduate student who served as a second therapist was a 24-year-old Latina female. She was a doctoral student in the Clinical Psychology Program at the University of Nebraska-Lincoln. She received training in family and child interventions, including PCIT. She met mastery criteria in using PCIT parenting skills, and was trained



in coaching by a PCIT therapist. The graduate student provided weekly therapy sessions to two families and was supervised by a PCIT therapist.

## Study Variables

### Independent Variable

The independent variable in the study was Parent-Child Attunement Therapy-Enhanced (PCAT-E). The skills taught during PCAT-E were similar to those taught during Parent-Child Interaction Therapy (PCIT) but were adjusted based on developmental appropriateness for toddlers (Dombrowski et al., 2008). The specific skills targeted in this study were play therapy skills, differential attention (i.e., attending to positive behaviors and ignoring negative behaviors), redirection, modeling language for emotions, and effective commands to prevent tantrums.

The play therapy skills included in PCAT-E are referred to as PRIDE strategies. The PRIDE strategies are described in Table 5. Additional play therapy strategies used in PCAT-E are referred to as avoiding skills. These include avoiding asking questions, giving unnecessary commands, and using criticism (McNeil & Hembree-Kigin, 2011).

Table 5.  
*Pride Skills and Purpose*

Skill	Definition	Purpose
<b>Praise</b> appropriate behavior	<ul style="list-style-type: none"> <li>specific statements expressing positive judgment</li> </ul>	<ul style="list-style-type: none"> <li>increase specific desired behavior</li> <li>increase toddler self-esteem</li> <li>strengthen the relationship</li> </ul>
<b>Reflect</b> appropriate talk	<ul style="list-style-type: none"> <li>repeats the child's talk</li> </ul>	<ul style="list-style-type: none"> <li>allow the toddler to lead conversation</li> <li>demonstrate that the parent is listening and understands</li> <li>improve speech and communication</li> </ul>

<b>Imitate</b> appropriate play	<ul style="list-style-type: none"> <li>imitates the child's behavior</li> </ul>	<ul style="list-style-type: none"> <li>allow the toddler to lead</li> <li>demonstrate approval and involvement in the activities</li> <li>teach turn taking</li> <li>may increase toddler imitation of parent play</li> </ul>
<b>Describe</b> appropriate behavior	<ul style="list-style-type: none"> <li>describes the child's current activity</li> </ul>	<ul style="list-style-type: none"> <li>allow the toddler to lead</li> <li>demonstrate interest</li> <li>teach concepts,</li> <li>model speech</li> <li>organize toddler's understanding of play</li> </ul>
<b>Enthusiasm</b>	<ul style="list-style-type: none"> <li>positive affect, excited tone of voice, expression of enjoyment</li> </ul>	<ul style="list-style-type: none"> <li>demonstrate interest</li> <li>model appropriate positive emotions</li> <li>strengthen the relationship</li> </ul>

(McNeil & Hembree-Kigin, 2011)

The rules for effective commands (Jenson et al., 2010) are a series of 12 steps parents may take to increase the effectiveness of their commands, prompting higher rates of compliance and fewer tantrums. Effective commands are described in Table 6.

Table 6.  
*Effective Commands*

1. Say "start" instead of "stop." Specifically, tell the child what to do instead of what not to do.
2. Use a clear directive, not a question. Specifically, say "Please put your toys away," not "Would you put your toys away?"
3. Make eye contact. Specifically, look directly at the child and state his or her name when giving the command.
4. Shorten the distance. Specifically, move within an arm's length distance from him or her.
5. Use a soft, but firm, voice
6. Build behavior momentum. Specifically, give easy commands first before giving more challenging commands.

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7. Give descriptive directions. Specifically, tell the child exactly what is expected of him or her; avoid any ambiguity.
  8. Demand the possible. Specifically, give the child a command that he or she is able to do, potentially giving the command in a series of simple steps.
  9. Time: Wait five seconds. Specifically, remain silent for five seconds and allow the child to begin complying.
  10. Only twice! Specifically, tell your child what you require only two times, and avoid nagging and interrupting with additional instructions.
  11. Remain calm.
  12. Reinforce compliance. Specifically, enthusiastically praise the child for complying with each command.
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### **Dependent Variables**

The primary dependent variable for this study was parenting behavior. Secondly, toddler tantrum behaviors (i.e., frequency and duration) and the parent-toddler relationship were of interest. Finally, parent perception of the feasibility and acceptability of PCAT-E as well as of toddler tantrums were of interest.

Parenting behaviors were labeled praise, reflection, behavioral description, command, question, and negative talk. See Table 7 for definitions of parent behavior dependent variables.

Table 7.

#### *Parent Behavior Definitions*

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Category	Definition
Labeled Praise	Specific statement expressing positive judgment
Reflection	Repeats the child's talk
Behavioral Description	Describes the child's current activity

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Command	A clearly stated order, or an implied direction, often asked in question form
Question	A comment expressed as a question
Negative Talk	Expression of disapproval

(McNeil & Hembree-Kigin, 2011)

Toddler tantrums were defined as each episode of the occurrence of one or a combination of the following behaviors: stiffening limbs and arching back, dropping to the floor, shouting, screaming, crying, pushing/pulling, stamping, hitting, kicking, throwing, or running away. Finally, the parent-toddler relationship was defined as the parent's perception of the parent-child relationship (i.e., attachment, discipline practices, involvement, parenting confidence, and relational frustration).

## Measures

### Parenting Behaviors

A standard, research-based observation system, the *Dyadic Parent-Child Interaction System-III* (DPICS-III; Eyberg et al., 2005), was used to assess parenting behaviors. The DPICS-III is an observation coding system used to assess parent interaction behaviors and was developed as the primary coding system for PCIT. Thus, it has frequently been used with parents and their children aged 2-7. Five-minute free-play periods are conducted wherein parents interact freely with their children in video-recorded sessions. The following parent behaviors are coded based on video recordings of the free-play period: labeled praise, reflection, behavioral description, command, question, and negative talk. Table 7 contains definitions of each of these behaviors. Each occurrence of each of the parent behaviors is tallied within the specified play period

(McNeil & Hembree-Kigin, 2011). Psychometric information and the collection schedule for this and all measures are provided in Table 8.

### **Toddler Behaviors**

The *Eyberg Child Behavior Inventory* (ECBI; Eyberg, 1999) was used to assess child behaviors before and after intervention. The ECBI is designed to assess parental report of child behaviors in children aged 2-17. The ECBI utilizes a 36-item 7-point Likert scale to assess the frequency with which potential problem behaviors occur, and a yes/no response option is provided to indicate whether the parent finds each particular behavior to be a problem. The Total Intensity score is the sum of the Likert scale items, and the Total Problem score is the sum of “yes” responses (Boggs, Eyberg, & Reynolds, 1990). Raw scores are converted to T scores. The measure was completed by the mother.

Toddler tantrum behaviors were screened and assessed through parent observations and ratings of the toddler on a daily basis. Parent observations included information about the frequency and duration of tantrums. Parents were asked to tally the number of tantrums their child had each day. They were also asked to time the duration of the tantrum. Parents began timing at the first occurrence of a major tantrum (i.e., one or a combination of the following: stiffening limbs and arching back, dropping to the floor, shouting, screaming, crying, pushing/pulling, stamping, hitting, kicking, throwing, or running away; Potegal & Davidson, 2003) and concluded timing when the last of the behaviors ceased. Parents also recorded notes on the specific events leading up to a tantrum and the parent response to the tantrum. Ratings and descriptions were reported using a tracking form developed by the principal investigator. Frequency of tantrums were derived by summing the total number of tantrums occurring each day. Duration of

tantrums was calculated using “time started” and “time ended” data.

Antecedent/consequence data was used to inform treatment planning. See Appendix A for a copy of the parent observation and rating form.

Table 8.  
*Instruments for the Study*

<b>Construct Measured</b>	<b>Instrument</b>	<b>Subscales Derived for the Present Study</b>	<b>Psychometric Properties</b>	<b>Timing of Assessment</b>
<b>Parenting behaviors</b>	Dyadic Parent-Toddler Interaction System-III (DPICS-III; Eyberg et al., 2005)	Labeled praise, reflection, behavioral description, command, question, and negative talk	Intraclass correlation coefficients (for the coding categories have been found as the following: descriptions/reflections = 0.76; praises = 0.94; questions/commands = 0.97 (Dombrowski, Timmer, Blacker, & Urquiza, 2005).	Baseline data collection, Intervention data collection
<b>Toddler behaviors</b>	The Eyberg Child Behavior Inventory (ECBI; Eyberg, 1999)	Total Intensity and Total Problem	Test-retest (.86-.88), internal consistency (.88-.95).	Pre intervention, Post intervention
	Parent Observation and Rating Form	Number of tantrums occurring each day, duration of tantrums, antecedents and consequences of tantrums		Participant screening, Baseline data collection, Daily intervention data collection

<b>Parent-toddler relationship</b>	Parenting Relationship Questionnaire (PRQ; Kamphaus & Reynolds, 2006)	Attachment, discipline practices, involvement, parenting confidence, and relational frustration	Coefficient alpha reliability medians range between .82 and .87 on the various scales. The median test-retest correlation on the PRQ is .81 (mean of 33 days).	Participant screening, Post intervention
<b>Social Validity of PCAT-E</b>	Behavior Intervention Rating Scale (BIRS; Elliot & Treuting, 1991)	Acceptability and Effectiveness	Alpha coefficients for the Total Scale, Acceptability, Effectiveness, and Time to Effect factors are 0.97, 0.97, 0.92, and 0.87, respectively (Von Brock & Elliot, 1987).	Post intervention
Parent Narrative				Immediately Post intervention



## **Parent-Toddler Relationship**

*The Parenting Relationship Questionnaire* (PRQ; Kamphaus & Reynolds, 2006) was used to assess the parent-toddler relationship. Responses to the 45-item questionnaire are provided on a Likert-type scale. The PRQ is designed to assess the parent's perspective of the parent-child relationship for children aged 2-18 and has been normed across a population closely matched to U.S. Census population estimates. Scores provided by the scale include T-scores and percentiles based on a general population. Subscales on the preschool version of the measure are: attachment, discipline practices, involvement, parenting confidence, and relational frustration.

## **Social Validity of PCAT-E**

The *Behavior Intervention Rating Scale – Parent Version* (BIRS; Elliot & Treuting, 1991) was used to assess parent perception of PCAT. Responses to the 15-item questionnaire were provided on a Likert-type scale (1 = high perceived efficacy; 6 = low perceived efficacy). Factor analysis of the BIRS has revealed three factors: Acceptability, Effectiveness, and Time to Effect (Elliott & Von Brock Treuting, 1991). The Acceptability factor assess the acceptability of intervention procedures, the Effectiveness factor informs on perceptions of the overall efficacy of the intervention plan, and the Time to Effect factor measures perception of the time required for intervention results. Scores range from 1 (high perceived efficacy) to 6 (low perceived efficacy).

A researcher-developed parent narrative form was also used to assess social validity and parents' perceptions of the impact of PCAT-E on their behaviors, their relationship with their toddler, and their toddlers' tantrum behaviors. Nine open-ended questions provided opportunity for parents to express in their own words their perception

of PCAT-E and impact on themselves and their toddlers. See Appendix B for a copy of the parent narrative form.

## **Procedures**

### **Recruitment, Screening, and Consent**

Flyers were distributed through Complete Children's Health, a group of local primary care clinics, and doctors and nurses were asked to make referrals based on family concerns regarding toddler behavior problems. Families called the PI to initiate the screening process. Screening measures were completed by parents via phone with the PI. Specifically, the parents completed the PRQ over the phone, and the PI shared PCAT-E's definition of tantrums (i.e., stiffening limbs and arching back, dropping to the floor, shouting, screaming, crying, pushing/pulling, stamping, hitting, kicking, throwing, or running away; Potegal & Davidson, 2003). Parents then reported on the average number of tantrums occurring per day, consistency of that average, and toddler-specific features of the tantrums. Additionally, the PI asked questions regarding existing developmental child concerns, presence of parent mental health concerns, and significant barriers to continuous involvement in treatment. No data were gathered by or shared with Complete Children's Health.

Parents met with the PI at the UNL Counseling and School Psychology Clinic to discuss study procedures and to provide informed consent for their participation in the study. During this session, they were interviewed regarding their primary concerns so that the therapist could address relevant parent concerns within the scope of the PCAT-E intervention and increase parent commitment to participation. Specific information regarding child tantrums was elicited at this time, including average number per day,

typical estimated duration, typical triggers, parent response, and child response. Parents completed the ECBI and a demographic form. Parents also engaged in one video-recorded five-minute free-play session with their toddler for the purpose of baseline data collection. Specifically, each occurrence of parents' use of labeled praise, reflection, behavioral description, command, question, and negative talk within the play session was later tallied. This observation served as the first data point in the baseline data phase. Further description of baseline data collection is provided below.

**Kyle.** At the consent session, Kyle's parents reported that Kyle's tantrums were typically related to transitions and access to desired activities/materials. He also tantrumed when he was redirected. Kyle's parents reported that they responded to tantrums by counting to three slowly, giving him choices, ignoring him, putting him in time out, or talking with him about his concerns. Time out consisted of sitting on a chair in the corner of the room facing the wall, and lasted for as long as two minutes to two hours. They reported that Kyle's father was more likely to become stern, threaten, and raise his voice.

**Ryan.** At the consent session, Ryan's mother reported that Ryan displayed tantrum behaviors when he struggled to communicate, was unable to gain access to preferred materials/activities, was redirected, or was given a task to complete. Ryan's mother indicated that she responded to tantrums by putting him in his crib for approximately ten minutes, spanking, raising her voice, and yelling at him.

**Billy.** At the consent session, Billy's mother and stepfather reported that Billy's tantrums were typically related to noncompliance, wanting access to activities or materials, and redirection. They reported that they used verbal pleading and time out

when he engaged in tantrum behaviors. Time out consisted of going to his room with the door shut, sitting on his bed and watching television, and being told to come out after two minutes. Billy's mother reported that Billy laughed when he was in trouble and continued to "be naughty" following time outs. She also reported that he occasionally hurt himself to obtain attention.

**Molly.** Molly's foster mother reported at the consent session that Molly displayed tantrum behaviors when seeking attention, redirected, in transition or routines, or struggling to communicate. She indicated that she and Molly's foster father ignored tantrums or made Molly stand in the corner. She was required to stay in the corner until she was calm and dismissed, but she often left the corner without permission and was not required to go back.

### **PCAT-E Intervention**

Parents and their toddlers were coached by their assigned therapist in the use of PCAT-E strategies as an intervention focused on the parent-toddler relationship and externalizing toddler behaviors. Intervention sessions were conducted with each dyad individually. Intervention took place over the course of one introductory session and seven weekly intervention sessions. Importantly, Molly's treatment time terminated early (after coaching session six) when she was placed in another home, whereas Billy's treatment time was extended due to missed sessions. Kyle's and Ryan's families also missed one session each due to vacation/illness and rescheduling conflicts. The content of sessions is described in Table 9, and the sequence of research procedures for each participant is described in Table 10. The start of intervention was randomly staggered across participants to fulfill the requirements of the multiple probe experimental design.

Clinical details for each participant across intervention sessions are presented in

Appendix C.

Table 9.

*Session Objectives and Goals*

Session	Objective	Goal
Teaching Session	Teach parents PRIDE and avoiding skills, redirection, modeling language for emotions, and effective commands to prevent tantrums.	The parent will have a beginning understanding of PRIDE and avoiding skills.
Coaching Sessions 1-2	Teach parents to set rules, use positive communication (e.g., praise), and model positive behaviors.  Teach parents how to effectively use differential attention to increase positive behaviors and decrease negative behaviors.  Teach parents to model emotion language.	The parent will be able to recognize the child's positive behavior.  The child will initiate play with the parent and enjoy playing with him or her.
Coaching Sessions 3-5	Teach parents how to enforce rules through positive communication and modeling.  Teach parents to give effective commands.  Introduce stress into session by asking parent to change activities during play session.  Teach parents to prepare the child for transition and	The parent will be able to recognize the child's positive behavior and signs of distress.  The parent will be able to state behavioral expectations in a variety of settings.  The parent will be able to give effective commands.  The parent will be able to remain calm during tantrums and use skills such as

	<p>navigate transitions effectively.</p> <p>Teach parents to effectively respond to child tantrums.</p>	<p>differential attention, PRIDE skills, and language modeling.</p> <p>The child will initiate play with the parent and enjoy playing with him or her.</p> <p>The child will prefer playing with the parent as opposed to being ignored.</p> <p>The child will respond to redirection and effective commands.</p> <p>The parent will report a decrease in problem behaviors.</p> <p>The parent will report a decrease in tantrum behaviors.</p>
<p>Coaching Sessions 6-7</p>	<p>Increase parents ability to enforce rules through positive communication and modeling.</p> <p>Increase parents' independence in using redirection and active ignoring.</p> <p>Review PRIDE and tantrum response skills and increase parents' ability to use independently.</p> <p>Discuss implementation of the skills in the home and public settings, as well as barriers.</p> <p>The therapist will conclude intervention.</p>	<p>The parent will be able to recognize the child's positive behavior and signs of distress.</p> <p>The parent will be able to state behavioral expectations in a variety of settings.</p> <p>The parent will be able to give effective commands.</p> <p>The parent will be able to remain calm during tantrums and use skills such as differential attention, PRIDE skills, and language modeling.</p> <p>The child will initiate play with the parent and enjoy playing with him or her.</p> <p>The child will prefer playing with the parent as opposed to being ignored.</p> <p>The child will respond to redirection.</p>

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The parent will report a decrease in problem behaviors.

The parent will report a decrease in tantrum behaviors.

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**Teaching session.** The first session with parents in PCAT-E was a teaching session to introduce the concept of Child-Directed Interactions (CDI) and to teach the CDI skills using a repetitive teaching style. During the one-hour teaching session, parents learned PRIDE skills (i.e., how to describe appropriate behavior, reflect appropriate verbalizations, imitate appropriate play, praise pro-social behavior, use enthusiasm, and provide physical praise), differential attention, redirection, modeling language for emotions, and effective commands to prevent tantrums. Through differential attention, parents were taught to attend to appropriate toddler behaviors (e.g., playing quietly, using toys appropriately) and actively ignored inappropriate behaviors that were not causing safety concerns (e.g., rough play, whining; McNeil & Hembree-Kigin, 2011). Parents were also taught avoiding skills (i.e., how to avoid unnecessary commands and requests, questions, and criticisms). Strategies were explained with examples provided, modeled, and role-played.

Parents also learned how the behavioral play therapy skills would improve their child's behavior. Specifically, because the focus of the study was on tantrum behaviors, the therapist illustrated how she would teach the parent to prevent and reduce tantrum behaviors. Specifically, the parent learned how to:

- 1) describe and praise the child's positive behaviors (e.g., playing quietly and remaining calm) in order to reinforce those behaviors,

- 2) give effective commands in order to reduce instances of noncompliance and occasions for tantrums,
- 3) model emotion language in order to promote the child's use of language to express wants and needs,
- 4) redirect or distract the child if he or she is about to become upset, such as by verbally describing the parent's own behavior as she plays with the child's toys,
- 5) prompt the child to return from a tantrum by using differential attention and stating comments such as, "When 'Sally' is quiet, she will be able to play with me"
- 6) quickly ease emotional distress after a tantrum through the use of PRIDE skills (Dombrowski et al., 2008).

Finally, parents learned that with proficiency in the PRIDE skills, they would be expected to begin to generalize them to everyday interactions with their child.

At the end of the teaching session, parents received handouts detailing all above strategies for their own reference and use in practice. They were also given the assignment to engage in daily five minute home play therapy throughout the intervention period, and a rationale was provided for this assignment, tailored to the specific needs identified by the family and based on the strengths and concerns the therapist identified during observed free-play (Dombrowski et al., 2008). During daily practice, parents engaged in a five minute "special time" with their toddler wherein the parent and toddler played under the toddler's lead. A fidelity plan for parents is described below (see Implementation Fidelity, p. 90). Parents were encouraged to use the PRIDE and avoiding



skills during this time period (McNeil & Hembree-Kigin, 2011). Parents were discouraged from using the effective command strategies until the PRIDE skills were well-established and until effective command strategies were coached in sessions. Furthermore, it was emphasized that unnecessary commands should be avoided during five minute special play time, but once learned, effective commands should be used outside of play time.

**Intervention/coaching sessions.** Intervention sessions with the dyad occurred once per week, lasting approximately 30 minutes, and focused on the direct coaching of PRIDE and avoiding skills as parents interacted with their toddlers. The intervention/coaching phase included seven sessions. PCAT-E sessions began with an un-coached and recorded five minute parent-child play session which was coded later for parenting behaviors (described below in Data Collection (DPICS), p. 85). Succinct feedback was provided. Next, the therapist conducted a brief check-in and discussion with parents regarding daily home-based play therapy. The therapist prompted for information on the frequency of this practice, the use of parenting skills during practice, successes during the practice, and shortcomings the parents hoped to address. Live skill coaching (described below) occurred next, for approximately 15 minutes. Finally, feedback on progress and an assignment for continued home-based play therapy was provided.

Live skill coaching featured constructive, positive, and in-vivo skill support of parents playing with their toddlers. During skill coaching, the parent and toddler played together as the parent used CDI skills, and the parent received feedback and guidance on interactions with the toddler from the therapist. Coaching comments were specific, brief,

quickly paced, precise, and praise-oriented, and they followed nearly every parent verbalization.

Guidance and feedback in PCIT is frequently provided using bug-in-ear technology, but such technology was not used in this study due to unavailability of resources. In this study, the therapist was situated away from and behind the parent as he/she followed the toddler's lead and engaged in the play session. The therapist quietly provided guidance and feedback from this position, and the child was asked to pretend that the therapist was invisible and to not communicate with her. This in-room set-up has been found to produce positive outcomes and not negatively impact the model's efficacy (Ware et al., 2008), and no negative effects were observed in this study. Toddler participants did not appear to pay any attention to the therapist in the room during play time but were instead focused on interacting with the toys and their parents.

The focus of intervention sessions varied across the span of the intervention period (see Table 9 above). Specifically, during the first two coaching sessions, the primary objectives were setting rules, using positive communication, and modeling. The therapist taught parents about rules for special playtime and helped establish rules for special playtime at home. The therapist helped the parent recognize the way he or she interacted with his or her child and used labeled praises to reinforce the parent's use of praise, descriptions, and reflections. She instructed the parent to modify questions and commands into descriptive statements and helped the parent recognize the changes in child behavior when the parent used positive communication skills (Dombrowski et al., 2008).

