EFFECTS OF AN ATTACHMENT BASED INTERVENTION ON PARENT-CHILD RELATIONAL MEASURES

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INTRODUCTION

Parent-child relationships or caregiver-child relationships are imperative because the quality of these relationships plays a significant role in a child's life trajectory (Cooper, Hoffman, Powell, & Marvin, 2005). Caregiver-child interactions, if sufficient in *amount* of time, determine *if* an attachment will develop, and caregiver-child interactions, if sufficient in *quality*, determine the *type* of attachment that will develop (Ainsworth, 1973). John Bowlby described the caregiver-child attachment as the making and breaking of affectional bonds between human parents and children (1969/1982). He believed that the tendency to become attached as an infant was built into human biology (Sroufe, 2000). Bowlby surmised that through evolutionary history infants would only survive to adulthood when they stayed close to an adult who would protect them. He argued that all infants will form an attachment if someone is there to interact with them; even if the person is harsh or intrusive.

Attachment and Regulation

Schore contends that attachment theory is a regulatory theory and that attachment can be defined as the "dyadic regulation of emotion" (2001). It is the quality of the parent-child relationship, which creates a "growth-facilitating" or "growth-inhibiting" environment that effects the "experience dependent maturation of the brain" (Schore, 2001, p. 12). It is the translation of these interactions into relationship representations, which Bowlby termed "internal working models" (Bretherton & Munholland, 2008). In a meta-analysis of over 800 parent-child dyads, van IJzendoorn (1995) discovered a strong association between parents' internal working models of attachment and their infants' attachment to them. The child's internal working model (IWM) develops "from beliefs about how acceptable the self is in

the eyes of early attachment figures, as gauged from the responsiveness of those figures" (Pietromonaco & Barrett, 2000). Their IWM influences how children view themselves, others, and relationships. Bretherton and Munholland state that because these IWMs are "constructed in interpersonal relationships, models of self and attachment figure(s) are perforce mutually confirming (e.g. parent as loving/protective and self as loved/secure)" (2008, p. 104).

Secure Attachment

Mary Ainsworth found that children who were securely attached had mothers who were: (1) more sensitive and responsive to their child's signals and communications, (2) warmer and more accepting, (3) more cooperative rather than interfering with or controlling of their child, (4) more supportive of their child, (5) more involved in social stimulation of their child, and (6) more accessible to their child (1973).

In addition to these maternal characteristics, the securely attached children were more socially competent and better able to relate to unfamiliar adults and peers (Ainsworth, 1973). Sroufe argues that children with secure attachments develop self-efficacy from routinely having their actions responded to by their caregiver and self-worth from routinely having their needs met (2000). Throughout life, there are numerous other benefits of a secure parent-child attachment, including: less conflictual interactions in adolescence (Rueter, Keyes, Iacono, & McGue, 2009), protection against stressful events later in life, promotion of psychological growth (Loehlin, Horn, & Ernst, 2010), and prediction of favorable social development and adjustment (Jaffari-Bimmel, Juffer, Van IJzendoorn, Bakersmans-Kranenburg, & Mooijaart, 2006).

Maternal Deprivation in Rats

The importance of a high quality parent-child relationship can be studied in animals, as well as in humans. High quality maternal care in rats is associated with higher levels of maternal stimulation (Gunnar, Fisher, & The Early Experience, Stress, and Prevention Network, 2006). Maternal stimulation consists of mothers licking and grooming their pups. Meaney (2001) has shown that rat pups who receive high maternal stimulation are able to better self-regulate stress. These early care experiences positively affect the pups' vulnerability and resilience to stress as adults, also.

When rat pups are denied maternal stimulation by repeatedly separating them from their mother, they become more vulnerable to stress and suffer from enduring effects throughout development (Gunnar et al., 2006). Particularly, pups exposed to early deprivation increase their responsiveness to stress through enhanced vigilance, fearfulness, and HPA axis activity, as well as having difficulty in regulating behavioral, endocrine, and autonomic responses which specifically result in problems with set shifting tasks and tasks requiring attention (Meaning, 2001; Gunnar et al., 2006). The maternal behaviors of licking and grooming appear to be protective in buffering these effects (Gunnar et al., 2006).

Maternal Deprivation in Primates

From animal studies, it appears that the neurological systems which are still developing are most affected by adverse early care (Gunnar et al., 2006). Compared to rat pups, primates' HPA axis is relatively mature at birth. Therefore, when primates experience maternal deprivation shortly