**Coaching sessions 1 and 2.** During the first two coaching sessions, the therapist also illustrated to the parent how he or she could teach the child positive behaviors through the use of modeling and praise. Additionally, the therapist helped the parent understand the importance of strong contrast when using differential attention. Specifically, the therapist communicated that differential attention is effective when positive attention and communication is strongly present in the presence of appropriate behaviors and entirely absent in the presence of inappropriate behaviors (Dombrowski et al., 2008). This concept was applied directly to the child's tantrum behaviors in that parents were instructed to provide positive feedback for all child efforts to express their needs and desires verbally and positively, engage in problem-solving, and comply with parent directions. Further, parents were instructed to create a strong contrast and ignore undesirable behaviors that may precipitate tantrums, such as whining.

Parents also learned to model language to describe their children's emotion during the first two sessions. They learned that this modeling served to help their child express their emotions when upset and potentially reduce the number of tantrums exhibited by the child, as well as to help the child recognize that the parent is attuned to and understands the child, strengthening the relationship. Additionally, parents learned to use language modeling when their child is first becoming upset and may be more likely to engage in a tantrum.

**Coaching sessions 3-5.** The third, fourth, and fifth coaching sessions focused on continued efforts toward enforcing rules through positive communication and modeling. As a component of the study's purpose to reduce tantrums, the therapist supplemented typical PCAT procedures by providing parents with explicit instruction on giving

effective commands. Effective commands serve to increase compliance, circumventing a negative interaction cycle that may lead to a tantrum. Parents were taught the rationale for each step of giving effective commands (Jenson et al., 2010) as described in Table 6.

After teaching and coaching the use of effective commands, the therapist introduced stress into these coaching sessions by asking the parent to direct the child to change activities during the play session (e.g., clean up a set of toys). This transition activity also allowed the therapist to teach and coach the importance of preparing the child for the transition as well as the skills necessary to navigate transitions effectively (e.g., redirection, enthusiasm, and active ignoring). These sessions also focused on helping the child “recover” from upsetting events during play (Dombrowski et al., 2008).

The transition activity allowed for the occurrence of tantrums within sessions. When a child began to demonstrate behaviors that precipitate tantrums, the therapist coached the parent to redirect or distract the child by describing the parent’s own play, to use language to model the child’s feelings, and to praise every behavior that approximates problem-solving, coping with negative emotions, and/or compliance. The therapist also coached the parent to create contrast by ignoring undesirable behaviors, such as whining and tantrum behaviors. Additionally, the parent learned to help the child return from a tantrum by using differential attention and stating comments such as, “When ‘Sally’ is quiet, she will be able to play with me.” Finally, the parent learned to quickly ease emotional distress after a tantrum through the use of PRIDE skills (Dombrowski et al., 2008).

The parent and therapist also discussed the individual triggers that occasioned tantrums by the child. Tantrum data records with information regarding antecedents and

consequences (described above) helped facilitate this discussion. Based on the individual triggers, the parent and therapist identified ways by which the strategies coached in sessions three through five could be applied to the child's and family's specific needs. Through discussion, the parent and therapist outlined the procedures to be followed when the parent identified a potential tantrum trigger or in the event of a tantrum.

**Coaching sessions 6 and 7.** Finally, the sixth and seventh coaching sessions focused on continued efforts toward the enforcement of rules through positive communication and modeling, the use of differential attention and PRIDE skills, the provision of effective commands, and the application of tantrum reduction strategies. The sessions focused on increasing parent skill level without dependence on coaching. Implementation of the skills in the home and public settings was discussed, and barriers were addressed. Importantly, the therapist discussed with parents the ways in which the strategies could be continually individualized for specific situations and needs. Finally, the therapist concluded intervention.

### **Encouraging Family Participation**

All feasible efforts were made to maintain family participation throughout the duration of the study and to prevent attrition. Families were reminded to engage in five minutes of daily play therapy via text or email from the therapist at an agreed-upon time. Parents were prompted through this communication to (a) engage in play therapy for five minutes, (b) conclude with a clean-up session, and (c) record toddler tantrum data as described below (Data Collection). Reminder calls were also made prior to scheduled sessions, and sessions were scheduled conveniently for families. If possible for the

family, canceled sessions were rescheduled within the same week. Finally, the PI provided referrals to resources as requested.

### **Data Collection and Coding**

Data were collected on parent behaviors, toddler behaviors, and the parent-toddler relationship before, during, and after intervention, as described below.

#### **Parenting Behaviors**

The Dyadic Parent-Child Interaction System-III (DPICS-III; Eyberg et al., 2005) was used to assess parenting behaviors.

**Baseline.** Baseline data collection consisted of one free-play session during the initial consent-gathering meeting with the principal investigator, at least two free-play sessions in the family's home (some families engaged in additional home-based free-play sessions to meet the criteria for a multiple probe design), and one free-play session at the beginning of the introductory instructional session. These free-play sessions provided the context for baseline data collection.

**Intervention.** Data collection during the intervention phase of the multiple probe design was comprised of 14 five-minute play sessions in the clinic and home settings. Specially, a five-minute free-play session took place at the beginning of each weekly therapy session, and a home-based play session occurred once per week throughout the duration of the seven-week intervention phase.

**Parent behavior context.** Free-play sessions lasted five minutes, and parents were directed to play freely with their child for the duration of the five-minute period. Home- and clinic-based sessions were structured to be identical in terms of the instructions, tasks, and control of extraneous background distractions. In both settings,

the therapist/research assistants provided age-appropriate toys for the parent and child to use during free-play sessions, and the play environment was controlled. Specifically, the parent was instructed to shut off electronic devices (e.g., television and cell phone), a designated floor space was defined with the use of a blanket for play (with instructions for all play activity to occur in that space), additional children were entertained separately by the assistant, and other adults in the environment were instructed to refrain from interrupting. The research assistants provided childcare to any additional children present in an adjacent room, and helped ensure that the play area was controlled.

**Coding.** Free-play sessions were videotaped and reliably coded using the DPICS-III by two previously-trained graduate research assistants. The graduate assistants were provided with thorough DPICS-III training on a separate research project. Reliability was established at 100% agreement with each other and the therapist prior to data collection using sample videos. Frequency counts of labeled praise, reflection, behavioral description, command, question, and negative talk per observation were calculated. One-half of the study data videos were randomly assigned and double coded for inter-rater agreement. Final inter-rater reliability was calculated to be 96%.

### **Toddler Behaviors**

Ratings on toddler tantrum behaviors were reported using a tracking form developed by the principal investigator (see Appendix A). Tantrums were defined as “beginning with the first occurrence of a major tantrum element: stiffening limbs and arching back, dropping to the floor, shouting, screaming, crying, pushing/pulling, stamping, hitting, kicking, throwing, or running away” (Potegal & Davidson, 2003, p. 141). The tantrum was considered complete when the last of the behaviors ceased. At

screening, parents were asked to provide an estimate of the number of tantrums their child has each day. At the consent meeting, the parents were asked to record tantrums that happen each day, as well as their duration and antecedents/consequences according to the tantrum definition and description given above. This recording procedure continued throughout the duration of baseline and intervention.

Parents were given explicit instructions on the collection of tantrum data. Specifically, they were asked to record the time a tantrum began and ended according to the definition given above. They were also asked to take detailed notes of the situation leading up to the tantrum and the events following the tantrum, including possible triggers, child and adult behaviors throughout, and the consequence, if any, provided at the end of the tantrum.

Parent records on child tantrum behaviors yielded frequency and duration data. The antecedent/consequence information was used to inform treatment planning and implementation. Daily tantrums exhibited by the child were graphed, as was the average length of tantrums each day.

Finally, parent ratings on the Eyberg Child Behavior Inventory (ECBI; Eyberg, 1999) were used to assess general child externalizing problem behaviors. To assess behavior outcomes, parents completed the ECBI during the consent session and during the final intervention session. Administration took 5 minutes. The measure yielded Total Intensity and Total Problem raw scores which were converted to T scores.

### **Parent-Toddler Relationship**

The Parenting Relationship Questionnaire (PRQ; Kamphaus & Reynolds, 2006) was used to assess the parent-toddler relationship. To assess relationship outcomes,



parents completed the PRQ verbally via phone at screening and at the conclusion of the final intervention session. Administration took 10 to 15 minutes. The measure yielded attachment, discipline practices, involvement, parenting confidence, and relational frustration scores.

### **Social Validity**

The Behavior Rating Intervention Scale (BIRS; Elliot & Treuting, 1991) was used to assess parent perception of PCAT-E effectiveness and acceptability. Parents completed the BIRS at the conclusion of intervention. Administration took 5 to 10 minutes. The measure yielded effectiveness and acceptability scores.

At the end of intervention, parents also completed a narrative form developed by the PI to assess parent perception of PCAT-E, child tantrums, and effects of the intervention. Administration took 10 to 15 minutes. The measure yielded qualitative information related to parent perception of the intervention and results.

Table 10.

*Data Collection Sequence*

<b>Phase</b>	<b>Session</b>	<b>Session Content</b>	<b>Participants</b>	<b>Data Collected</b>
<b>Screening</b>	Phone call	Screening	Parent	PRQ, Parent Report
<b>Baseline</b>	Consent session	Description of study, consent obtained	Therapist, Parent, Toddler	Coded play session ECBI Parent Report
	Home visit sessions	Baseline data collection	Therapist, Parent, Toddler	Coded play sessions
<b>Intervention</b>	Session 1	Didactic: introduction to intervention	Therapist, Parent, Toddler	Coded play session (prior to introduction) Parent Report
	Session 2-7	Coaching intervention	Therapist, Parent, Toddler	Coded play session Parent Report
	Weekly home visit sessions	Intervention data collection	Therapist, Parent, Toddler	Coded play session
<b>Conclusion</b>	Session 8	Coaching intervention	Therapist, Parent, Toddler	Coded play session Parent Report PRQ ECBI BIRS Parent narrative

### **Protection of Sensitive and/or Confidential Information**

All data collected using the above measures were de-identified and given an ID number. All identifying information was kept in a locked cabinet in the PI's office.

University of Nebraska Institutional Review Board (IRB) approval was obtained, and guidelines were followed for informed consent procedures, intervention implementation, data storage, security, and retention.

### **Implementation Fidelity**

Implementation fidelity was assessed to determine that the PCAT-E intervention was conducted with consistency to the model. To address therapist adherence to the model, an objectives checklist was used, listing session objectives to be completed by the therapist. All sessions were video recorded, all videos were recorded for adherence to the objectives. One half were double coded to evaluate inter-rater reliability. Coders used the checklist and marked each objective completed by the therapist during each session, and percentage of total steps completed was calculated. Dosage was also calculated by calculating the length of time parents were exposed to treatment sessions. See Appendix D for a copy of the PCAT-E Objectives Checklist form.

Home-based parent implementation fidelity (i.e., adherence and dosage) was assessed through the collection of the week's self-report daily play session checklists during each session. Adherence was calculated as the number of skills practiced divided by eight total skills. Dosage was calculated as the percentage of daily play sessions completed (i.e., number of play sessions completed in one week). Parents were provided with a reminder by phone three times per week to engage in the play time and complete the home practice checklist and tantrum data collection form. Parent implementation

fidelity data was used to encourage parent participation and to assist in the interpretation of results. See Appendix E for a copy of the Home Practice Checklist.

## **Data Analysis**

### **Research Design**

A concurrent multiple probe across participants/dyads design was used to evaluate the effects of the intervention on parent outcomes. This design is frequently used in clinical and applied settings and is a common design used in testing promising interventions. Intervention implementation were staggered across dyads. Dyad order within the multiple probe design was randomized. A within participants AB design was used to evaluate the effects of the intervention on toddler tantrums.

**Baseline.** Baseline data collection involved at least three baseline free-play sessions and at least three toddler tantrum reports. To establish experimental control, a minimum of at least three stable data points on parent frequency of praise in a five-minute play session was established for each parent-toddler dyad prior to the implementation of the intervention. The first participant began intervention after three stable parent praise data points, while the other three dyads remained in baseline. A multiple-probe technique (Horner & Baer, 1978) was used with the latter participants as an alternative to continuous baseline measurement to reduce the assessment demands on the families during the extended multiple baselines. Each dyad exited baseline and began intervention when the preceding dyad completed one week of intervention (during which time two parent praise data points are collected) and demonstrated a stable trend in parent labeled praise behavior.

**Intervention.** During this phase, intervention was implemented and data collection continued. Data collection on parent behaviors occurred twice weekly, yielding 14 data points for parent behaviors, and toddler tantrum behavior data collection occurred daily throughout the seven week intervention phase.

### **Data Analytic Plan**

Analyses for this study were conducted using several methods: visual inspection (Kazdin, 2003), dual-criterion and conservative dual criterion (Fisher, Kelley, & Lomas, 2003), calculation of percentage of all nonoverlapping data (Parker, Hagan-Burke, & Vannest, 2007), and determination of clinical significance.

**Visual inspection.** Data from each parent and toddler were plotted on an individual line graph. The x-axis on the graphs was the assessment date. On parent graphs, the y-axis displayed the dependent variables of frequency of specific parenting behaviors (i.e., labeled praise, reflection, behavioral description, command, question, and negative talk). Parenting behaviors were graphed using DPICS-III scores. On the toddler graph, the y-axis displayed the tantrum frequencies reported by the parent. The frequency and duration of toddler tantrum behaviors were graphed using parent daily ratings. Visual inspection entailed visually comparing baseline and intervention levels and trends of behavior, as well as immediacy of behavior change within and across participants as they were exposed to the staggered baseline and intervention phases (Kazdin, 2003). Experimental control was determined when changes in behavior occurred only at the time that corresponded with intervention implementation and this pattern was established with each participant.

**Dual criterion and conservative dual criterion.** Dual-criterion (DC) and conservative dual-criterion (CDC) were used to decrease the likelihood of Type 1 error (Fisher et al., 2003). Using DC, mean and trend lines were established using baseline data. These lines were then raised 0.25 standard deviations. The number of intervention phase data points that fell above (or below) the mean and trend lines were required to exceed chance to determine a significant treatment effect, and the number of intervention points necessary to exceed chance was determined based on the binomial sampling distribution. This methodology assists in maintaining the lowest risk of Type 1 error (Fisher et al., 2003).

**Percentage of all nonoverlapping data.** The percentage of all nonoverlapping data (PAND; Parker et al., 2007) between baseline and treatment data were calculated for each participant. PAND is calculated by tallying the number of overlapping data points, dividing the number of overlapping data points by the total number of data points (the percentage of overlapping data), and subtracting the percentage of overlapping data from 100 to find the percentage of all nonoverlapping data.

**Determination of clinical significance.** Relationship quality of the parent-toddler dyad was assessed and interpreted clinically. The effects of the intervention on the parent-toddler relationship were assessed using changes in T scores on the PRQ, and movement from the clinically significant ranges (above 70 on the maladaptive scale, and below 30 on the adaptive scales) to the at-risk ranges (60-69 on the maladaptive scale and 31-40 on adaptive scales) or the average range (41-59) was evaluated. Clinical significance was used in the same manner to evaluate child behavior change on the ECBI.

Specifically, movement from the clinically significant ranges (above 70) to the at-risk ranges (60-69) or the average range (41-59) was evaluated.

**Social validity.** Social validity was assessed using parent data from the Behavior Intervention Rating Scale (BIRS; Elliot & Treuting, 1991) and the parent narrative form. The BIRS was completed during the final intervention session to gauge parent perceptions of the acceptability and effectiveness of PCAT-E. Mean scores for each participant were calculated, and scores were compared to the range of 1 to 6, with 6 being the highest possible score. The researcher-developed parent narrative form was also completed during the final intervention session. Responses were interpreted qualitatively.

## **Chapter 4: Results**

This chapter summarizes parent behavior outcome data (i.e., labeled praise, reflection, behavioral description, commands, questions, and negative talk) for each dyad. Toddler behavior (i.e., tantrum frequency and duration data, Eyberg Child Behavior Inventory) data are then summarized, followed by relationship data (i.e., Parenting Relationship Questionnaire) summaries. Lastly, treatment integrity and social validity data are described.

### **Parent Behavior**

The efficacy of the PCAT-E intervention for parent-toddler dyads demonstrating challenging relationships and tantrums was evaluated via a multiple probe design across participants for parent behaviors. Parent behaviors were measured using behavioral observations as organized in the Dyadic Parent-Child Interaction System-III (DPICS-III; Eyberg et al., 2005). Individual behaviors were analyzed using comparison of means, percentage of all nonoverlapping data (PAND), visual inspection, and structured criteria via the conservative dual criterion (CDC). Specific behaviors assessed included labeled praise, reflection, behavioral description, commands, questions, and negative talk. Parent behavior results are presented by behavior below. Means and standard deviations for each parent behavior are summarized for each child in Table 11. Visual analyses indicators of improvements in parent behaviors across baseline and treatment phases including immediacy of change (i.e., positive or negative change in value between last baseline data point and first treatment data point), change in level (i.e., increased/decreased values of most data points for adaptive/maladaptive behaviors, respectively), structured criteria for visual inspection using CDC are summarized, and PAND for each behavior across child



is summarized in Table 12. An overall summary of treatment effectiveness across behaviors for each parent is presented in Table 13.

Table 11.

*Parent Behavior Data for Each Behavior across Participants.*

Behavior	Child	Baseline Mean (SD)	Treatment Mean (SD)	Improved Mean Change (Baseline to Treatment)
Labeled Praise	Kyle	0 ( <i>SD</i> = 0)	10.75 ( <i>SD</i> = 3.82)	+
	Ryan	0.25 ( <i>SD</i> = 0.5)	6.25 ( <i>SD</i> = 3.02)	+
	Billy	0 ( <i>SD</i> = 0)	3.31 ( <i>SD</i> = 3.92)	+
	Molly	0 ( <i>SD</i> = 0)	6.08 ( <i>SD</i> = 3.87)	+
Reflection	Kyle	7.25 ( <i>SD</i> = 2.36)	2.25 ( <i>SD</i> = 2.26)	-
	Ryan	4 ( <i>SD</i> = 1.83)	6.83 ( <i>SD</i> = 4.49)	+
	Billy	5.6 ( <i>SD</i> = 3.65)	2.69 ( <i>SD</i> = 2.25)	-
	Molly	2.60 ( <i>SD</i> = 1.82)	5.25 ( <i>SD</i> = 1.71)	+
Behavioral Description	Kyle	0 ( <i>SD</i> = 0)	15.17 ( <i>SD</i> = 5.81)	+
	Ryan	0.25 ( <i>SD</i> = 0.5)	15.25 ( <i>SD</i> = 4.20)	+
	Billy	0.8 ( <i>SD</i> = 1.10)	6.30 ( <i>SD</i> = 3.82)	+
	Molly	1.80 ( <i>SD</i> = 0.04)	4.83 ( <i>SD</i> = 3.19)	+
Commands	Kyle	8.25 ( <i>SD</i> = 4.19)	2.08 ( <i>SD</i> = 2.19)	+
	Ryan	7 ( <i>SD</i> = 3.16)	0.5 ( <i>SD</i> = 1)	+
	Billy	30.4 ( <i>SD</i> = 6.8)	3.85 ( <i>SD</i> = 7.63)	+
	Molly	20.20 ( <i>SD</i> = 5.45)	2.92 ( <i>SD</i> = 4.01)	+
Questions	Kyle	50.25 ( <i>SD</i> = 8.62)	1.33 ( <i>SD</i> = 1.67)	+
	Ryan	36.25 ( <i>SD</i> = 6.90)	4.67 ( <i>SD</i> = 2.35)	+

	Billy	42.20 ( <i>SD</i> = 5.22)	12.46 ( <i>SD</i> = 5.70)	+
	Molly	14.8 ( <i>SD</i> = 2.49)	4.42 ( <i>SD</i> = 2.31)	+
Negative Talk	Kyle	0.75 ( <i>SD</i> = 1.5)	0.08 ( <i>SD</i> = 0.29)	-
	Ryan	1.75 ( <i>SD</i> = 2.06)	0 ( <i>SD</i> = 0)	+
	Billy	2.6 ( <i>SD</i> = 2.70)	1.15 ( <i>SD</i> = 1.86)	-
	Molly	4.20 ( <i>SD</i> = 5.36)	1.25 ( <i>SD</i> = 1.86)	+

+ = Improved mean change observed  
 - = Improved mean change not observed

Table 12.  
*Measures of Treatment Effectiveness for Parent Behaviors*

Behavior	Child	Immediacy	Level Change	Conservative Dual Criterion (CDC) Confirmed Effect	Percentage of all Nonoverlapping Data (PAND)
Labeled Praise	Kyle	+	+	+	100%
	Ryan	+	+	+	100%
	Billy	-	+	+	89%
	Molly	-	+	+	100%
Reflection	Kyle	-	+	-	75%
	Ryan	-	-	-	50%
	Billy	-	-	-	17%
	Molly	-	-	-	47%
Behavioral Description	Kyle	+	+	+	100%
	Ryan	+	+	+	100%
	Billy	-	+	+	83%
	Molly	+	+	-	47%

Commands	Kyle	+	+	+	75%
	Ryan	+	+	+	88%
	Billy	+	+	-	83%
	Molly	+	+	+	100%
Questions	Kyle	+	+	+	100%
	Ryan	+	+	+	100%
	Billy	+	+	+	100%
	Molly	+	+	+	100%
Negative Talk	Kyle	-	-	-	6%
	Ryan	+	+	+	0%
	Billy	-	-	-	6%
	Molly	-	-	-	18%

+ = Treatment effectiveness observed

- = Treatment effectiveness was not observed

CDC: Mean and trend lines are calculated and raised 0.25 standard deviations. Based on the binomial sampling distribution, a specific number of intervention phase data points were required to fall above (or below) the mean and trend lines to exceed chance and determine a treatment effect.

PAND: The percentage of all nonoverlapping data points between baseline and treatment data.

Table 13.

*Overall Treatment Effectiveness across Behaviors for Each Parent*

	Labeled Praise	Reflections	Behavioral Description	Commands	Questions	Negative Talk
Kyle	+	-	+	+	+	-
Ryan	+	-	+	+	+	+
Billy	+	-	+	+	+	-
Molly	+	-	-	+	+	-

+ = Treatment effectiveness observed

- = Treatment effectiveness was not observed

## Labeled Praise

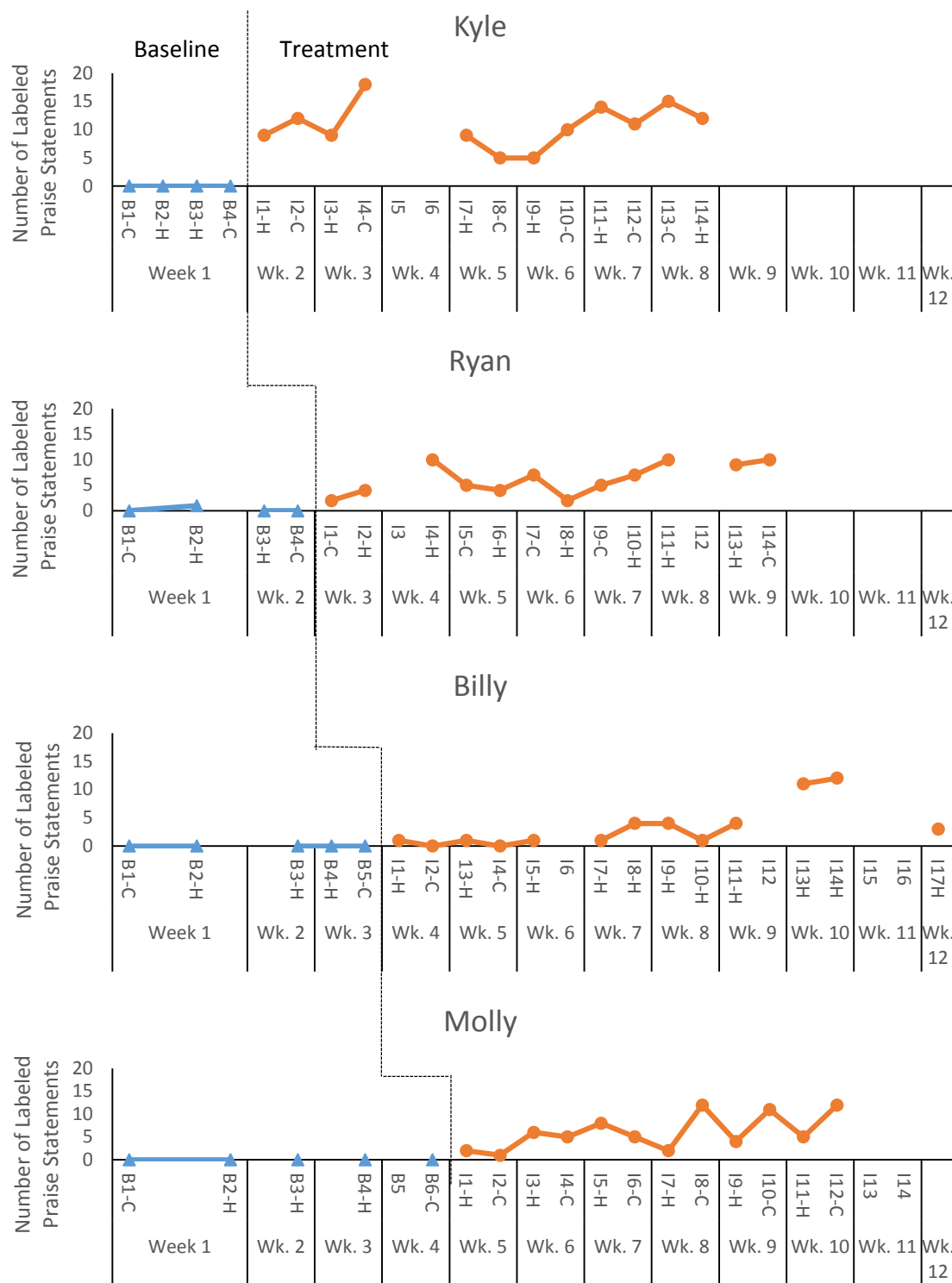
**Kyle.** At baseline, Kyle's mother consistently used zero labeled praises per five-minute play session ( $M = 0$ ,  $SD = 0$ ). Baseline data were stable. During the treatment phase, the average number of labeled praises used by Kyle's mother during a five-minute play session was 10.75 ( $SD = 3.82$ ), with a range of 5 to 18. These data indicated an increase in labeled praise from baseline to treatment. PAND was 100%, or 50% beyond chance level. Visual inspection indicated an immediate change in level, and treatment data were variable. Visual inspection using CDC confirmed a treatment effect. Overall, these data indicated treatment effects for Kyle's mother's use of labeled praise.

**Ryan.** During baseline assessment, Ryan's mother engaged in labeled praise an average of 0.25 ( $SD = 0.5$ ) times per five-minute play session, with a range from 0 to 1. Baseline data were stable. During the treatment phase, the average number of labeled praises used by Ryan's mother during a five-minute play session was 6.25 ( $SD = 3.02$ ), with a range of 2 to 10. These data indicated an increase in labeled praise from baseline to treatment. PAND was 100%, or 50% beyond chance level. Visual inspection indicated an immediate change in level, and treatment data were variable. Visual inspection using CDC confirmed a treatment effect. Overall, these data indicated treatment effects for Ryan's mother's use of labeled praise. By the end of treatment, Ryan's mother frequently used statements such as, "Thank you for sharing with me! That's such a nice boy."

**Billy.** During the baseline phase, Billy's mother consistently engaged in labeled praise zero times per five-minute play session ( $M = 0$ ,  $SD = 0$ ). Baseline data were stable. During the treatment phase, the average number of labeled praises used by Billy's mother during a five-minute play session was 3.31 ( $SD = 3.92$ ), with a range of 0 to 12. These

data indicated an increase in labeled praise from baseline to treatment. PAND was 89%, or 39% beyond chance level. Visual inspection indicated delayed increase in level with variable intervention data, and visual inspection using CDC confirmed a treatment effect. Overall, these data indicated treatment effects for Billy's mother's use of labeled praise.

**Molly.** At baseline, Molly's foster mother consistently engaged in zero labeled praise per five-minute play session ( $M = 0$ ,  $SD = 0$ ). Baseline data were stable. During the treatment phase, the average number of labeled praises used by Molly's foster mother during a five-minute play session was 6.08 ( $SD = 3.87$ ), with a range of 1 to 12. These data indicated an increase in labeled praise from baseline to treatment. PAND was 100%, or 50% beyond chance level. Visual inspection indicated a delayed increase in level with variability in treatment data, and visual inspection using CDC confirmed a treatment effect. Overall, these data indicated treatment effects for Molly's foster mother's use of labeled praise.



*Figure 1.* Multiple probe graph for labeled praise statements across participants. Note: Horizontal axis labels are coded as follows: B = baseline, I = intervention; C = clinic observation, H = home observation. Baseline data for Ryan, Billy, and Molly are probe data.

**Summary of participant results for labeled praise.** Visual analyses of the multiple probe data across participants revealed baseline data for subsequent participants' use of labeled praise did not change in stability, level, or trend as treatment was initiated for each participant, indicating good experimental control. Overall, these data indicate that treatment was solely responsible for improvements in parents' use of labeled praise, as opposed to extraneous variables.

### **Reflection**

**Kyle.** At baseline, Kyle's mother engaged in reflections an average of 7.25 ( $SD = 2.36$ ) times per five-minute play session, with a range from 4 to 9. Baseline data were variable. During the treatment phase, Kyle's mother used 2.25 ( $SD = 2.26$ ) reflections during a five-minute play session, with a range of 0 to 6. These data indicated a decrease in reflections from baseline to treatment. PAND was 75%, or 25% beyond chance level. Visual inspection indicated a delayed decrease in level, but visual inspection using structured criteria via CDC did not substantiate a treatment effect. Overall, these data indicated no clear treatment effects. Kyle's mother used statements such as, "Yes, the car is driving with the duck!"

**Ryan.** During the baseline phase, Ryan's mother engaged in reflections an average of 4 ( $SD = 1.83$ ) times per five-minute play session, with a range from 2 to 6, and during treatment, she used an average of 6.83 ( $SD = 4.49$ ) reflections per five-minute play session, with a range of 1 to 13. These data indicated a slight increase in reflections from baseline to treatment. PAND was 50% and within chance range. Visual inspection indicated no clear change in level, with highly variable baseline and treatment data.

Visual inspection using structured criteria via CDC showed no treatment effect. Overall, these data indicated no treatment effects for Ryan's mother's use of reflection.

**Billy.** Billy's mother engaged in reflection an average of 5.6 ( $SD = 3.65$ ) times per five-minute play session at baseline, with a range from 1 to 11. During the treatment phase, the average number of reflections used by Billy's mother during a five-minute play session was 2.69 ( $SD = 2.25$ ), with a range of 0 to 8. These data indicated a slight decrease in reflections from baseline to treatment. PAND was 17% and within chance range, and visual inspection indicated no clear change in level. Baseline and treatment data were variable. Visual inspection using structured criteria via CDC denied a treatment effect. Overall, these data indicated no treatment effects for Billy's mother's use of reflection.

**Molly.** During baseline assessment, Molly's foster mother engaged in reflections an average of 2.60 ( $SD = 1.82$ ) times per five-minute play session, with a range from 0 to 5, and during treatment, Molly's foster mother used an average of 5.25 ( $SD = 1.71$ ) reflections during five-minute play sessions, with a range of 2 to 7. These data indicated an increase in reflections from baseline to treatment. PAND was 47% and within chance range. Visual inspection indicated no change in level. Baseline and treatment data were moderately variable. Visual inspection using structured criteria via CDC denied a treatment effect. Overall, these data indicated no treatment effects for Molly's foster mother's use of reflection.



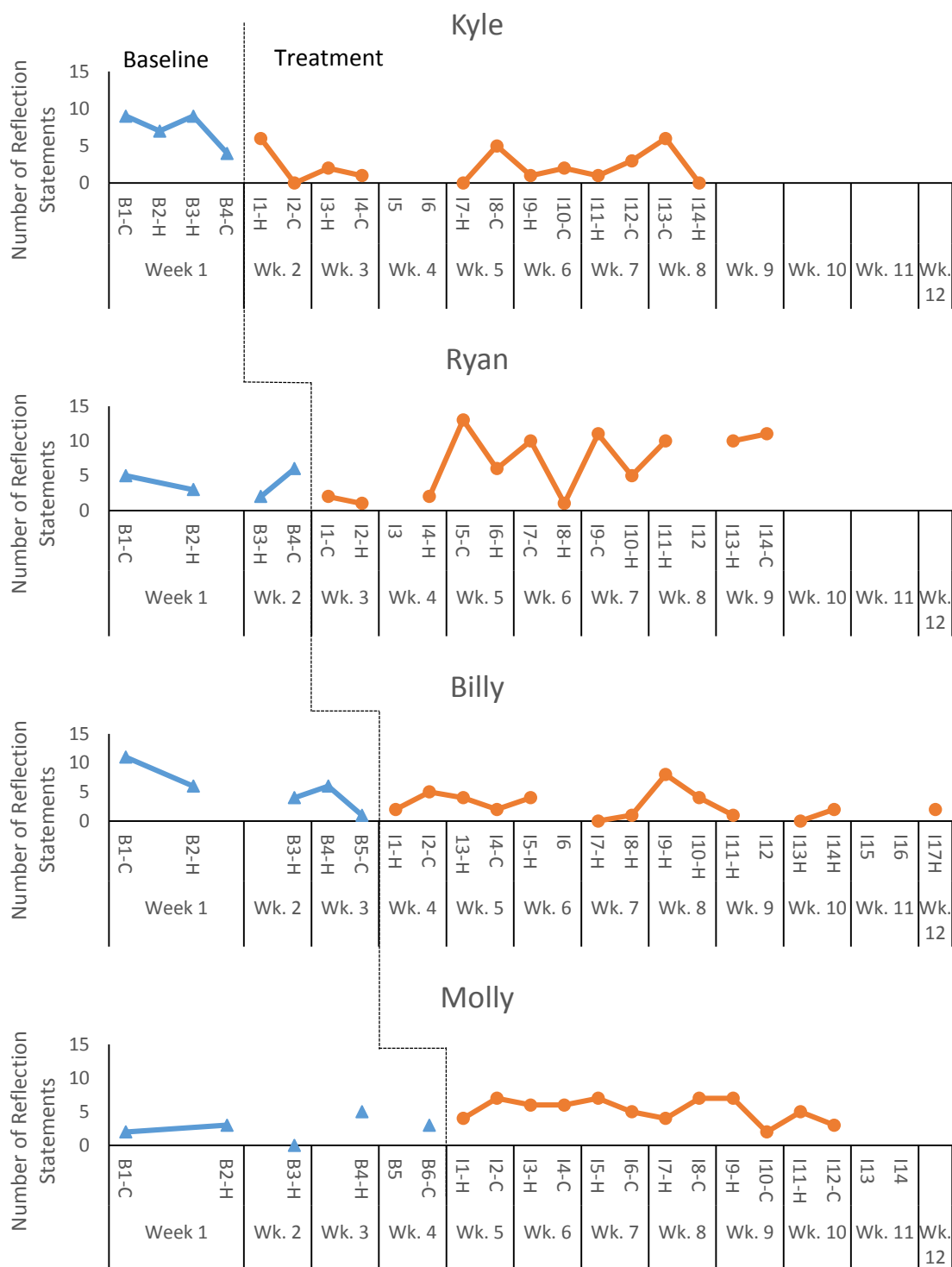


Figure 2. Multiple probe graph for reflection statements across participants.

Note: Horizontal axis labels are coded as follows: B = baseline, I = intervention; C = clinic observation, H = home observation. Baseline data for Ryan, Billy, and Molly are probe data.

**Summary of participant results for reflection statements.** Visual analyses of the multiple probe data across participants revealed baseline data for reflection statements were variable with no consistent level or trend. No conclusions regarding the impact of treatment on parent use of reflection statements may be made.

### **Behavioral Description**

**Kyle.** Kyle's mother engaged in behavioral description zero times per five-minute play session at baseline ( $M = 0$ ,  $SD = 0$ ). Baseline data were stable. During the treatment phase, her average number of behavioral descriptions during a five-minute play session was 15.17 ( $SD = 5.81$ ), with a range of 7 to 25. These data indicated an increase in behavioral descriptions from baseline to treatment. PAND was 100%, or 50% beyond chance level. Visual inspection indicated an immediate increase in level with some variability in the treatment data. Visual inspection using CDC confirmed a treatment effect. Overall, these data indicated treatment effects for Kyle's mother's use of behavioral description. By the end of treatment, Kyle's mother frequently used statements such as, "You're putting all the ducks together! Now you're handing me a duck to play with!"

**Ryan.** Ryan's mother engaged in behavioral description an average of 0.25 ( $SD = 0.5$ ) times per five-minute play session at baseline, with a range from 0 to 1, and during the treatment phase, she used an average of 15.25 ( $SD = 4.20$ ) behavioral descriptions per five-minute play session, with a range of 5 to 22. Baseline data were stable. These data indicated an increase in behavioral descriptions from baseline to treatment. PAND was 100%, or 50% beyond chance level, and visual inspection indicated an immediate increase in level, with some variability in the treatment data. Visual inspection using

CDC confirmed a treatment effect. Overall, these data indicated treatment effects for Ryan's mother's increased use of behavioral description.

**Billy.** Billy's mother used behavioral descriptions an average of 0.8 ( $SD = 1.10$ ) times per five-minute play session at baseline, with a range from 0 to 2, and an average of 6.30 ( $SD = 3.82$ ) times per five-minute plays session during the treatment phase, with a range of 1 to 16. Baseline data were stable. These data indicated an increase in behavioral descriptions from baseline to treatment. PAND was 83%, or 33% beyond chance level, and visual inspection indicated a delayed and variable increase in level. Visual inspection using CDC confirmed a treatment effect. Overall, these data indicated treatment effects for Billy's mother's use of behavioral description.

**Molly.** Molly's foster mother used behavioral description an average of 1.80 ( $SD = 0.04$ ) times per five-minute play session at baseline, with a range from 1 to 3. Baseline data were stable. During the treatment phase, the average number of behavioral descriptions used by Molly's foster mother during a five-minute play session was 4.83 ( $SD = 3.19$ ), with a range of 1 to 11. These data indicated an increase in behavioral descriptions from baseline to treatment. PAND was 47% and within chance range. Visual inspection indicated an immediate but variable change in level, and visual inspection using CDC denied a treatment effect. Overall, these data indicated no treatment effects for Molly's foster mother's use of behavioral description.

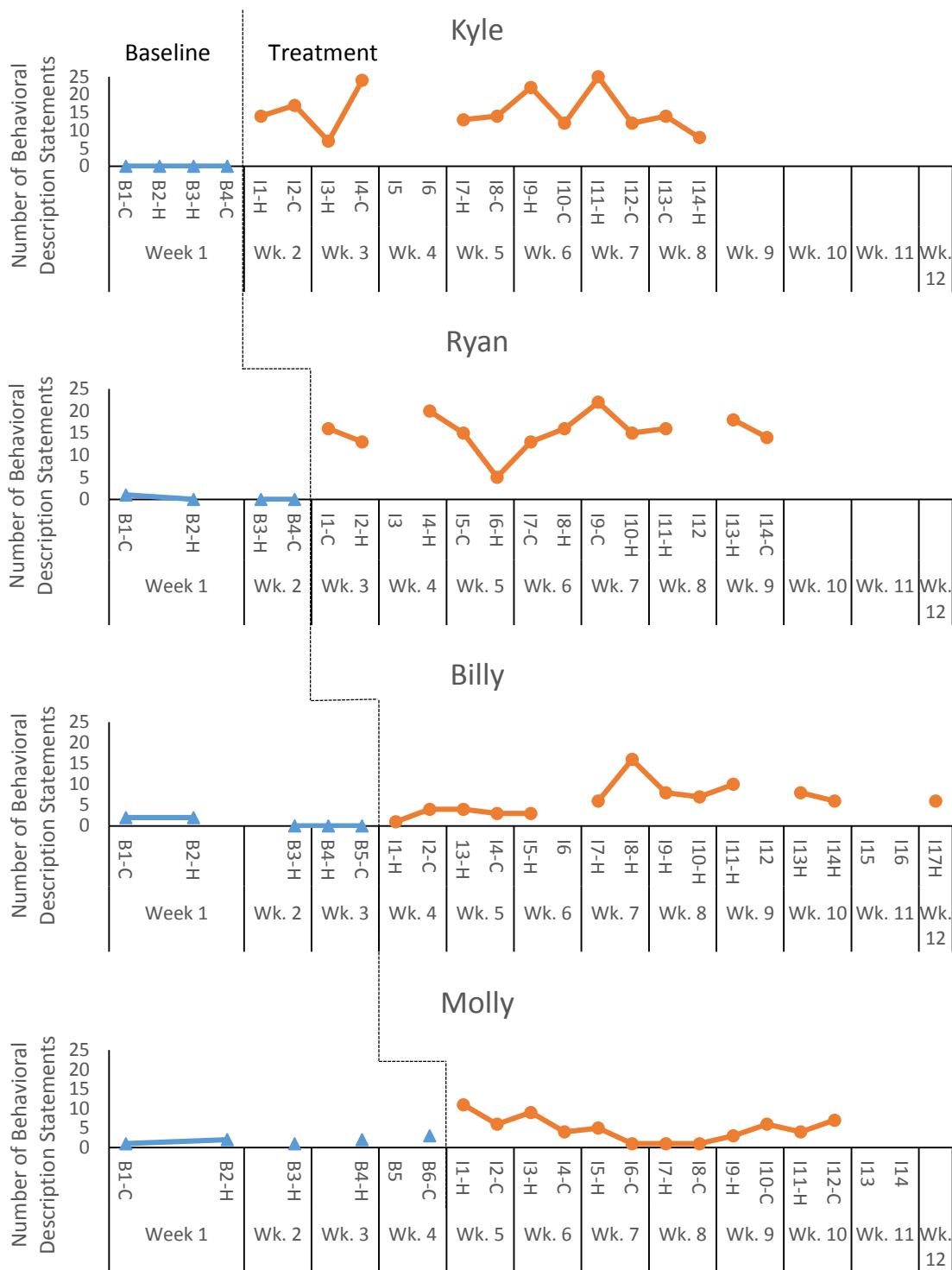


Figure 3. Multiple probe graph for behavioral description statements across participants. Note: Horizontal axis labels are coded as follows: B = baseline, I = intervention; C = clinic observation, H = home observation. Baseline data for Ryan, Billy, and Molly are probe data.

**Summary of participant results for behavioral description.** Visual analyses of the multiple probe data across participants revealed baseline data for subsequent participants' use of behavioral description did not change in stability, level, or trend as treatment was initiated for each participant, indicating good experimental control. Overall, these data indicate that in cases where treatment effects were seen, the intervention was solely responsible for improvements in parents' use of behavioral description, as opposed to extraneous variables.

### **Commands**

**Kyle.** Kyle's mother used commands an average of 8.25 ( $SD = 4.19$ ) times per five-minute play session at baseline, with a range from 4 to 14. Baseline data were variable. During the treatment phase, she used an average of 2.08 ( $SD = 2.19$ ) commands per five-minute play session, with a range of 0 to 7. These data indicated a decrease in commands from baseline to treatment. PAND was 75%, or 25% beyond chance level, and visual inspection indicated an immediate decrease in level, with stability in the treatment phase data. Visual inspection using CDC confirmed a treatment effect. Overall, these data indicated treatment effects for Kyle's mother's decreased use of commands.

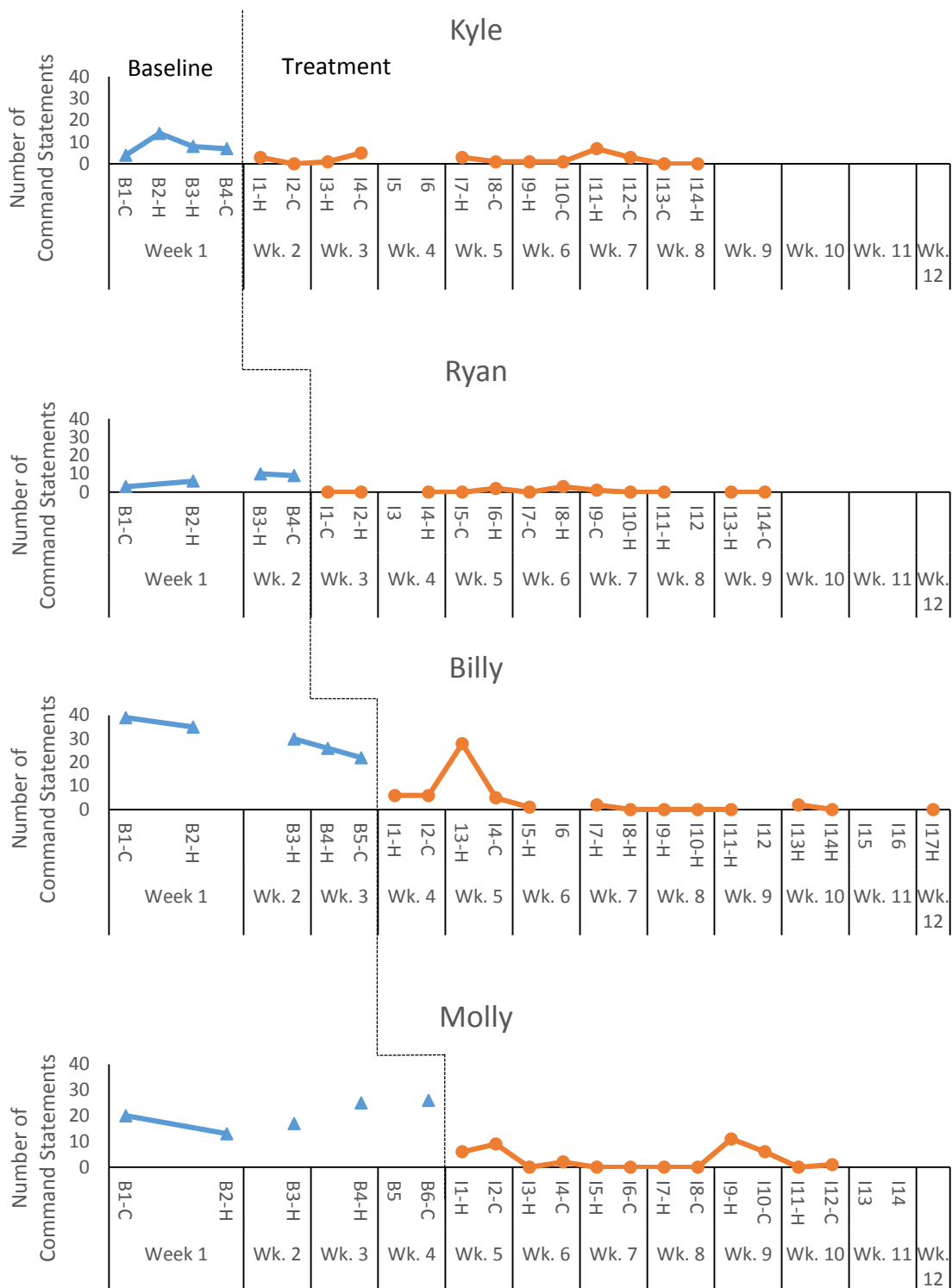
**Ryan.** At baseline, Ryan's mother used commands an average of 7 ( $SD = 3.16$ ) times per five-minute play session, with a range from 3 to 10, and during the treatment phase she used commands an average of 0.5 ( $SD = 1$ ) times per five-minute play session, with a range of 0 to 3. Baseline data were stable. These data indicated a decrease in commands from baseline to treatment. PAND was 88%, or 38% beyond chance level, and visual inspection indicated an immediate and stable decrease in level. Visual inspection

using CDC confirmed a treatment effect. Overall, these data indicated treatment effects for Ryan's mother's decreased use of commands.

**Billy.** During the baseline phase, Billy's mother used commands an average of 30.4 ( $SD = 6.8$ ) times per five-minute play session, with a range from 22 to 39. Baseline data indicated a decreasing trend. During the treatment phase, the average number of commands used by Billy's mother during a five-minute play session was 3.85 ( $SD = 7.63$ ), with a range of 0 to 28. These data indicated a decrease in commands from baseline to treatment. PAND was 83%, or 33% beyond chance level, and visual inspection indicated an immediate change in level. However, due to the decreasing trend in baseline data, visual inspection using CDC denied a treatment effect. Generally, the data indicate treatment effects for Billy's mother's reduced use of commands, but with the decreasing trend in baseline data, visual inspection using CDC introduces uncertainty to this evaluation. Overall, it appears that a treatment effect may exist, as supported by mean change, PAND, and visual inspection data. Visual inspection is particularly strong in this evaluation; treatment data are very stable, following one peak outlier data point. Example commands from Billy's mother include, "Come back here!" and "Don't do that!"

**Molly.** At baseline, Molly's foster mother used commands an average of 20.20 ( $SD = 5.45$ ) times per five-minute play session, with a range from 13 to 26. During the treatment phase, she used an average of 2.92 ( $SD = 4.01$ ) commands during a five-minute play session, with a range of 0 to 11. Baseline data were variable. These data indicated a decrease in commands from baseline to treatment. PAND was 100%, or 50% beyond chance level, and visual inspection indicated an immediate and generally stable decrease

in level. Visual inspection using CDC confirmed a treatment effect. Overall, these data indicated treatment effects for Molly's foster mother's decreased use of commands.



*Figure 4.* Multiple probe graph for command statements across participants. Note: Horizontal axis labels are coded as follows: B = baseline, I = intervention; C = clinic observation, H = home observation. Baseline data for Ryan, Billy, and Molly are probe data.



**Summary of participant results for commands.** Visual analyses of the multiple probe data across participants revealed baseline data for subsequent participants' use of commands did not change in stability, level, or trend as treatment was initiated for each participant, indicating good experimental control. Overall, these data indicate that treatment was solely responsible for reductions in parents' use of commands, as opposed to extraneous variables.

### **Questions**

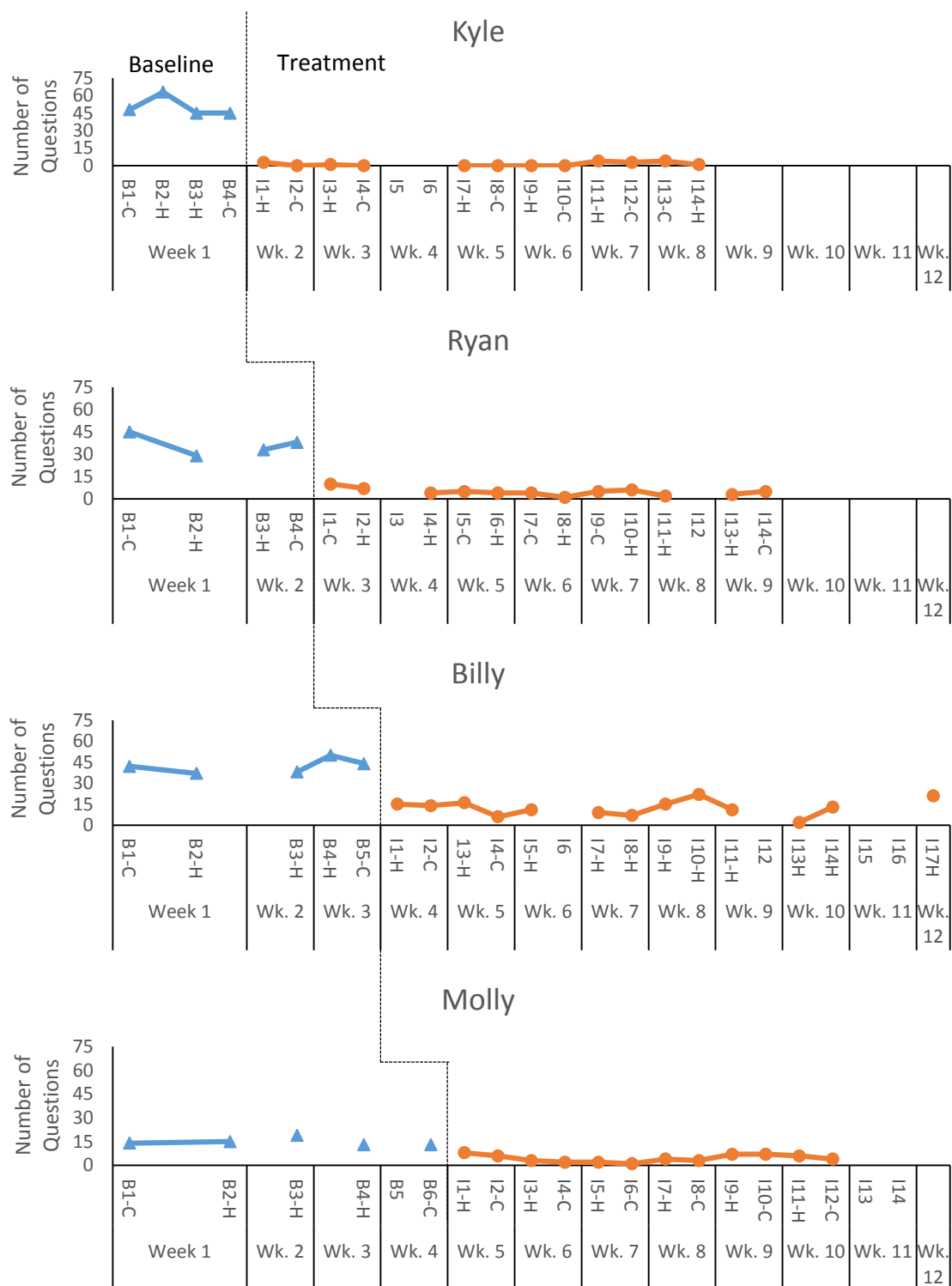
**Kyle.** At baseline, Kyle's mother asked questions an average of 50.25 ( $SD = 8.62$ ) times per five-minute play session, with a range from 45 to 63. Baseline data were variable. During the treatment phase, the average number of questions asked by Kyle's mother during a five-minute play session was 1.33 ( $SD = 1.67$ ), with a range of 0 to 4. These data indicated a decrease in questions from baseline to treatment. PAND was 100%, or 50% beyond chance level. Visual inspection indicated an immediate, stable, and substantial change in level, and visual inspection using CDC confirmed a treatment effect. Overall, these data indicated treatment effects for Kyle's mother's decreased use of questions. Example questions from Kyle's mother include, "What are you going to do now?" and "What's that car doing?"

**Ryan.** Ryan's mother asked questions an average of 36.25 ( $SD = 6.90$ ) times per five-minute play session at baseline, with a range from 29 to 45, and during the treatment phase, she asked an average of 4.67 ( $SD = 2.35$ ) questions per five-minute play session, with a range of 1 to 10. Baseline data were variable. These data indicated a decrease in questions from baseline to treatment. PAND was 100%, or 50% beyond chance level. Visual inspection indicated an immediate decrease in level with stability in treatment

data, and visual inspection using CDC confirmed a treatment effect. Overall, these data indicated treatment effects for Ryan's mother's decreased use of questions during special play time.

**Billy.** Billy's mother asked questions an average of 42.20 ( $SD = 5.22$ ) times per five-minute play session at baseline, with a range from 37 to 50. Baseline data were variable. During the treatment phase, she asked an average of 12.46 ( $SD = 5.70$ ) questions during a five-minute play session, with a range of 2 to 22. These data indicated a decrease in questions from baseline to treatment. PAND was 100%, or 50% beyond chance level. Visual inspection indicated an immediate decrease in level with some variability in treatment data, and visual inspection using CDC confirmed a treatment effect. Overall, these data indicated treatment effects for Billy's mother's decreased use of questions.

**Molly.** During the baseline phase, Molly's foster mother asked questions an average of 14.8 ( $SD = 2.49$ ) times per five-minute play session, with a range from 13 to 19. Baseline data were stable. The average number of questions asked by Molly's foster mother during a five-minute play session in the treatment phase was 4.42 ( $SD = 2.31$ ), with a range of 1 to 8. These data indicated a decrease in questions from baseline to treatment. PAND was 100%, or 50% beyond chance level. Visual inspection indicated an immediate and stable decrease in level, and visual inspection using CDC confirmed a treatment effect. Overall, these data indicated treatment effects for Molly's foster mother's decreased use of questions during special play time.



*Figure 5.* Multiple probe graph for questions across participants.

Note: Horizontal axis labels are coded as follows: B = baseline, I = intervention; C = clinic observation, H = home observation. Baseline data for Ryan, Billy, and Molly are probe data.

**Summary of participant results for questions.** Visual analyses of the multiple probe data across participants revealed baseline data for subsequent participants' use of questions did not change in stability, level, or trend as treatment was initiated for each participant, indicating good experimental control. Overall, these data indicate that treatment was solely responsible for reductions in parents' use of questions, as opposed to extraneous variables.

### **Negative Talk**

**Kyle.** Kyle's mother engaged in negative talk an average of 0.75 ( $SD = 1.5$ ) times per five-minute play session at baseline, with a range from 0 to 3. Baseline data were generally stable. During the treatment phase, the average number of negative talk statements used by Kyle's mother during a five-minute play session was 0.08 ( $SD = 0.29$ ), with a range of 0 to 1. These data indicated no change in negative talk from baseline to treatment. PAND was 6% and within the chance range. However, due to the lack of range and a basal effect in the baseline data, PAND cannot be appropriately interpreted (Scruggs, Mastropieri, & Casto, 1987). Similar sensitivity issues also occur on the high end of the scale (Parker et al., 2007; Scruggs & Mastropieri, 1998). Visual inspection indicated no change in level with highly stable treatment data. Visual inspection using CDC denied a treatment effect. Overall, these data indicated no treatment effects for Kyle's mother's use of negative talk.

**Ryan.** At baseline, Ryan's mother engaged in negative talk an average of 1.75 ( $SD = 2.06$ ) times per five-minute play session, with a range from 0 to 4. Baseline data were variable. During the treatment phase, she consistently used zero negative talk statements ( $M = 0, SD = 0$ ) during a five-minute play session. These data indicated a

decrease in negative talk from baseline to treatment. PAND was 0% and within the chance range. Visual inspection indicated an immediate decrease in level, and treatment data were highly stable. Visual inspection using structured criteria via CDC confirmed a treatment effect. Overall, these data indicated treatment effects for Ryan's mother's decreased use of negative talk.

**Billy.** During the baseline phase, Billy's mother engaged in negative talk an average of 2.6 (SD = 2.70) times per five-minute play session, with a range from 0 to 7. Baseline data were variable. During the treatment phase, she used an average of 1.15 (SD = 1.86) negative talk statements per five-minute play session, with a range of 0 to 5. These data indicated a slight decrease in negative talk from baseline to treatment. PAND was 6% and within chance range, and visual inspection indicated a no change in level with variable treatment data. Visual inspection using CDC denied a treatment effect. Overall, these data indicated no treatment effects for Billy's mother's use of negative talk. Examples of negative talk, including sarcasm, from Billy's mother included, "Ugh, you're being..." and "Yep, that's exactly what I wanted."

**Molly.** Molly's foster mother engaged in negative talk an average of 4.20 (SD = 5.36) times per five-minute play session at baseline, with a range from 0 to 11. Baseline data were variable. During the treatment phase, the average number of negative talk statements used by Molly's foster mother during a five-minute play session was 1.25 (SD = 1.86), with a range of 0 to 6. These data indicated a decrease in negative talk from baseline to treatment. PAND was 18% and within chance range, and visual inspection indicated no clear change in level. Treatment data displayed some variability. Visual

inspection using CDC denied a treatment effect. Overall, these data indicated no treatment effects for Molly's foster mother's use of negative talk.

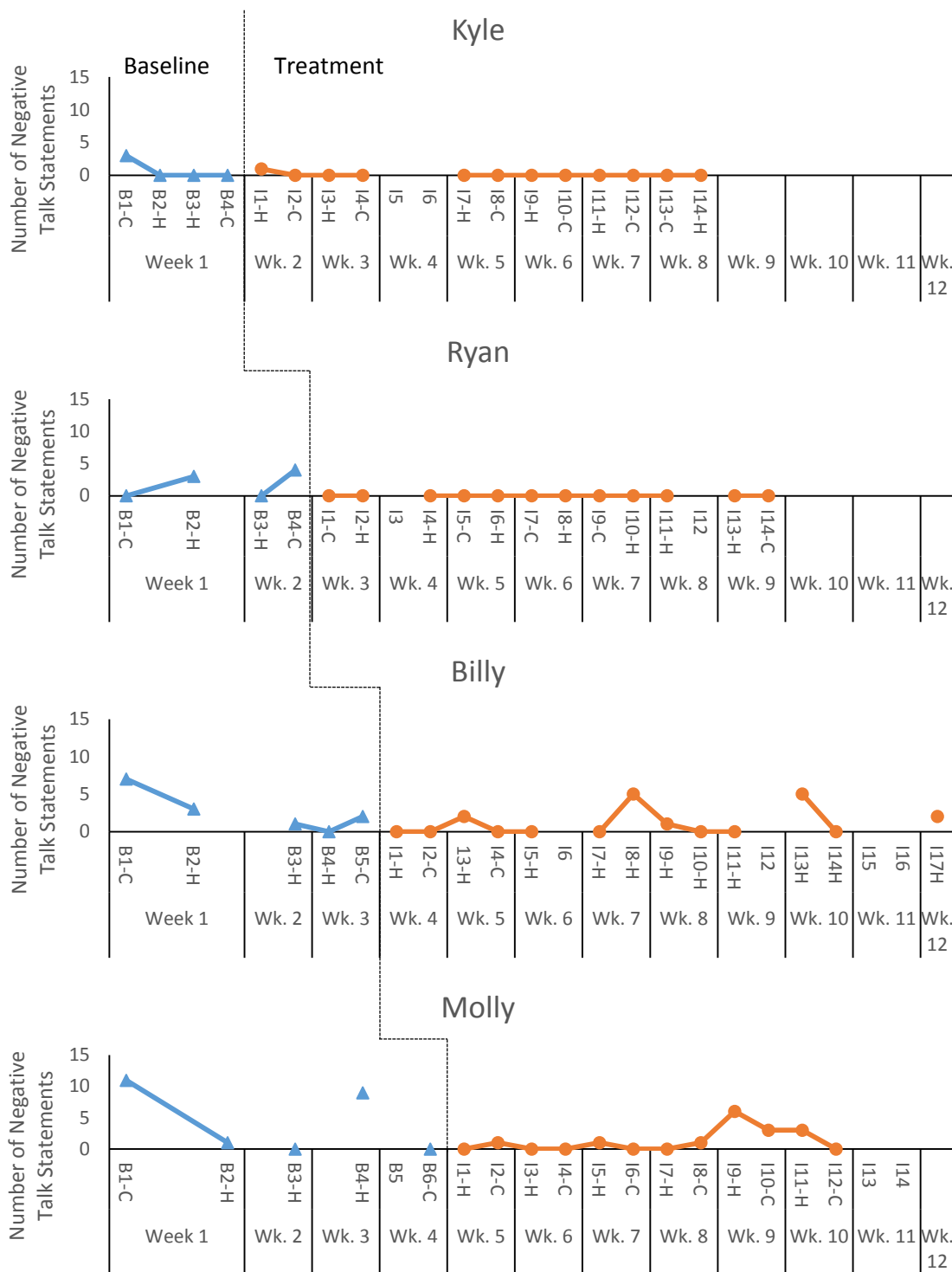


Figure 6. Multiple probe graph for negative talk statements across participants. Note: Horizontal axis labels are coded as follows: B = baseline, I = intervention; C = clinic observation, H = home observation. Baseline data for Ryan, Billy, and Molly are probe data.

**Summary of participant results for negative talk.** Visual analyses of the multiple probe data across participants revealed baseline data for each subsequent participants' use of negative talk did not change in stability, level, or trend as treatment was initiated for each participant, indicating good experimental control. Overall, these data indicate that treatment was solely responsible for reductions, if any, in parents' use of negative talk, as opposed to extraneous variables.

### **Toddler Behaviors**

Broad toddler behaviors were assessed using the Eyberg Child Behavior Inventory (ECBI; Eyberg, 1999), which yields two subscale scores: Total Intensity and Total Problem. The measure was collected once at baseline and once at the conclusion of intervention. Tantrum behaviors were assessed using the Parent Observation and Rating Form, which yielded data regarding frequency and duration of toddler tantrums. Data collection began following the consent session, and data were collected daily until the final therapy session. Frequency of tantrums per day and duration of tantrums were analyzed using comparison of means, visual inspection, and PAND. Individual within participant AB graphs are presented below. A multiple baseline design (MBD) was not used for tantrum data due to the lack of stable baselines prior to phase change and inconsistency in frequency of parent data collection for tantrum data. Importantly, AB graphs for duration data do not conform with frequency graphs, as they reflect data per tantrum and not data per day. Table 14 below summarizes means, standard deviations, and PAND for frequency of tantrums for each participant, as well as an indicator of improvement. Table 15 below summarizes means, standard deviations, and PAND for duration of tantrums for each participant, as well as an indicator of improvement. Tables



16 and 17 below summarize meaningful change on the ECBI scale across participants, for Intensity and Problem scales, respectively.

Table 14.

*Means, Standard Deviations and PAND for Frequency of Tantrums*

	Baseline Mean (SD)	Treatment Mean (SD)	PAND	Improvement from baseline to treatment
Kyle	2.67 (1.15)	1.16 (1.37)	77%	+
Ryan	4.67 (2.69)	4.67 (3.10)	10%	-
Billy	2 (0.82)	1.20 (1.12)	32%	-
Molly	7 (0)	1.75 (0.96)	100%	+

Scores reflect parent rating of frequency of daily tantrums using the Parent Observation and Rating Form

PAND is percentage of all nonoverlapping data between baseline and treatment phases

+ = Measure of treatment effectiveness observed

- = Measure of treatment effectiveness was not observed

Table 15.

*Means, Standard Deviations and PAND for Duration of Tantrums*

	Baseline Mean (SD)	Treatment Mean (SD)	PAND	Improvement from baseline to treatment
Kyle	3.67 (1.63)	6.53 (8.74)	20%	-
Ryan	6.40 (4.07)	6.17 (3.89)	2%	-
Billy	16.25 (14.47)	18.44 (23.81)	11%	-
Molly	6.71 (3.89)	9.14 (6.36)	.05%	-

Scores reflect parent rating of duration of each tantrum using the Parent Observation and Rating Form

PAND is percentage of all nonoverlapping data between baseline and treatment phases

+ = Measure of treatment effectiveness observed

- = Measure of treatment effectiveness was not observed

Table 16.  
*Pre- and Post-test Measures of Intensity on the Eyberg Child Behavior Inventory*

	Pre Score	Post Score	Meaningful Improvement on Total Intensity Scale
Kyle	56	51	-
Ryan	66	58	+
Billy	63	58	+
Molly	65	61	-

T scores; mean = 50, standard deviation = 10

+ = Improvement from clinically significant range to at-risk range or at-risk range to average range.

- = No improvement from clinically significant range to at-risk range or at-risk range to average range.

Table 17.  
*Pre- and Post-test Measures of Total Problems on the Eyberg Child Behavior Inventory*

	Pre Score	Post Score	Meaningful Improvement on Total Problem Scale
Kyle	52	41	-
Ryan	59	46	-
Billy	67	54	+
Molly	62	45	+

T scores; mean = 50, standard deviation = 10

+ = Improvement from clinically significant range to at-risk range or at-risk range to average range.

- = No improvement from clinically significant range to at-risk range or at-risk range to average range.

### Kyle

**Broad measure of toddler behavior.** Kyle's mother completed the Eyberg Child Behavior Inventory. At baseline, Kyle's Total Intensity score was not clinically

significant ( $T = 56$ ). Following treatment, the Total Intensity was not clinically significant ( $T = 51$ ). At baseline, Kyle's Total Problem T-score was not clinically significant ( $T = 52$ ). Following treatment, his Total Problem score was not clinically significant ( $T = 41$ ).

**Observations of tantrum behavior.** Kyle's mother collected data daily using the Parent Observation and Rating Form to document frequency and duration of Kyle's tantrums.

**Tantrum frequency.** Kyle engaged in tantrums an average of 2.67 ( $SD = 1.15$ ) times per day at baseline, with a range from 2 to 4. During the treatment phase, the average number of tantrums displayed by Kyle per day was 1.16 ( $SD = 1.37$ ), with a range of 0 to 5. These data indicated a decrease in tantrums from baseline to treatment. PAND was 77%, or 27% beyond chance level. Visual inspection indicated following a period of variability in treatment data, a delayed decrease in level. Overall, these data indicated a moderate treatment effect for Kyle's tantrums per day.

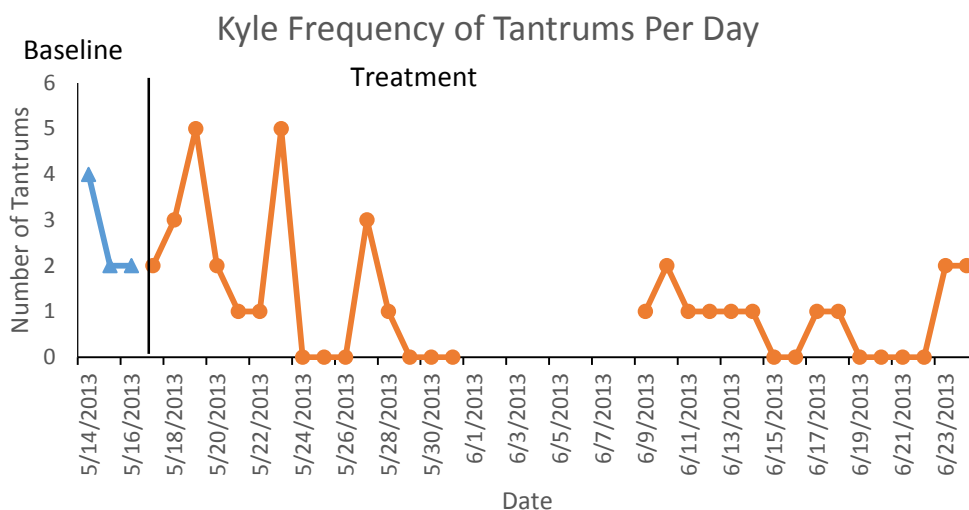


Figure 7. Graph for Kyle's tantrums per day.

**Tantrum duration.** At baseline, Kyle's tantrums lasted an average of 3.67 ( $SD = 1.63$ ) minutes, with a range from 1 to 5 minutes. During the treatment phase, the average duration of tantrums displayed by Kyle was 6.53 ( $SD = 8.74$ ) minutes, with a range of 1 to 32 minutes. These data indicated an increase in duration of tantrums from baseline to treatment. PAND was 20% and within chance range. Visual inspection indicated delayed increase in level, with high variability in treatment data. Overall, these data indicated an effect on Kyle's duration per tantrum, although in the opposite direction intended.

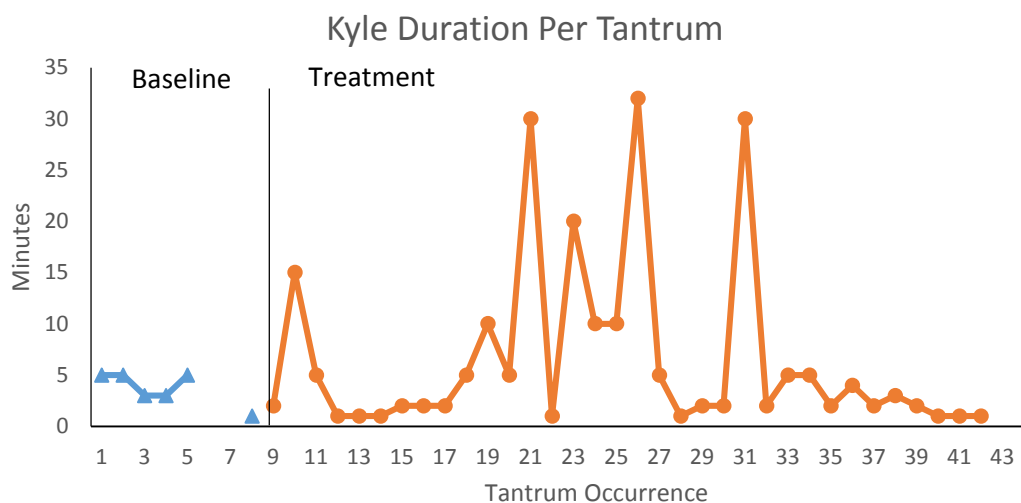


Figure 8. Graph for Kyle's duration per tantrum.

## Ryan

**Broad measure of toddler behavior.** Ryan's mother completed the Eyberg Child Behavior Inventory. At baseline, Ryan's Total Intensity score was clinically significant ( $T = 66$ ), and following treatment, the Total Intensity was not clinically significant ( $T = 58$ ). At baseline, Ryan's Total Problem T-score was not clinically significant ( $T = 59$ ), and following treatment, his Total Problem score was not clinically significant ( $T = 46$ ).

**Observations of tantrum behavior.** Ryan's mother collected data daily using the Parent Observation and Rating Form to document frequency and duration of Ryan's tantrums.

**Tantrum frequency.** Ryan engaged in tantrums an average of 4.67 ( $SD = 2.69$ ) times per day at baseline, with a range from 1 to 10. During the treatment phase, the average number of tantrums displayed by Ryan per day was 4.67 ( $SD = 3.10$ ), with a range of 0 to 15. These data indicated no change in tantrums from baseline to treatment. PAND was 10% and within chance range. Visual inspection indicated no change in level. Overall, these data indicated no treatment effects for Ryan's tantrums per day.

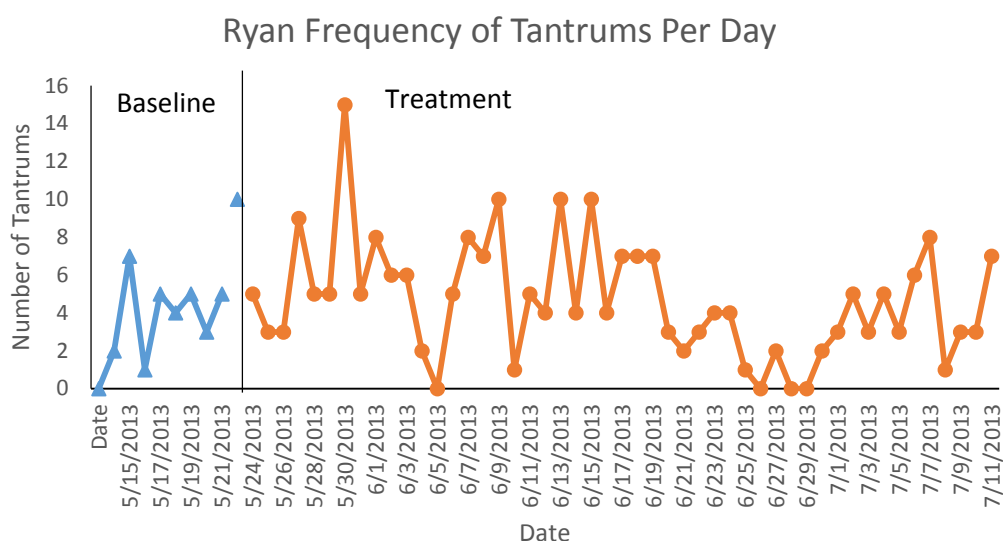


Figure 9. Graph for Ryan's tantrums per day.

**Tantrum duration.** At baseline, Ryan's tantrums lasted an average of 6.40 ( $SD = 4.07$ ) minutes per tantrum, with a range from 2 to 18 minutes. During the treatment phase, the average duration of tantrums displayed by Ryan was 6.17 ( $SD = 3.89$ ) minutes, with a range of 2 to 25 minutes. These data indicated no change in duration of tantrums

from baseline to treatment. PAND was 2% and within chance range, and visual inspection indicated no change in level. Overall, these data indicated no treatment effects for Ryan's duration of tantrums.

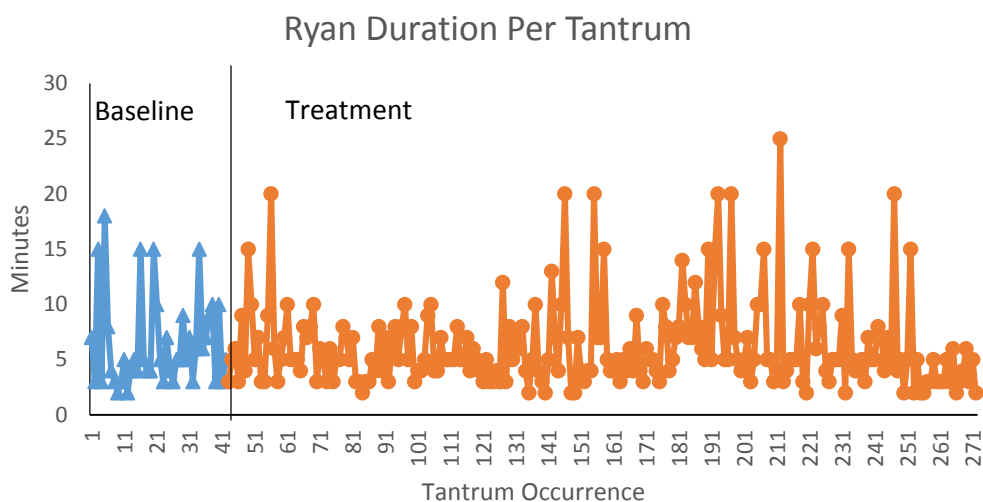


Figure 10. Graph for Ryan's duration per tantrum.

## Billy

**Broad measure of toddler behavior.** Billy's mother completed the Eyberg Child Behavior Inventory. At baseline, Billy's Total Intensity T-score was clinically significant ( $T = 63$ ). Following treatment, the Total Intensity was not clinically significant ( $T = 58$ ). At baseline, Billy's Total Problem T-score was clinically significant ( $T = 67$ ). Following treatment, his Total Problem score was not clinically significant ( $T = 54$ ).

**Observations of tantrum behavior.** Billy's mother collected data daily using the Parent Observation and Rating Form to document frequency and duration of Billy's tantrums.

**Tantrum frequency.** Billy engaged in tantrums an average of 2 ( $SD = 0.82$ ) times per day at baseline, with a range from 1 to 3. Several days of baseline data were missing. During the treatment phase, the average number of tantrums displayed by Kyle per day was 1.20 ( $SD = 1.12$ ), with a range of 0 to 5. These data indicated no change in frequency of tantrums from baseline to treatment. PAND was 32% and within chance range, and visual inspection indicated no change in level. Overall, these data indicated no treatment effects for Billy's tantrums per day.

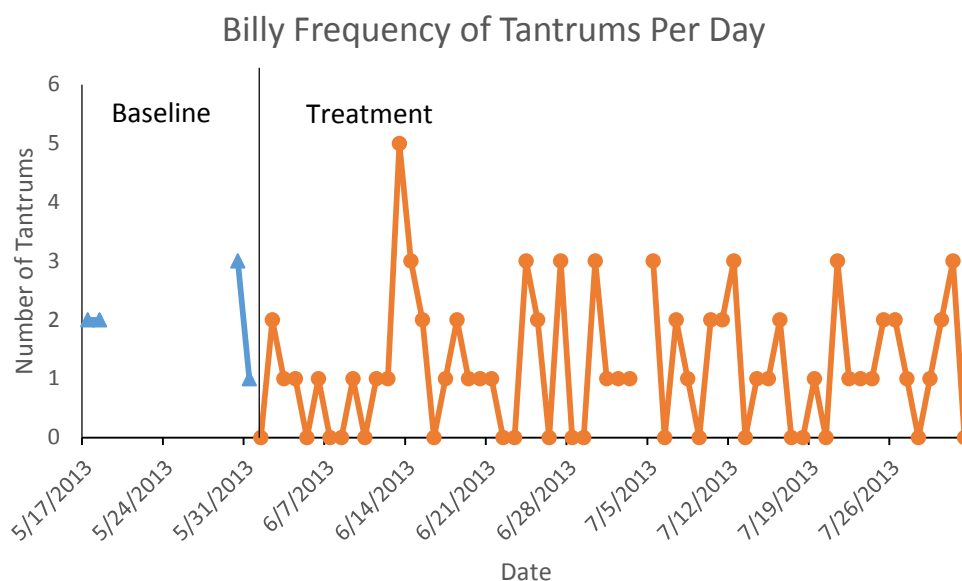


Figure 11. Graph for Billy's tantrums per day.

**Tantrum duration.** At baseline, Billy's tantrums lasted an average of 16.25 ( $SD = 14.47$ ) minutes per tantrum, with a range from 3 to 45 minutes. During the treatment phase, the average duration of tantrums displayed by Billy was 18.44 ( $SD = 23.81$ ) minutes, with a range of 2 to 120 minutes. These data indicated a slight increase in duration of tantrums from baseline to treatment. PAND was 11% and within chance range, and visual inspection indicated no clear change in level due to high variability in

treatment data. Overall, these data indicated no treatment effect for Billy's duration of tantrums.

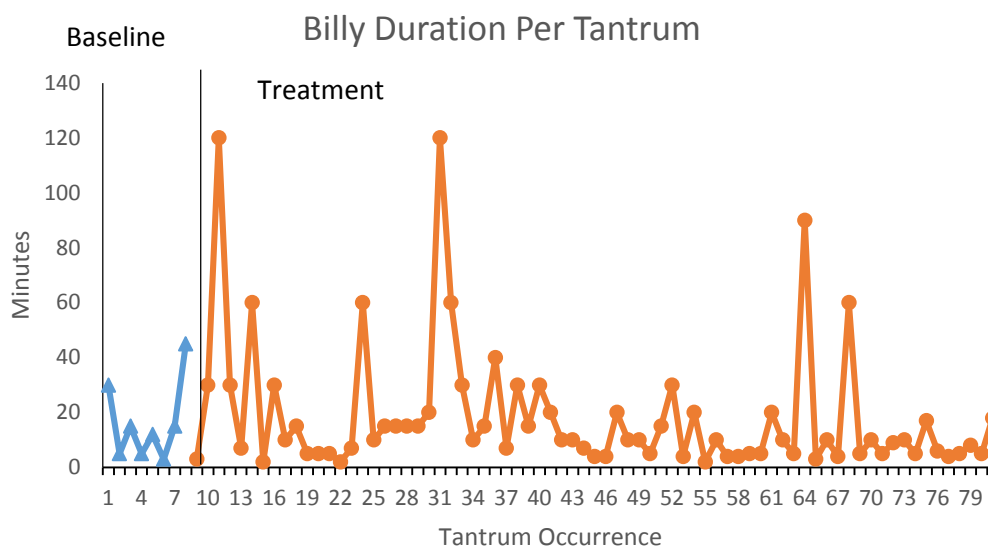


Figure 12. Graph for Billy's duration per tantrum.

## Molly

**Broad measure of toddler behavior.** Molly's foster mother completed the Eyberg Child Behavior Inventory. At baseline, Molly's Total Intensity T-score was clinically significant ( $T = 65$ ). Following treatment, the Total Intensity remained clinically significant ( $T = 61$ ). At baseline, Molly's Total Problem T-score was clinically significant ( $T = 62$ ). Following treatment, her Total Problem score was not clinically significant ( $T = 45$ ).

**Observations of tantrum behavior.** Molly's foster mother collected data daily using the Parent Observation and Rating Form to document frequency and duration of Molly's tantrums.



**Tantrum frequency.** Much of Molly's tantrum data were missing due to low parent adherence to data collection. Molly engaged in tantrums an average of 7 ( $SD = 0$ ) times per day at baseline. During the treatment phase, the average number of tantrums displayed by Molly per day was 1.75 ( $SD = 0.96$ ), with a range of 1 to 3. These data indicated a decrease in tantrums from baseline to treatment. PAND was 100%, or 50% beyond chance level. Visual inspection indicated an immediate decrease in level. Overall, these data indicated treatment effects for Molly's tantrums per day.

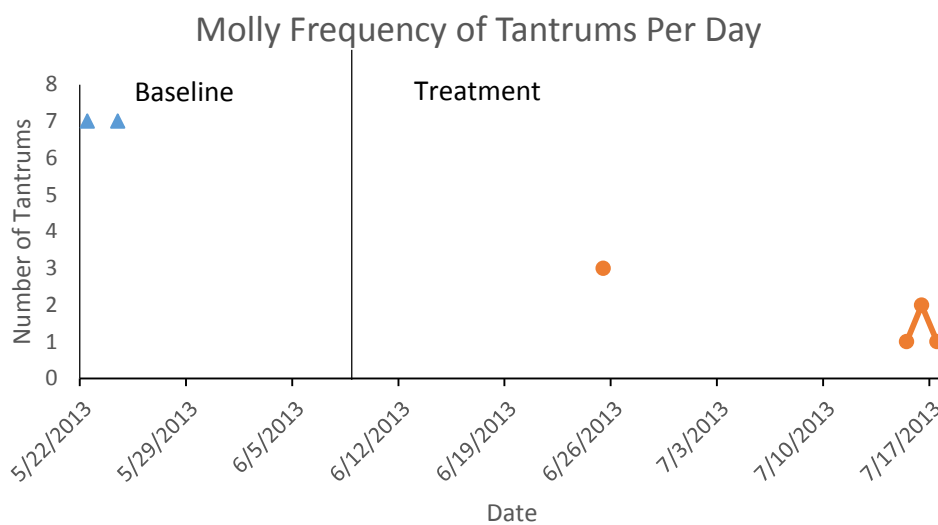


Figure 13. Graph for Molly's tantrums per day.

**Tantrum duration.** At baseline, Molly's tantrums lasted an average of 6.71 ( $SD = 3.89$ ) minutes per tantrum, with a range from 2 to 15 minutes. During the treatment phase, the average duration of tantrums displayed by Molly was 9.14 ( $SD = 6.36$ ) minutes, with a range of 2 to 20 minutes. These data indicated an increase in duration of tantrums from baseline to treatment. PAND was .05% and within chance range. Visual inspection indicated no clear change in level due to high variability in treatment data. Overall, no clear treatment effects were observed.

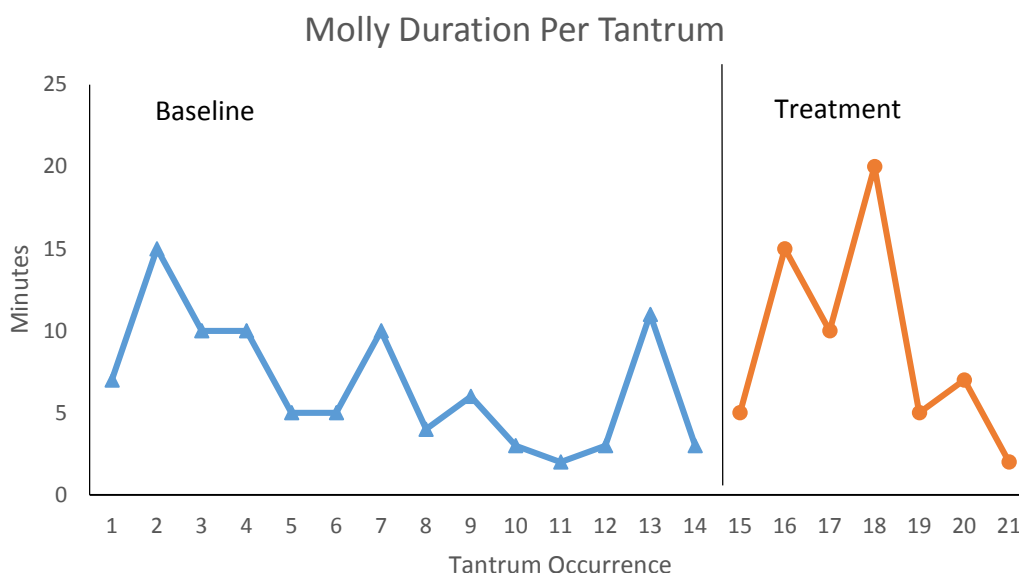


Figure 14. Graph for Molly's duration per tantrum.

### **Parent-Toddler Relationship**

The parent-toddler relationship was assessed using the Parenting Relationship Questionnaire (PRQ; Kamphaus & Reynolds, 2006), which yields T-scores for attachment, discipline practices, involvement, parenting confidence, and relational frustration. The PRQ was administered at baseline and at the conclusion of intervention. Change from baseline to treatment was interpreted as movement from one classification (i.e., “average,” “at-risk,” “clinically significant,” and “above average”) to another on each subscale. Specifically, meaningful change was observed when scores moved from the *clinically significant range* (T-score of 30 or lower on Attachment, Discipline Practices, Involvement, Parenting Confidence; T-score of 70 or higher on Relational Frustration) to the *at-risk range* (T-score of 31-40 on Attachment, Discipline Practices, Involvement, Parenting Confidence; T-score of 60-69 on Relational Frustration), from the *at-risk range*

to the *average range* (T = 41-59 on all subscales), or from the *average range* to the *above average range* on adaptive scales (T = 60+ on Attachment, Discipline Practices, Involvement, Parenting Confidence).

### Kyle

Kyle's mother completed the PRQ. Kyle's pre- and post-intervention T-scores and significance levels are displayed in Table 18, below.

Table 18.  
*Kyle's Pre- and Post-Test PRQ Scores*

	Baseline (percentile)	Post Treatment (percentile)	Meaningful Improvement
Attachment	50 (48 <sup>th</sup> )	64 (91 <sup>st</sup> )	+
Discipline Practices	54 (62 <sup>nd</sup> )	65 (93 <sup>rd</sup> )	+
Involvement	49 (47 <sup>th</sup> )	61 (84 <sup>th</sup> )	+
Parenting Confidence	49 (44 <sup>th</sup> )	55 (67 <sup>th</sup> )	-
Relational Frustration	63 (92 <sup>nd</sup> )*	50 (50 <sup>th</sup> )	+

\*Indicates T-scores considered "at-risk" (T-score of 31-40 on Attachment, Discipline Practices, Involvement, Parenting Confidence; T-score of 60-69 on Relational Frustration)

+ = Improvement from clinically significant range to at-risk range or at-risk range to average range (defined above), and movement from average range to above average range (T = 60+) on adaptive scales (Attachment, Discipline Practices, Involvement, Parenting Confidence)

- = No improvement from clinically significant range to at-risk range or at-risk range to average range (defined above)

At baseline, Kyle's mother's attachment, discipline practices, involvement, and parenting confidence scale scores were in the average range. Her relational frustration scale score was in the at-risk range. Following treatment, all scales were in the average

range, with above average (T = 60+) scores demonstrated on the following adaptive scales: attachment, discipline practices, and involvement.

## Ryan

Ryan's mother completed the PRQ. Ryan's pre- and post-intervention T-scores and significance levels are displayed in Table 19, below.

Table 19.  
*Ryan's Pre- and Post-Test PRQ Scores*

	Baseline (percentile)	Post Treatment (percentile)	Meaningful Improvement
Attachment	37 (11 <sup>th</sup> )*	53 (58 <sup>th</sup> )	+
Discipline Practices	42 (24 <sup>th</sup> )	54 (62 <sup>nd</sup> )	-
Involvement	49 (47 <sup>th</sup> )	61 (84 <sup>th</sup> )	+
Parenting Confidence	30 (4 <sup>th</sup> )**	49 (44 <sup>th</sup> )	+
Relational Frustration	57 (77 <sup>th</sup> )	63 (92 <sup>nd</sup> )*	-

\*Indicates T-scores considered "at-risk" (T-score of 31-40 on Attachment, Discipline Practices, Involvement, Parenting Confidence; T-score of 60-69 on Relational Frustration)

\*\*Indicates T-scores considered "clinically significant" (T-score of 30 or lower on Attachment, Discipline Practices, Involvement, Parenting Confidence; T-score of 70 or higher on Relational Frustration)

+ = Improvement from clinically significant range to at-risk range or at-risk range to average range (defined above), and movement from average range to above average range (T = 60+) on adaptive scales (Attachment, Discipline Practices, Involvement, Parenting Confidence)

- = No improvement from clinically significant range to at-risk range or at-risk range to average range (defined above)

At baseline, Ryan's mother's discipline practices, involvement, and relational frustration scale scores were in the average range. Her attachment scale score was in the

at-risk range, and her parenting confidence score was in the clinically significant range. Following treatment, attachment, discipline practices, and parenting confidence were in the average range, and involvement was in the above average range. Relational frustration was in the at-risk range.

### **Billy**

Billy's mother completed the PRQ. Billy's pre- and post-intervention T-scores and significance levels are displayed in Table 20, below.

Table 20.  
*Billy's Pre- and Post-Test PRQ Scores*

	PCAT-E (percentile)	Post Treatment (percentile)	Meaningful Improvement
Attachment	28 (2 <sup>nd</sup> )**	31 (4 <sup>th</sup> )*	+
Discipline Practices	22 (1 <sup>st</sup> )**	42 (24 <sup>th</sup> )	+
Involvement	34 (6 <sup>th</sup> )*	37 (10 <sup>th</sup> )*	-
Parenting Confidence	36 (9 <sup>th</sup> )*	33 (6 <sup>th</sup> )*	-
Relational Frustration	70 (97 <sup>th</sup> )**	57 (77 <sup>th</sup> )	+

\*Indicates T-scores considered "at-risk" (T-score of 31-40 on Attachment, Discipline Practices, Involvement, Parenting Confidence; T-score of 60-69 on Relational Frustration)

\*\*Indicates T-scores considered "clinically significant" (T-score of 30 or lower on Attachment, Discipline Practices, Involvement, Parenting Confidence; T-score of 70 or higher on Relational Frustration)

+ = Improvement from clinically significant range to at-risk range or at-risk range to average range (defined above), and movement from average range to above average range (T = 60+) on adaptive scales (Attachment, Discipline Practices, Involvement, Parenting Confidence)

- = No improvement from clinically significant range to at-risk range or at-risk range to average range (defined above)

At baseline, Billy’s mother’s attachment, discipline practices, and relational frustration scale scores were in the clinically significant range. Her involvement and parenting confidence scale scores were in the at-risk range. Following treatment, none of Billy’s mother’s scores were in the clinically significant range. Her attachment, involvement, and parenting confidence scale scores improved but continued to be in the at-risk range, and her discipline practices and relational frustration scale scores were in the average range.

### **Molly**

Molly’s foster mother completed the PRQ. Molly’s pre- and post-intervention T-scores and significance levels are displayed in Table 21, below.

Table 21.  
*Molly’s Pre- and Post-Test PRQ Scores*

	Baseline (percentile)	Post Treatment (percentile)	Meaningful Improvement
Attachment	28 (2 <sup>nd</sup> )**	39 (15 <sup>th</sup> )*	+
Discipline Practices	50 (49 <sup>th</sup> )	46 (35 <sup>th</sup> )	-
Involvement	44 (29 <sup>th</sup> )	46 (37 <sup>th</sup> )	-
Parenting Confidence	43 (22 <sup>nd</sup> )	46 (33 <sup>rd</sup> )	-
Relational Frustration	53 (63 <sup>rd</sup> )	53 (63 <sup>rd</sup> )	-

\*Indicates T-scores considered “at-risk” (T-score of 31-40 on Attachment, Discipline Practices, Involvement, Parenting Confidence; T-score of 60-69 on Relational Frustration)

\*\*Indicates T-scores considered “clinically significant” (T-score of 30 or lower on Attachment, Discipline Practices, Involvement, Parenting Confidence; T-score of 70 or higher on Relational Frustration)

+ = Improvement from clinically significant range to at-risk range or at-risk range to average range (defined above), and movement from average range to above average

range (T = 60+) on adaptive scales (Attachment, Discipline Practices, Involvement, Parenting Confidence)

- = No improvement from clinically significant range to at-risk range or at-risk range to average range (defined above)

At baseline, Molly's foster mother's attachment scale score was in the clinically significant range. All other scales were in the average range. Following treatment, none of Molly's foster mother's scores were in the clinically significant range, however, her attachment, scale score was in the at-risk range. All other scale scores were in the average range.

### **Treatment Integrity Data**

#### **PCAT-E Integrity**

The integrity with which the PCAT-E therapy sessions were conducted was assessed. PCAT-E sessions were video recorded, all were coded by trained coders for adherence to session objectives, and 50% were coded by a second trained coder to assess coding reliability. Interrater reliability was calculated to be 96%. Overall, 99% of session objectives were met, indicating high PCAT-E integrity.

#### **Implementation Integrity**

Implementation integrity was assessed to understand the fidelity with which the participating families practiced the PCAT-E intervention as designed. The PCAT-E Home Practice Sheet (see Appendix E) was used to collect information on implementation integrity; families were prompted to complete the form following daily special play time. PCAT-E practice skills (i.e., PRIDE and avoiding skills) were listed as individual steps on the PCAT-E home practice form. Self-report implementation integrity data are summarized in Table 22.

Table 22.  
*Implementation Integrity across Participants*

Child	Percent Returned	Treatment Integrity
Kyle	50%	100%
Ryan	73%	98%
Billy	94%	78%
Molly	40%	68%

**Kyle.** Kyle's mother completed 50% of her daily practice forms. Of the data collected, she reported practicing, on average, 100% of the PRIDE and avoiding skills during daily five-minute special play time sessions. This indicated a high level of implementation integrity at home.

**Ryan.** Ryan's mother completed 73% of her daily practice forms. Of the data collected, she reported practicing, on average, 98% of the PRIDE and avoiding skills during daily five-minute special play time sessions. This indicated a high level of implementation integrity at home.

**Billy.** Billy's mother completed 94% of her daily practice forms. Of the data collected, she reported practicing, on average, 78% of the PRIDE and avoiding skills during daily five-minute special play time sessions. Further, Billy's mother's implementation integrity improved with time; the first half of her integrity sheets indicated an average of 62% implementation integrity, whereas the second half of her integrity sheets indicated an average of 93% implementation integrity. This indicated an overall moderate to high level of implementation integrity at home.



**Molly.** Molly’s foster mother completed 40% of her daily practice forms. Of the data collected, she reported practicing, on average, 68% of the PRIDE and avoiding skills during daily five-minute special play time sessions. This indicated a moderate level of implementation integrity at home.

### Social Validity

Perceptions of the acceptability of the PCAT-E intervention was assessed after the completion of PCAT-E. Parents completed the BIRS Acceptability Form and provided narrative responses on a form created by the PI. Mean item ratings for the BIRS are summarized in Table 23.

Table 23.

*BIRS Social Validity Outcomes*

Child	Acceptability Mean Score <sup>1</sup>
Kyle	5.87
Ryan	5.73
Billy	5.13
Molly	5.13

Note: Range of scores possible is 1-6.

**Kyle.** Kyle’s mother completed the narrative form. She reported that prior to the course of PCAT-E, she perceived Kyle’s tantrums to be uncontrollable and that she had no method to impact them as a parent. She reported that his tantrums were an overreaction, he resisted all compliance, went from “0-60” quickly, and his tantrums were too frequent and too violent. Following PCAT-E intervention, she reported his tantrums to be less frequent and to last for a shorter period of time. She indicated that she believed she could influence him while he was tantruming and help him calm down

quickly. She also reported increased compliance. Kyle's mother reported that her skill level in managing Kyle's behavior would receive a "grade of 'A'" following participation in PCAT-E, whereas prior to participation, she did not know what to do differently to manage his behavior.

Kyle's mother reported that she liked the structure and generalizability of PCAT-E most, and she deferred the question regarding what she liked least. She indicated that she has seen improvements in his behavior and her relationship with him. Specifically, she reported that he is more compliant, is positive, use emotion words, displays fewer tantrums, and more actively displays imagination. She had no suggestions for improvement in the PCAT-E approach to treatment of tantrums and toddler behaviors.

**Ryan.** Ryan's mother reported that prior to PCAT-E, she felt that Ryan's tantrums were very frequent, out of control, and unreasonable. She indicated that following PCAT-E, his tantrums were less frequent, shorter, and he was calmer. Ryan's mother reported that her perception of a tantrum changed throughout the intervention; at the beginning, she considered wild screaming, throwing himself on the floor, and being violent to constitute a tantrum. Following participation in PCAT-E, she perceived crying to be a tantrum behavior in and of itself, in part because the other behaviors previously observed were much less frequent.

Ryan's mother reported that prior to PCAT-E, she considered her role to be to put him in his crib and let him "cry it out" or to ignore him. She indicated that she "had no idea how to stop the behavior...discipline was not working, so no effective skills." Following PCAT-E, she reportedly considered her role to be to stop the tantrum or

distract him. She indicated that she can calm him down enough to explain why he is mad or take him to time out. She shared that they communicate much better.

Ryan's mother reported that what she liked best about PCAT-E was how quickly Ryan responded to praise provided for positive behaviors when she anticipated a tantrum rather than having to resort to using "negative discipline after bad behavior started." What she liked least was the "constant talking and attention" needed to keep him well behaved, as she felt it was a lot of work. However, she noted that it was very effective, so it was "still a plus." Ryan's mother reported that she has seen improvements in his tantrums and her relationship with Ryan. Specifically, she noted that he was better at calming down quickly, more willing to share, compliant, and better controlled. She indicated that it was much easier for her to not yell around her children. She had no suggestions for improvement in the PCAT-E approach to treatment of tantrums and toddler behaviors.

**Billy.** Billy's mother reported that prior to the implementation of PCAT-E, she did not consider Billy's behaviors to be tantrums, rather problems with defiance and compliance, and she could not control them. Following the implementation of PCAT-E, she felt his tantrums were slightly improved, and she had more control over them. She reported that she believed her skills were moderate; she could exert some control, but it depended on the tantrum. Billy's mother reported that she felt better about Billy's behavior following participation in PCAT-E and liked that it improved his listening skills. She indicated that what she liked least was being video-recorded, even though she had provided voluntary consent. She had no suggestions for improvement in the PCAT-E approach to treatment of tantrums and toddler behaviors.

**Molly.** Molly's foster mother reported that prior to the implementation of PCAT-E, Molly's tantrums were very frequent and random, and following participation, she perceived Molly's tantrums to have decreased, become shorter, and to have a clear trigger. Molly's foster mother indicated that prior to PCAT-E, she was using some of the PRIDE skills but not all, and she tried redirecting and praising often. Following participation, she reportedly felt much more skilled in the use of the PRIDE skills. She indicated that what she liked most was "all of the program"; what she liked least was the paperwork. Molly's foster mother reported that her relationship with Molly was stronger at the conclusion of PCAT-E because "everyone is happier!" She had no suggestions for improvement in the PCAT-E approach to treatment of tantrums and toddler behaviors.

## **Chapter 5: Discussion**

The purpose of this study was to evaluate the impact of Parent-Child Attunement Therapy-Enhanced (PCAT-E) on parent behaviors, parent-child relationships, and toddler tantrums. Specific research questions were: (a) What are the immediate effects of PCAT-E on parenting behaviors?, (b) What are the immediate effects of PCAT-E on toddler tantrum behaviors?, and (c) What are the immediate effects of PCAT-E on the parent-toddler relationship? The efficacy of the intervention was assessed using a multiple probe design across participants for each parent behavior. The impact on toddler behaviors was assessed using visual inspection, and the impact on the parent-child relationship was assessed via clinical significance. The efficacy of the intervention was based on its effects on measures of positive parenting behaviors (i.e., the Dyadic Parent-Child Interaction System-III), toddler tantrums (i.e., parent ratings) and broad toddler behaviors (i.e., the Eyberg Child Behavior Inventory), and the parent-toddler relationship (i.e., the Parenting Relationship Questionnaire).

### **Summary of Outcomes**

#### **Positive Parenting Behaviors**

Results for the first research question examining the effect of PCAT-E on parent behaviors were mixed, varying with behavior and parent-toddler dyad. Although most outcomes supported the effectiveness of PCAT-E for positive parenting behaviors, other outcomes suggest the need for future research prior to making conclusions about the overall effectiveness of PCAT-E.

All four of the families who participated in PCAT-E experienced substantial increases in the number of labeled praises and behavioral descriptions and decreases in

the number of questions and commands provided by the mother during a five-minute play session. Mean change was observed in all four families, and visual indicators also suggested positive effects (i.e., increases in labeled praise statements and behavioral descriptions; decreases in commands and questions). Immediate changes were observed for all families following the implementation of PCAT-E for commands and questions. Kyle's mother showed immediate increases in labeled praises and behavioral descriptions following implementation of PCAT-E, Ryan's and Molly's mothers showed a slightly delayed increase in labeled praise but an immediate increase in behavioral description, and Billy's mother showed a delayed increase for both labeled praise statements and behavioral descriptions. All families showed a visual improvement in level (i.e., increase for labeled praise statements and behavioral descriptions; decrease in commands and questions), with most families meeting criterion for CDC and PAND above chance level. Molly's mother's behavioral description treatment data failed to meet criteria for CDC and was within chance range for PAND. Likewise, Billy's mother's command treatment data failed to meet criteria for CDC. However, this was due to a downward trend in baseline data, and in part, a high outlier data point in the treatment phase. It appears that, due to the notable difference in level between baseline and treatment, given a stable baseline, Billy's mother's command treatment data would meet criteria for CDC. Overall, these results indicate an overall positive impact of PCAT-E on four parent behaviors: labeled praise, behavioral descriptions, commands, and questions.

The data were less supportive of the efficacy of PCAT-E for two parent behaviors: reflection and negative talk. For reflection statements, improvements in mean scores were observed for Ryan and Molly. Reductions in mean scores were observed for

Kyle and Billy, which is opposite of intended treatment effects. Visual analyses revealed no immediate changes in reflection statements for participating families, and a delayed level change was observed in Kyle only. All families' reflection statement data failed to meet criteria for CDC, and three of the four families' PAND was within chance range. Kyle's PAND was above chance level. However, overall, these data indicate no effect of PCAT-E on reflection statements. A hypothesized reason why PCAT-E had no clear impact on reflection statements is that many of the children were quiet during play sessions or developing speech and language skills, giving fewer opportunities for reflection. Even the children who were talkative outside of play sessions became quiet during play sessions, perhaps as a reaction to their parents' increased attention. This was anticipated in treatment planning, and parents were encouraged to reflect sounds made by their children. However, it appears that this skill was used with less frequency than other verbal parent skills, such as labeled praise and behavioral descriptions, which were potentially easier and more natural for parents to use with their children who were largely silent during five-minute play sessions.

The data for negative talk also indicate uncertain efficacy of PCAT-E. A change in mean score was observed for Ryan and Molly, but not for Kyle and Billy. Visual analyses revealed no change in level for all families but Ryan, and all families' negative talk data failed to meet criteria for CDC, with the exception of Ryan's data. However, all four families' PAND was within chance range. Due to the fact that negative talk was low during baseline for all families, impact of treatment was difficult to observe. However, for Ryan's family, treatment appears to have eliminated the variability in data observed at

baseline, resulting in consistent absence of negative talk statements. Therefore, overall, these data indicate questionable effect of PCAT-E on negative talk statements.

Importantly, across the multiple probe design, changes were not observed in each participant's behaviors until the implementation of the treatment phase, even when treatment was implemented for previous participants. That is, visual analyses of multiple probe data indicated improvements (increase for labeled praise statements and behavioral descriptions; decrease in commands and questions) without affecting participants still in the baseline phase. Changes were not observed in reflection statements and negative talk statements in subsequent participants as treatment was implemented for each participant. It is also important to note that although Molly's foster mother had reportedly engaged in PCIT with a separate child in the past, her baseline skill level appeared to demonstrate little effect of this previous training; Molly's foster mother's baseline skill frequencies were similar to those of other parent participants in the current study.

### **Toddler Behaviors**

Results for the second research question examining the effect of PCAT-E on toddler behaviors were mixed, varying by behavior and parent-toddler dyad. Several outcomes supported the effectiveness of PCAT-E for toddler behaviors, but other outcomes suggest the need for future research prior to making conclusions about the effectiveness of PCAT-E.

Three of the four families demonstrated improvement on either the Intensity or Problem scale on the Eyberg Child Behavior Inventory, or on both scales. Kyle was the only parent-toddler dyad who did not show improvement on this measure, and this was because his baseline scores were within the average range, not allowing room for



meaningful improvement. For the other three families, all subscales that were clinically significant at baseline were within the average range following treatment, with the exception of Molly's Intensity score, which remained clinically significant. Overall, these results demonstrate effectiveness of the PCAT-E intervention on broad toddler behaviors.

The results of the PCAT-E intervention on tantrum behaviors are mixed. Two families (i.e., Kyle and Molly) observed improvement in frequency of tantrums from baseline to treatment, whereas two families observed no meaningful change (i.e., Ryan and Billy). One potential cause for this discrepancy is changing parent perception of tantrums; Ryan's parent narrative data indicated that his intensity of tantrums (e.g., kicking and screaming) had decreased, but his crying behaviors maintained. Due to the fact that intensity was not measured, this effect was not captured.

A clear impact of PCAT-E on tantrum duration was not observed. Mean change indicated small increases in tantrum duration for three of the four families following implementation of the intervention, but PAND suggested that changes were within chance range. It is hypothesized that a potential increase in duration of tantrum following treatment may have been due to parent consistency in withholding reinforcers (e.g., attention, access to desired activities/objects), requiring toddlers to take time to accept the contingency and self-calm. It is anticipated that with extended treatment, duration of tantrums would decrease as toddlers learned the behavioral contingencies, established clearer expectations for parent behaviors, and developed effective self-calming skills. Further, it is possible that intensity of tantrums decreased much more quickly in the treatment phase, but duration data did not capture this and instead captured more minor tantrum behaviors (e.g., crying). Parent narrative perception of shortened duration

following treatment, although conflicting with actual duration data, may support the hypothesis of lessened intensity. Thus, overall, a clear impact of PCAT-E on tantrum duration was not observed for any participants, but further evaluation is warranted.

### **The Parent-Toddler Relationship**

Results for the third research question examining the effect of PCAT-E on the parent-toddler relationship were clear. Meaningful improvement was observed on at least one subscale of the Parenting Relationship Questionnaire for each family. Attachment scores improved for all four parent-toddler dyads. Discipline practices scores improved for Kyle and Billy. Involvement scores improved for Kyle and Ryan, and Parenting Confidence scores improved for Ryan. Finally, Relational frustration scores improved for Kyle and Billy. Notably, Ryan's Relational Frustration scale score moved from the average range to the at-risk range. Upon closer inspection, the change appeared to be influenced by a changing in rating (one point) on a single item on the questionnaire: "It's hard being a parent." Overall, these results indicate effectiveness for PCAT-E improving the parent-toddler dyad relationship, with differences appearing on varying subscales for the different dyads.

Improvements in the parent-toddler dyad relationship may also translate to improvements in the attachment relationships of the dyads. By the end of the treatment phase, anecdotal evidence suggested that the toddlers appeared to seek physical contact with their parents more often than was informally observed prior to and at the beginning of treatment. The toddlers also appeared to be enjoying their interactions with their parents and displayed this enjoyment more frequently through smiling, laughing, and seeking joint attention during mutually enjoyed activities. As noted earlier, attachment

behaviors generally include proximity-seeking (e.g., following, clinging, climbing, leaning, and reaching) and signaling (e.g., smiling, crying, and calling; Ainsworth & Bell, 1970), and the attachment-type behaviors informally observed during this study indicate a potential overall increase in attachment over the course of treatment.

Likewise, parent participants were generally observed to engage in more warm, responsive, and sensitive behaviors with their toddlers, which are the key characteristics of interactions that promote a secure working model of attachment (Ainsworth et al., 1978; Kennedy & Kennedy 2004). These behaviors are specifically fostered through the use of the PRIDE skills. Therefore, overall, anecdotal evidence would suggest that the PCAT-E intervention encouraged the growth of a more secure attachment model for the parent-toddler dyad participants. Future research should directly assess the change in the attachment relationship to lend support to these anecdotal observations.

### **Treatment Integrity**

Self-report treatment integrity data were collected to determine if parents conducted play therapy practice sessions consistently and accurately. Home-based special-play practice integrity varied across participants. Kyle's and Ryan's mothers reported the highest treatment integrity (100% and 98%, respectively), whereas Billy's and Molly's mothers reported the lowest (78% and 68%, respectively). However, Ryan's and Billy's mothers completed the highest number of daily practice forms (73% and 94%, respectively), whereas Kyle's and Molly's mothers completed the lowest number of daily practice forms (50% and 40%, respectively).

Interestingly, it appears that Molly's foster mother's lower treatment integrity may be correlated with lower treatment impact on the parent-toddler relationship and

parenting behaviors, although this was not systematically investigated in this study due to small sample size. However, this is consistent with research on intervention integrity and outcomes (see review by Hagermoser Sanetti & Kratochwill, 2008). Additionally, Molly's foster mother reported that her least appreciated part of the PCAT-E study was the amount of paperwork, and she consistently returned the least amount of tantrum and integrity data. Further, the family was under significant stress with the change in plans regarding the adoption of Molly. At the outset of the study, Molly's foster mother reported plans to adopt Molly, however, toward the end of the study, treatment was terminated early due to the placement of Molly in a new home. It is likely that stress in the home and in relationships influenced treatment integrity and treatment outcomes.

It is also important to note that Billy's mother's treatment integrity appeared to improve with time. Billy's mother appeared to have the most difficulty learning the PRIDE skills, as observed by the therapist and in the parent behavior data (e.g., the presence of a delayed change in level of some behaviors following the implementation of treatment). Early practice session treatment integrity forms and parent notes indicated difficulty practicing all skills simultaneously in each play-session, leading to a focus on specific skills each session. With time and increased skill, Billy's mother was more easily able to practice all skills simultaneously in each session. This is observed in her treatment integrity data; the data corresponding to the first four weeks of therapy indicated 62% treatment integrity, whereas the data corresponding to the last four weeks of therapy indicated 93% treatment integrity. It is hypothesized that as Billy's mother became more confident and comfortable in the use of the skills, she was able to practice all skills more consistently in each practice special-play session.

## **Social Validity**

PCAT-E was perceived to be a highly acceptable intervention for parenting behaviors, toddler behaviors, and the parent-toddler relationship. Parents perceived PCAT-E as highly acceptable via the Behavior Intervention Rating Scale – Acceptability scale, with a mean Acceptability score of 5.5 (1 = low perceived acceptability, 6 = high perceived acceptability).

Likewise, parent narrative report indicated consistent positive parent perception of the acceptability and effectiveness of PCAT-E. Parents indicated perceived changes in tantrums, compliance, play skills, language, parent skill, and the parent-toddler relationship. They indicated increased manageability of toddler behaviors and a greater sense of control over the situation. Complaints about the intervention were primarily related to logistics (e.g., paperwork, filming) and the amount of time required. Positive perceptions reported in this study are similar to social validity reported indicated in previous PCAT and PCIT literature (McNeil & Hembree-Kigin, 2011). This study adds to the continued support of the PCAT/PCIT model of treatment for parents and their children.

## **Unexpected Findings**

There were several interesting findings of the study that were not specifically evaluated in the original research purpose and questions. To limit time required for baseline data collection and to increase feasibility of participation in the research study, data were collected in both the clinic setting and in the home. Play therapy practice sessions were video recorded twice per week, with one recording taking place at home, and one taking place in the clinic. For most parent behaviors, no pattern appeared to

emerge for frequency of behaviors shown at home as compared to in the clinic setting. However, toward the end of treatment, Molly's mother showed relatively higher rates of labeled praise in clinic sessions (in the presence of the therapist) than in home sessions (in the presence of undergraduate assistants). Ryan's mother showed a similar pattern for a portion of reflection statements in the treatment phase. Conversely, Kyle's mother showed relatively more behavioral description statements at home than in the clinic toward the end of treatment. It is hypothesized that parents were potentially experiencing the therapist as a discriminative stimulus to focus on specific skills in her presence, due to focus on these skills in previous sessions.

Another unexpected finding was the lack of change in tantrum behaviors despite relatively good parent effects. As previously noted, mean change indicated small increases in tantrum duration for three of the four families following implementation of the intervention, but PAND suggested that changes were within chance range. Again, it is anticipated that with extended treatment, duration of tantrums would decrease as toddlers learned the behavioral contingencies, established clearer expectations for parent behaviors, and developed effective self-calming skills. Furthermore, a measure of intensity may have better captured changes in toddler tantrum behaviors. Overall, a clear impact of PCAT-E on tantrum duration was not observed, but further evaluation is necessary.

## **Study Evaluation**

### **Strengths**

The purpose of this study was to evaluate the efficacy of PCAT-E in improving positive parenting behaviors, toddler tantrums, and the parent-toddler relationship.

Previous research on PCIT has demonstrated effectiveness in improving the parent-child relationship, reducing parent stress, increasing child compliance, improving parenting skills, and decreasing dysfunctional parent-child relationship patterns (Eyberg & Robinson, 1982; McNeil & Hembree-Kigin, 2011). However, research on PCIT is limited in that the process of treatment for toddlers is under-developed and the efficacy of the model of toddlers is unaddressed (Dombrowski et al., 2008). Parent-Child Attunement Therapy (PCAT; Dombrowski et al., 2005) is a developmentally modified version of PCIT appropriate for children younger than 36 months old. One case study on PCAT (Dombrowski et al., 2005) suggested that the model is a promising program that increases the number of positive parent-child interactions and may contribute to enhancing the parent-child relationship.

PCAT serves to address the gap of PCIT intervention research for toddlers, but there is only one case study in the published literature on the efficacy of PCAT. This is a significant gap in the literature due to the substantial need for relationship and behavior support in this population. The present study addressed the gap in the literature by investigating the immediate impact of PCAT strategies on parenting behaviors, toddler tantrum behaviors, and the parent-toddler relationships, and by extending the research conducted by Dombrowski et al. (2005) by integrating effective commands and modeling of emotion language in the PCAT approach. This study on the PCAT-E model was the first known study to implement a modified version of PCIT for toddlers, with an emphasis on toddler tantrums and the incorporation of effective commands. The efficacy of PCAT-E was mixed, demonstrating clearer effects for parents than for toddlers, but the results were overall positive and promising. More research is needed to clearly

understand how PCAT-E can be used to improve parenting behaviors, toddler behaviors, and the parent-child relationship. Parent perception of the intervention was highly positive, generally perceiving effectiveness and acceptability.

Data were collected on intervention implementation integrity. Previous research has demonstrated the importance of treatment integrity in establishing positive intervention outcomes (Hagermoser Sanetti & Kraochwill, 2008). One prior PCAT study (Dombrowski et al., 2005) did not incorporate a measure of treatment integrity. Due to the small sample size of the present study, the correlation between treatment integrity and treatment outcomes could not be empirically investigated. Furthermore, data were self-report and not objective; reliability can be questioned. Future studies should directly assess the impact of treatment integrity on dyad outcomes in larger samples because objective data is needed.

The multiple probe design is a highly reliable and rigorous design that permits experimental evaluation of the effectiveness of an intervention with a small number of participants (Kazdin, 2003), and it controls for threats to internal validity (e.g., maturation and history). A multiple probe design was used in this study, and that is yet another strength of this study. Intervention was implemented across participants in a staggered progression, following establishment of a stable baseline for each participant. The multiple probe design across participants allowed for the examination of PCAT-E across time for each participant, and across participants. Experimental control was established with each participant as extraneous variables were controlled and treatment was implemented, demonstrating that participant behaviors were not influenced by introduction of intervention to other participants. This process was replicated across all



four participants and six parent behaviors to further demonstrate experimental control. In general, systematic change was observed for all four dyads with the implementation of treatment for labeled praise, behavioral description, commands, and questions. Therefore, it was evident that changes in parent behaviors were a result of PCAT-E, rather than extraneous variables.

Other strengths of the study include its positive impact across a wide range of dependent variables. Positive results were observed in a variety of parenting behaviors (i.e., labeled praise, behavioral description, commands, questions), in toddler tantrums for select dyads, in broad toddler behaviors, and in the parent-child relationship. Social validity was high for the study; parent narrative data and acceptability data indicated high acceptance of the intervention and perception of effectiveness. Participants in the study were generally highly invested in the process, returning high treatment integrity and attending and participating in clinic sessions regularly.

### **Limitations**

A number of limitations were observed throughout this study and should be considered when interpreting results. These limitations are present in design and internal validity, external validity, and measurement.

**Internal validity limitations.** Several limitations were related to design and internal validity. Missing parent behavior data were present in both baseline (i.e., Molly) and treatment phases (all families) due to missed sessions or technological problems (e.g., camera malfunction). The missing baseline data point is particularly limiting because it occurred in Molly's baseline data collection as treatment was implemented for Billy, leaving only one remaining data point to demonstrate that the implementation of

intervention for Billy did not influence Molly's baseline behavior. However, this limitation is partially remedied by the fact that across all six behaviors, no change was observed in Molly's baseline behavior as treatment was implemented for Billy, lending some support to experimental control.

Another design limitation is the lack of a multiple baseline design for toddler tantrum behaviors (i.e., frequency and duration). A multiple baseline design was not used in the analysis of these behaviors due to the lack of stable baselines and inconsistency in frequency of parent data collection for tantrum data. Furthermore, CDC was not able to be calculated for tantrum data given the number of data points generated were greater than 20. Therefore, only comparison of means, visual inspection, and PAND were used to analyze toddler tantrum data.

The treatment length of the PCAT-E process ranged from approximately 6 to 11 weeks. Treatment time was extended for Billy due to missed sessions, and shorted for Molly due to her placement in another home. Ryan and Kyle also each missed a session due to family vacation and illness, respectively. These inconsistent treatment lengths weaken internal validity. Furthermore, for those families whose time was shortened (i.e., Molly) or who demonstrated need for additional treatment (i.e., Billy), if allowed further treatment, they may have experienced increased PCAT-E impacts on parent behaviors, toddler behaviors, and the parent-toddler relationship. Importantly, the traditional PCIT model terminates treatment upon mastery of skills (i.e., demonstrating 10 or more instances of labeled praise, reflections, and behavioral description and 0 instances of questions, commands, and negative talk within a five-minute play period). The mastery approach was not used in this study due to the logistics of keeping participating families

in treatment until mastery is obtained. More specifically, because mastery is dependent on parent skill level and integrity, parents may remain in therapy for an extensive amount of time if mastery is not met. Parent skill level and integrity may not be predicted at the outset of treatment, and other commitments of the therapists precluded retaining parents in therapy and the study until mastery was met. Importantly, mastery was demonstrated at least one time during the treatment phase for all families for all skills except reflection; only one family met mastery in a five minute period for reflection. Future studies should require families to meet mastery criteria prior to termination of treatment to ensure consistent and high skill demonstration.

Sample issues were also concerns related to internal validity. Three of the four participating children were between the ages of 32.9 and 34.1 months, and one was aged 24.4 months. The youngest child (Ryan) was significantly younger than the other three, which may have caused the PCAT-E intervention to have a different impact on his tantrum behaviors and his relationship with his mother than it did on the other participants' behaviors and relationships. Additionally, only one female participated in the study (Molly), and she was also the only foster child participant. The intervention may have impacted the foster mother-toddler dyad differently, and it may have demonstrated different effectiveness because of her gender. However, previous research demonstrates effectiveness of PCIT for both males and females (McNeil & Hembree-Kigin, 2011), as well as for foster parent-child dyads (McNeil et al., 2005; Timmer et al., 2006).

Finally, setting issues were a concern impacting internal validity. For three of the four families, therapy sessions were conducted in the clinic setting, and a second

recording of play sessions was conducted in the home each week. However, for one of the four families (Billy), later therapy sessions were conducted in the home setting due to transportation issues for the family. These home therapy sessions were notably distracting and may have influenced Billy's mother's learning of parent skills, as well as her interactions with Billy during treatment sessions. However, previous research has indicated success in home-implementation of PCIT (Masse & McNeil, 2008; Ware, McNeil, Masse, & Stevens, 2008). Furthermore, Billy's mother showed skill improvement over time and with sessions conducted in the home.

**External validity limitations.** Some limitations of the present PCAT-E study are related to external validity. First, the children participating in this study were children aged 24 to 34 months old. The results of the study cannot be expanded to children outside of this age group. Second, the study was conducted under highly controlled conditions that are not typically replicated in practice settings, thereby limiting external validity.

**Measurement limitations.** Lastly, several limitations of the PCAT-E study were with regard to measurement. Observation of toddler tantrum behaviors were not completely objective and were collected by parents. Furthermore, the measure lacked an indicator of intensity of tantrums, and this effect was not captured. Such an indicator would have been beneficial; Ryan's mother's narrative indicated that his intensity of tantrums (e.g., kicking and screaming) had decreased, but his crying behaviors maintained. This effect was not captured objectively. Future studies should include a measure of tantrum intensity, as it is likely that intensity may have decreased when duration and frequency maintained.

Further limitations are related to tantrum data. It is likely that some data are missing, especially with Molly. There is no objective way to estimate how many tantrums were not recorded, as well as the duration of these tantrums. Critical to evaluation in this study, a stable baseline could not be established for tantrum data, calling into question the true impact of treatment on tantrum behaviors. Changes in tantrum behaviors (i.e., duration and frequency) should be interpreted with caution. Furthermore, the tantrum data collection form was specifically developed for use in this study, and psychometric information is unknown. It would benefit future research and practice if the psychometric properties of this scale were evaluated. Finally, data for toddler tantrums relied on parent report and may be influenced by social desirability or bias. Other measures also relied on self-report, including the PRQ, ECBI, BIRS, parent narrative, and integrity data, and data could also be influenced by social desirability or bias.

The measure of parent behaviors also had several limitations. The measure did not capture facets of parent-child interactions, including enthusiasm, warmth, and positive affect, nor the PRIDE skills “Imitation” and “Enthusiasm”. It is unclear if or how the PCAT-E intervention may have impacted these variables, important features of parent-child interactions (Dombrowski et al., 2008; Herschell et al., 2002a). Furthermore, the parent code “Reflections” may not be valid or appropriate for pre-language children. If used in future studies with toddlers, it should be defined to include all verbal utterances from children and should not be a requirement for mastery.

Limitations of the parent-child relationship measure were also present. No direct observations of the parent-child relationship were gathered; the dependent variable was measured using self-report via the PRQ. Importantly, it is also possible that features of

the parent-child relationship are not captured via the PRQ and were consequently excluded from this study.

Finally, intervention implementation integrity data were collected via parent self-report, requiring parents to complete daily tracking forms to indicate the skills practiced during a home special-play session. Limitations were associated with data collected, and integrity data should be interpreted with caution. For example, because data were collected through self-report, social desirability or bias cannot be ruled out. Further, due to the fact that data were not collected daily by parents (ranging from 40%-94% of days), not all practice sessions were captured. Parent report indicated that undocumented play sessions did indeed occur, as did days without a practice session. This suggests significant missing data. It is unclear if the treatment was implemented with accuracy or fullness on the days that data were not collected, and if documented, may have led to different integrity results. Furthermore, accuracy of judgment in whether or not a skill was practiced, or the degree to which a skill was practiced in session, was not captured. Therefore, a parent may have noted that she practiced a specific skill in session, when she may have briefly mentioned it or overlooked it entirely. Likewise, a parent may have practiced a skill without documenting its use. Criteria for full practice were not established, leaving room for parent subjective interpretation, and this is a limitation of the study. Future research should include measures of treatment integrity beyond self-report, such as observation or video recording.

## Implications and Future Directions

### Practice

A positive parent-child relationship is a protective factor for children (Whittaker et al., 2011) and is a foundation for child success. However, the toddler period presents a number of difficulties for parents and their relationship with their children (Bulter & Eyberg, 2006). As toddlers explore their autonomy, they challenge their parents with externalizing problems such as noncompliance, aggression, and temper tantrums. Temper tantrums may be particularly difficult for the parent-child relationship and may characterize coercive interaction cycles (Patterson, 1982). It is of utmost importance to establish evidence-based interventions that serve to improve the characteristics of parent interactions with their children, toddler tantrums, and the parent-toddler relationship to reduce the negative consequences of maladaptive parent and toddler behaviors and relationships. This study suggests that PCAT-E may be a promising approach to addressing parent and toddler behaviors and relationships in the clinical setting, and parent participants indicated that they felt the model was effective and acceptable for the treatment of these problems.

PCIT has traditionally been used with children over three years of age. PCAT was offered as an adapted model with children younger than three. Results from this study suggest that PCAT-E can be used to improve parenting behaviors and the parent-child relationship, and it may also have an impact on toddler tantrums. The addition of the effective commands component to the previously developed PCAT model was intended to promote increased compliance in children younger than three and may have helped to reduce tantrum behaviors. Future implementation of PCAT-E for parent and toddler

behaviors and relationships should continue to adjust PCAT-E procedures to maximize effectiveness. Specifically, treatment should continue for families until mastery has been met for parenting behaviors, and a solution should be identified to decrease paperwork required of families while increasing fidelity to daily practices.

## **Research**

Based on this preliminary study, it appears that PCAT-E may be a promising treatment approach for struggling parent-toddler relationships characterized by high incidences of tantrums, negative parent behaviors, and a challenged parent-toddler relationship. PCIT has been studied extensively (McNeil & Hembree-Kigin, 2011), and it is important that PCAT and PCAT-E undergo evaluation through both large- and small-scale research. Specifically, future small-n studies may determine whether treatment effects vary based on treatment setting (e.g., home versus clinic) or are evident for other tantrum characteristics (e.g., intensity) and toddler behaviors (e.g., compliance), whereas large-scale research is critical to evaluate the generalizability of PCAT-E for varied populations and presenting problems.

Future studies should apply PCAT-E to a wider sample to better understand the characteristics that may influence treatment outcomes. This study included three boys and their biological mothers and one girl and her foster mother. Three of the children were aged 32-34 months, and one child was 24 months. Two participants were Caucasian, one was African American, and one was of mixed race and ethnicity. Future studies should evaluate the effects of PCAT-E on samples including mothers and fathers, biological, foster, and adoptive parents, and children of various genders, ethnicities, and ages. Studies of this nature will aid in the understanding of variables that may affect the



efficacy of PCAT-E. Importantly, ample evidence exists supporting the use of PCIT for a range of children and families, including ethnic minorities (Fernandez et al., 2011; Leung et al., 2009; Matos et al., 2009; McCabe & Yeh, 2009) and foster parents (McNeil et al., 2005; Timmer et al., 2006).

This study evaluated practice integrity of participating parents. It will be important that future studies, both large and small, include the collection and evaluation of treatment integrity data. In larger studies, this data will allow for the association between intervention implementation and outcomes.

### **Conclusions**

The data collected in this preliminary study suggest that PCAT-E is a promising treatment approach to addressing struggling parent-toddler relationships characterized by negative parent behaviors, toddler tantrums, and a challenged parent-toddler relationship. Data on parent behaviors indicated clear changes for four of the six behaviors measured, but data on toddler tantrums were mixed. Data regarding the parent-child relationship generally demonstrated positive effects. Overall, the data indicated that PCAT-E is a promising approach to positively impacting parent and toddler behaviors and relationships. Importantly, parents indicated that they perceived PCAT-E to be highly effective and acceptable. As a result, PCAT-E should be further investigated with larger samples through randomized and controlled designs to build further empirical support.

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## Appendix B: Parent Social Validity Narrative Form

1. What was your perception of your child's tantrums at the beginning of the course of PCAT?
2. What is your perception of your child's tantrums now?
3. Has what you consider to be a "tantrum" changed from the beginning of therapy to now? In what way?
4. What did you consider your role to be when your child tantrumed before the course of the study? How would you describe your skills at that time?
5. What do you now consider your role to be? How would you describe your skills at this time?
6. What did you like best about PCAT?
7. What did you like least?
8. Have you seen improvements in your child's behavior and/or your relationship with your child? Please describe.
9. What improvements would you suggest for this approach to tantrums and toddler behaviors?



## Appendix C: Clinical Details for Participants across Sessions

**Kyle**

**Teaching session.** Kyle, his mother, and his father attended the teaching session and returned tantrum data. Kyle's mother played with Kyle for five minutes. The therapist provided the didactic portion of the session, followed by modeling and practice of the skills. Kyle's mother and father practiced the skills separately. The therapist observed and shared that Kyle's mother did a good job following his lead, providing labeled praise, and using behavioral descriptions. It was also noted that when Kyle's mother said that she liked a behavior, Kyle continued to engage in that behavior. This example was used to demonstrate the power of positive attention and praise. Kyle's father strove to limit his questions and praised skills such as persistence. The family reported commitment to practicing the skills at home.

**Coaching session 1.** Kyle, his mother, and his father attended Kyle's first coaching session, and they returned daily tantrum data and practice logs. During Kyle's second session, Kyle and his mother began with a five minute free play session. Brief feedback was provided, specifically that Kyle's mother did well with labeled praises, descriptions, and enthusiasm. Kyle was primarily quiet during the play session, allowing few opportunities for reflection from his mother. Following the brief feedback, Kyle's mother reported that Kyle was engaged in special play time and prompted his parents to have the special time every day. Kyle's parents raised questions related to giving praise and directions, and the therapist addressed their concerns. Kyle's mother reported concern that Kyle was having tantrums at daycare and asked how to extend the PRIDE skills to that setting. A handout was provided for Kyle's daycare provider, and the family

was encouraged to share information with her. Extinction bursts and the importance of time-in were also discussed. Two ten minute coaching sessions were then conducted; Kyle's mother practiced and was coached for ten minutes, and Kyle's father practiced and was coached for ten minutes. Feedback was provided during and after the coaching session. Kyle's parents questioned the use of reflection and its purpose; reflections and their rationale were reviewed. Kyle's parents indicated commitment to continuing daily home practice and data collection.

**Coaching session 2.** Kyle and his mother attended the second coaching session and returned daily tantrum data and practice logs. During Kyle's second session, Kyle and his mother began with a five minute free play session. Brief feedback was provided, specifically stating that Kyle's mother did well providing praise related to Kyle's emotions (i.e., "Great job staying calm even though that was hard!") and that Kyle further calmed after receiving this praise. Kyle's mother reported that the family went camping and practiced when able, but she felt that Kyle's behavior had improved during special play time. Kyle's mother asked what she should do if Kyle's behavior escalates outside of special play time. She was advised to use time-out, their previous discipline strategy, but to do so with increased consistency. It was also advised that she shorten time out and release Kyle as soon as he demonstrated calm behavior, without requiring the calm behavior to last for 2-3 minutes prior to release. During this discussion, tornado sirens sounded, and the remainder of session three was completed in the tornado shelter. A fifteen minute coaching session was conducted, and feedback was provided during and after the coaching session. Kyle's mother indicated commitment to continuing daily home practice and data collection.

**Coaching session 4.** Kyle and his family did not attend the third coaching session because Kyle's parents were out of town for a week, and due to scheduling conflicts, they were unable to reschedule the session. Kyle, his mother, and his father attended the fourth coaching session and returned daily tantrum data and practice logs. The session began with a five minute free play session. Brief feedback was provided, specifically that Kyle's mother had good enthusiasm and description, but that it would be beneficial to increase labeled praise. Kyle's parents reported that they believed his tantrum behavior had decreased in frequency and duration, but his behavior at daycare had worsened. Kyle's parents asked if the therapist would consult with the daycare provider. Kyle's parents also asked questions related to toileting, and they were encouraged to use a motivation system. Effective commands were reviewed. A fifteen minute coaching session was conducted, and feedback was provided during and after the coaching session, specifically related to effective commands. Kyle was given the command to put away toys during the coaching session, leading to a tantrum. He was placed in a safe time out space and effective differential attention was coached. Extinction bursts were reviewed, as was the importance of consistent responding. Kyle was given attention and released from time out immediately following calm behavior. He was required to complete the original direction. Kyle's mother was praised for her use of effective commands and success in following through with differential attention until Kyle returned to calm behavior. Kyle's mother indicated commitment to continuing daily home practice and data collection.

**Coaching session 5.** Kyle, his mother, and his father attended the fifth coaching session, returning daily tantrum data and practice logs. The session began with a five

minute free play session. Brief feedback was provided, specifically that Kyle's mother had greatly improved her use of labeled praise. Kyle's parents reported success with effective commands and observed improvements with Kyle's compliance. However, they indicated daycare behavior continued to be problematic and asked the therapist to consult with the provider. Effective commands were reviewed. A fifteen minute coaching session was conducted, and feedback was provided during and after the coaching session, specifically related to effective commands. Kyle was given increasingly difficult commands and complied. Kyle's mother indicated commitment to continuing daily home practice and data collection.

**Coaching session 6.** Kyle, his mother, and his father attended the sixth coaching session, returning daily practice logs and tantrum data. The session began with a five minute free play session. Brief feedback was provided, specifically that Kyle's mother did well ignoring inappropriate behaviors and using the PRIDE Skills. Kyle's parents reported that Kyle appeared to have fewer tantrums. A fifteen minute coaching session was conducted, and feedback was provided during and after the coaching session, specifically that Kyle's mother used PRIDE skills effectively, was able to use reflect and model emotion language, and ignored inappropriate behaviors. Kyle's mother indicated a desire to address interrupting behaviors, and the concept of differential attention was applied to the situation through the use of PRIDE skills. Kyle displayed a tantrum in session and was placed in time out until calm. Kyle's mother indicated commitment to continuing daily home practice and data collection.

**Coaching session 7.** Kyle, his mother, and his father attended the seventh and final coaching session, returning daily practice logs but not tantrum data. The session

began with a five minute free play session. Brief feedback was provided, specifically that Kyle's mother provided great labeled praise of behaviors she desired to increase. Kyle's mother reported that tantrums had decreased to approximately one per day. She also indicated that Kyle generally complies with all commands but says "NO!" before complying. A fifteen minute coaching session was conducted, and feedback was provided during and after the coaching session, specifically that Kyle's mother was highly skilled in the use of PRIDE skills. It was determined that she felt ready to use them independently. Implementation of the skills in the home and public settings was discussed, the family was encouraged to continue daily practice, concluding paperwork was completed, and therapy was concluded.

## **Ryan**

**Teaching session.** Ryan and his mother attended the teaching session and returned tantrum data. The session began with a five minute play session. The therapist provided the didactic portion of the session, followed by modeling and practice of the skills. The therapist observed and shared that Ryan's mother did a nice job providing labeled praise and reflections. Specific examples were highlighted, and Ryan's response to those examples was described. Ryan's mother reported commitment to practicing the skills at home.

**Coaching session 1.** Ryan and his mother attended the first coaching session and returned daily tantrum data and practice logs. During Ryan's second session, Ryan and his mother began with a five minute free play session. Brief feedback was provided, specifically that Ryan's mother did well working to keep a questioning tone out of her voice and providing reflections. Ryan's mother reported that she had difficulty with

Ryan taking toys away from her and asked how to address this within special playtime. She was encouraged to praise him for sharing behaviors and to ignore non-sharing behaviors. The concept of praising behaviors that are incongruent with negative behaviors was reviewed and examples were provided. Ryan's mother reported that they practiced special playtime at home. She indicated that Ryan continued to have many tantrums, but she saw improvement in other areas. Ryan's mother asked what she should do when he tantrums outside of special playtime. She was advised to consistently put him in time out in his crib as she did previously, but to remove him as soon as showed calm behavior. Demonstrating contrast in the environment contingent on appropriate behavior was discussed. A fifteen minute coaching session was conducted, and feedback was provided during and after the coaching session. Behaviors appropriate to ignore were highlighted during this coaching session. Redirection was discussed as an appropriate discipline strategy. Ryan's mother indicated commitment to continuing daily home practice and data collection.

**Coaching session 2.** Ryan and his mother attended the second coaching session and returned daily tantrum data and practice logs. During Ryan's third session, Ryan and his mother began with a five minute free play session. Brief feedback was provided, specifically that Ryan's mother did well providing reflections and reinforcing sharing behaviors. A fifteen minute coaching session was conducted, and feedback was provided during and after the coaching session. Ryan's mother was encouraged to praise Ryan for using words to express his feelings. Ryan's mother indicated commitment to continuing daily home practice and data collection.

**Coaching session 3.** Ryan and his mother attended the third coaching session, returning daily tantrum data and practice logs. The session began with a five minute free play session. Brief feedback was provided, specifically that Ryan's mother did a nice job praising sharing behaviors. She was encouraged to watch the questioning tone in her voice when reflecting. Ryan's mother reported that Ryan was calming more quickly in his crib when placed there for time out, and she was using the strategies more consistently. Effective commands were reviewed. A fifteen minute coaching session was conducted, and feedback was provided during and after the coaching session, specifically related to effective commands. Ryan was given a command to put toys away and displayed tantrum behavior. He was placed in a safe time out space and effective differential attention was coached. Extinction bursts were reviewed, as was the importance of consistent responding. Ryan was given attention and released from time out immediately following calm behavior. He was required to complete the original direction, and the potential for hand-over-hand compliance was discussed. Ryan's mother was encouraged to refrain from stating commands as questions and was praised for her success in following through with differential attention until Ryan returned to calm behavior. She was also advised to begin with small commands and to give enthusiastic praise when he complies. Ryan's mother indicated commitment to continuing daily home practice and data collection.

**Coaching session 4.** Ryan and his mother attended the fourth coaching session, returning daily tantrum data and practice logs. The session began with a five minute free play session. Brief feedback was provided, specifically that Ryan's mother provided many reflections, even reflecting non-word utterances made by Ryan, which was

appropriate given his age and developmental level. She was also told that she did a nice job keeping questions out of her tone and providing enthusiasm. Ryan's mother reported that time out in the crib continued to improve, and Ryan was sitting more quickly and calming down. She reported that time outs were shorter and fewer in frequency. Effective commands were reviewed. A fifteen minute coaching session was conducted, and feedback was provided during and after the coaching session, specifically related to effective commands. Ryan was given increasingly difficult commands and complied quickly. The importance of not giving commands as a question was reviewed. Ryan's mother indicated commitment to continuing daily home practice and data collection.

**Coaching session 5.** Ryan and his mother attended the fifth coaching session, returning daily tantrum data and practice logs. The session began with a five minute free play session. Brief feedback was provided, specifically indicating that Ryan's mother had very warm interactions with her son and provided great specific labeled praise that modified Ryan's behavior during the special play time. She was encouraged to increase the number of these praise statements. Ryan's mother reported that tantrums had decreased, and Ryan was no longer consistently throwing a fit when placed in time out. She reported he calmed more quickly and felt his behavior seemed more "normal." Effective commands were reviewed. A fifteen minute coaching session was conducted, and feedback was provided during and after the coaching session, specifically related to effective commands. Ryan was given increasingly difficult commands and complied. His mother was encouraged to praise compliance. Ryan's mother indicated commitment to continuing daily home practice and data collection.



**Coaching session 7.** Ryan and his mother did not attend the sixth coaching session due to illness. Due to scheduling conflicts, it was not rescheduled. Ryan and his mother attended the seventh and final coaching session, returning daily tantrum data and daily practice logs. The session began with a five minute free play session. Brief feedback was provided, specifically that Ryan's mother gave great labeled praises. Ryan's mother reported that Ryan's tantrums were shorter and that his behavior had improved. A fifteen minute coaching session was conducted, and feedback was provided during and after the coaching session, specifically that Ryan's mother demonstrated skillful use of the PRIDE skills. Implementation of the skills in the home and public settings was discussed, the family was encouraged to continue daily practice, concluding paperwork was completed, and therapy was concluded.

### **Billy**

**Teaching session.** Billy, his mother, and his stepfather attended the teaching session and returned tantrum data. Billy and his mother began the teaching session with a five minute play session. The didactic portion of the session followed, as did modeling and practice of the skills. Billy's mother reported that her priority for treatment was reduction in throwing objects, head banging, and loud screaming and an increase in verbal communication skills. She asserted that she was fully committed to trying the PCAT-E intervention.

**Coaching session 1.** Billy, his mother, and his stepfather attended the first coaching session, and they returned tantrum data and practice logs. Billy and his mother began the session with a five minute free play session. Brief feedback was provided,

specifically that Billy's mother was able to incorporate many of the skills into the five minute period. Billy's mother reported that she had not observed changes in frequency or duration of tantrums, but that special play time went well. She reported concern that the skills felt awkward and unnatural at the current time, and she was encouraged that they would become more comfortable with practice. Billy's mother and the therapist discussed specific behaviors to praise and ignore, and differential attention and its rationale were reviewed. Billy's mother set a goal to reduce questions during the coaching period and was able to do so. Billy's mother indicated commitment to continuing daily home practice and data collection.

**Coaching session 2.** Billy, his mother, and his stepfather attended the second coaching session, and they returned tantrum data and practice logs. Billy and his mother began the session with a five minute free play session. Brief feedback was provided, specifically that Billy's mother used good praise, reflection, and description. Billy's mother reported that she and Billy's stepfather had observed that Billy's tantrums most frequently occurred in the presence of visitors, likely as a bid for attention. Soon after, Billy fled the therapy room, and the therapist coached Billy's mother in following him out of the room so she could assure his safety, but in keeping broken eye contact and body language consistent with ignoring. As Billy made steps to re-enter the room, his mother was coached to praise this behavior. PRIDE skills were then practiced and coached in the room. Billy's mother indicated commitment to continuing daily home practice and data collection.

**Coaching session 3.** Billy and his family missed their third coaching session, and it was rescheduled for the following week. They were unable to find transportation for

this session and instead participated in a home session for their third session of PCAT-E. Billy and his mother participated in the session, and his stepfather was in partial attendance. Daily tantrum data and practice logs were returned. The session began with a five minute free play session. The therapist noted that the home setting provided increased distraction for Billy, leading him to wander during the session. Billy's mother provided increased commands in an effort to redirect him. Brief feedback was provided, specifically that Billy's mother had good behavior descriptions and fewer questions. Billy's mother reported that they had worked on using his words and that his behavior had improved in one-on-one interactions. However, she indicated that he continued to misbehave when others were around. Effective commands were reviewed. A fifteen minute coaching session was conducted, and feedback was provided during and after the coaching session, specifically related to effective commands. Billy's mother reported that the concept of giving effective commands was new to her, so continued coaching, explanation, and practice was provided. Billy's mother indicated commitment to continuing daily home practice and data collection.

**Coaching session 4.** Billy's family was unable to find transportation for the fourth coaching session, so it was conducted in the home setting. Billy and his mother participated in the session and returned daily tantrum data and practice logs. The session began with a five minute free play session. Brief feedback was provided, specifically that Billy's mother displayed good patience and appeared to have improved in her use of the PRIDE skills. Billy's mother reported that he continues to misbehave in groups of people but that his compliance had improved. She also reported that Billy appeared to be maintaining attention for longer periods of time and inviting her to play by bringing toys

to her more frequently. Effective commands were reviewed. A fifteen minute coaching session was conducted, and feedback was provided during and after the coaching session, specifically related to effective commands. Billy's mother was coached to follow through after giving a command, and Billy was able to respond to each of her commands after a period of time. Billy's mother noted difficulty in giving a single command and waiting for his response, and she set a goal to focus on this step of effective commands in the following week. Giving positively stated commands was also highlighted. Billy's mother indicated commitment to continuing daily home practice and data collection.

**Coaching session 5.** Billy and his family missed their fifth coaching session, and it was rescheduled for the following week. They were unable to find transportation for this session and instead participated in a home session for their fifth session of PCAT-E. Billy and his mother participated in the session and returned daily tantrum data and practice logs. The session began with a five minute free play session. Brief feedback was provided, specifically that Billy's mother demonstrated continued growth in her use of the PRIDE skills. Billy's mother had many questions about the best next steps following the completion of the PCAT-E study and was given a referral. She also reported that although she continued to have difficulty managing aggressive behaviors, Billy's language use and compliance had increased. Effective commands were reviewed. A fifteen minute coaching session was conducted, and feedback was provided during and after the coaching session, specifically related to effective commands. Specific focus was given to coaching Billy's mother to follow through after giving a command. Billy's mother indicated commitment to continuing daily home practice and data collection.

**Coaching session 7.** Billy and his family were out of town the week of his sixth session and did not attend. It was not rescheduled due to scheduling conflicts. Billy and his mother were unable to find transportation for the seventh and final session and instead participated in a home session. Billy's mother returned daily tantrum data and daily practice logs. The session began with a five minute free play session. Brief feedback was provided, specifically that Billy's mother demonstrated continued growth in the use of PRIDE skills. Billy's mother reported many positive benefits to participating in PCAT-E, including greater positive interactions with Billy, increased compliance to commands throughout the day, a change in her verbalizations with him (more focus on telling him what to do instead of what not to do), and increased confidence in her ability to manage his behaviors. However, Billy's mother also reported that Billy continuing to display many challenging behaviors, such as hitting the dogs and throwing objects. She indicated that she had plans in place for continued treatment following completion of the PCAT-E study, specifically with the Complete Children's Health behavioral psychologist. A fifteen minute coaching session was conducted, and feedback was provided during and after the coaching session, specifically that Billy's mother's use of labeled praises were becoming more natural. Implementation of the skills in the home and public settings was discussed, the family was encouraged to continue daily practice, concluding paperwork was completed, and therapy was concluded.

### **Molly**

**Teaching session.** Molly and her foster mother attended the teaching session. Molly's foster mother indicated that she had forgotten to bring her completed record of daily tantrums. The session began with a five minute play session followed by the

didactic portion, modeling, and practice. Molly's foster mother reported that she hoped to reduce or eliminate tantrums during transition time. She shared that she had used PCIT in the past with another foster daughter and saw positive results. She also shared that she was in the process of adopting Molly and hoped PCAT-E would strengthen their relationship. She stated that she was committed to the PCAT-E intervention and practicing skills daily.

**Coaching session 1.** Molly and her foster mother attended the first coaching session and returned tantrum data from the week prior to session one, but not from the most recent week. However, she returned practice logs from the previous week. Molly and her foster mother began the session with a five minute free play session. Brief feedback was provided, specifically that Molly's foster mother provided great labeled and reflections. Molly's foster mother reported that she had observed no noticeable changes in the frequency or duration of tantrums, but transitioning to the car had improved, and Molly was less agitated when preparing to leave the home. She also indicated difficulty using reflection at home because Molly played silently. A fifteen minute coaching session was conducted, and feedback was provided during and after the coaching session. Molly's foster mother was encouraged to be aware of the questioning tone in her voice and to ignore minor misbehavior, and she was encouraged for her use of labeled praise. Molly's foster mother indicated commitment to continuing daily home practice and data collection.

**Coaching session 2.** Molly and her foster mother attended the second coaching session. No data or practice logs were recorded or returned, reportedly due to stress in the home. Molly and her foster mother began the session with a five minute free play session.

Brief feedback was provided, specifically that Molly's foster mother was able to follow Molly's lead, engage her in play when she lost interest, and use differential attention. Molly's foster mother reported that Molly's tantrums appeared to decrease in times between transitions but not during transitions. A fifteen minute coaching session was conducted, and feedback was provided during and after the coaching session. Specific feedback included encouragement of Molly's foster mother's use of specific praises to highlight Molly's calm behavior and intentional use of differential attention. Differential attention was further discussed with Molly's foster mother, specifically in the context of Molly's tantrums. Molly's mother indicated commitment to continuing daily home practice and data collection.

**Coaching session 3.** Molly and her foster mother attended the third coaching session, returning daily tantrum data and practice logs. The session began with a five minute free play session. Brief feedback was provided, specifically that Molly's foster mother provided many labeled praises. Behaviors appropriate to ignore were highlighted. Molly's foster mother reported that Molly continued to have difficulty during transition periods but that she noticed a decline in the amount of seemingly random tantrums throughout the week. Effective commands were reviewed. A fifteen minute coaching session was conducted, and feedback was provided during and after the coaching session, specifically related to effective commands. Molly's foster mother was coached to provide hand-over-hand guidance to compliance. Molly's foster mother reported previous use of effective commands and that she felt comfortable using them in practice. Molly's foster mother indicated commitment to continuing daily home practice and data collection.

**Coaching session 4.** Molly and her foster mother attended the fourth coaching session, returning practice logs but not daily tantrum data. The session began with a five minute free play session. Brief feedback was provided, specifically that Molly's foster mother appeared comfortable using the PRIDE skills and avoiding questions. Feedback also included methods to engage Molly in play without the use of commands during special time. Molly's foster mother reported that she was unable to practice special play time since the last session because Molly was placed in a different home for the week. She reported that Molly did not appear to display noticeable mood disruptions or behavioral changes following her return to the home. Molly's foster mother indicated that Molly was having fewer tantrums "out of nowhere" and seemed to be using more words. Effective commands were reviewed. A fifteen minute coaching session was conducted, and feedback was provided during and after the coaching session, specifically related to effective commands. Molly displayed a tantrum during the coaching session, and her foster mother was coached through differential attention. Molly was required to complete the command that originally precipitated the tantrum. Molly's foster mother was encouraged to avoid giving commands as questions. Molly's foster mother indicated commitment to continuing daily home practice and data collection.

**Coaching session 5.** Molly and her foster mother attended the fifth coaching session. No practice logs or daily tantrum data were returned. The session began with a five minute free play session. Brief feedback was provided, specifically that Molly's foster mother appeared to have mastered labeled praises and maintained her patience. She was encouraged to describe her own behaviors in an effort to maintain Molly's focus in play. Molly's foster mother reported that Molly was visiting other foster homes and



appeared to be transitioning smoothly in and out of her visits to the other homes over the weekends. She also reported difficulty practicing special play time with Molly due to Molly's decrease presence in the home. Effective commands were reviewed. A fifteen minute coaching session was conducted, and feedback was provided during and after the coaching session, specifically related to effective commands. Molly was given increasingly difficult commands and consistently complied. Molly's foster mother indicated commitment to an effort to continue daily home practice and data collection.

**Coaching session 6.** Molly and her foster mother attended their sixth and final coaching session, returning daily tantrum data and daily practice logs. Molly transitioned to a new home following her sixth session, so a seventh session was not possible. The session began with a five minute free play session. Brief feedback was provided, specifically that Molly's foster mother demonstrated proficiency in her use of PRIDE skills. Molly's foster mother provided many positive benefits of the PCAT-E intervention, including a reduction in tantrum behaviors, improvement in Molly's language and attention, and increased feelings of competence in managing behaviors. She reported concerns about how to help Molly transition to a new home. A fifteen minute coaching session was conducted, and feedback was provided during and after the coaching session, specifically that Molly's foster mother appeared skilled in the use of PRIDE skills. Implementation of the skills in the home and public settings was discussed, the family was encouraged to continue daily practice until Molly's transition out of the home, concluding paperwork was completed, and therapy was concluded.

## Appendix D: PCAT Objectives Checklist

**PCAT Objectives Checklist****Introduction Session**

- \_\_\_\_\_ 1. Five minute free-play session (recorded)
- \_\_\_\_\_ 2. Overview of PCAT
- \_\_\_\_\_ 3. Description of and rationale for PRIDE and avoiding skills
- \_\_\_\_\_ 4. Modeling of PRIDE and avoiding skills
- \_\_\_\_\_ 5. Practice of PRIDE and avoiding skills
- \_\_\_\_\_ 6. Description of and rationale for modeling language for emotions
- \_\_\_\_\_ 7. Description of and rationale for effective commands
- \_\_\_\_\_ 8. Explanation of differential attention
- \_\_\_\_\_ 9. Explanation of application of skills to real-world situations
- \_\_\_\_\_ 10. Provide parent with PRIDE handout
- \_\_\_\_\_ 11. Assignment and rationale for continued home play therapy practice
- \_\_\_\_\_ Total Objectives met. Divide by 11 to calculate percentage: \_\_\_\_\_%

**Coaching Sessions 1-2**

- \_\_\_\_\_ 1. Five minute free-play session (recorded)
- \_\_\_\_\_ 2. Succinct feedback provided
- \_\_\_\_\_ 3. Brief check-in and discussion with parent
- \_\_\_\_\_ 4. Home play therapy practice adherence check
- \_\_\_\_\_ 5. Fifteen minute coaching session
- \_\_\_\_\_ 6. Coach parents to set rules
- \_\_\_\_\_ 7. Coach parents to use positive communication
- \_\_\_\_\_ 8. Coach parents to model positive behaviors

- \_\_\_\_\_ 9. Coach parents to use differential attention
- \_\_\_\_\_ 10. Coach parents to model emotion language
- \_\_\_\_\_ 11. Feedback on progress
- \_\_\_\_\_ 12. Assignment for continued home play therapy practice
- \_\_\_\_\_ 13. Discuss time to meet again
- \_\_\_\_\_ Total Objectives met. Divide by 14 to calculate percentage: \_\_\_\_\_%

### **Coaching Sessions 3-5**

- \_\_\_\_\_ 1. Five minute free-play session (recorded)
- \_\_\_\_\_ 2. Succinct feedback provided
- \_\_\_\_\_ 3. Brief check-in and discussion with parent
- \_\_\_\_\_ 4. Home play therapy practice adherence check
- \_\_\_\_\_ 5. Fifteen minute coaching session
- \_\_\_\_\_ 6. Coach parents to enforce rules through positive communication and modeling
- \_\_\_\_\_ 7. Coach parents to give effective commands
- \_\_\_\_\_ 8. Introduce stress into session, tailored to individual child
- \_\_\_\_\_ 9. Coach parents to prepare for transition
- \_\_\_\_\_ 10. Coach parents to effectively respond to child tantrums
- \_\_\_\_\_ 11. Feedback on progress
- \_\_\_\_\_ 12. Assignment for continued home play therapy practice
- \_\_\_\_\_ 13. Discuss time to meet again
- \_\_\_\_\_ Total Objectives met. Divide by 13 to calculate percentage: \_\_\_\_\_%

### **Coaching Sessions 6-7**

- \_\_\_\_\_ 1. Five minute free-play session (recorded)
- \_\_\_\_\_ 2. Succinct feedback provided

- \_\_\_\_\_ 3. Brief check-in and discussion with parent
- \_\_\_\_\_ 4. Home play therapy practice adherence check
- \_\_\_\_\_ 5. Fifteen minute coaching session
- \_\_\_\_\_ 6. Coach PRIDE and tantrum response skills
- \_\_\_\_\_ 7. Feedback on progress
- \_\_\_\_\_ 8. Discuss implementation of skills in home and public settings, as well as barriers
- \_\_\_\_\_ 9. Assignment for continued home play therapy practice
- \_\_\_\_\_ 10. Discuss time to meet again OR Conclude intervention
- \_\_\_\_\_ Total Objectives met. Divide by 10 to calculate percentage: \_\_\_\_\_%

## Appendix E: Home Practice Checklist

**PCAT Home Practice**

Please complete the following form after special playtime each day. Record the time you started and ended special playtime, the specific PRIDE skills you practiced, and your observation of your child's reaction to the experience. You may also note any specific successes or struggles you noticed during special playtime, and the therapist will discuss these with you at your next session. Please bring this sheet to your next PCAT session!

Date: \_\_\_\_\_

Time Started: \_\_\_\_\_

Time Ended: \_\_\_\_\_

Skills practiced:

- \_\_\_\_\_ 1. Praise
- \_\_\_\_\_ 2. Reflection
- \_\_\_\_\_ 3. Imitation
- \_\_\_\_\_ 4. Description
- \_\_\_\_\_ 5. Enthusiasm
- \_\_\_\_\_ 6. Avoid criticism
- \_\_\_\_\_ 7. Avoid questions
- \_\_\_\_\_ 8. Avoid unnecessary commands

Notes: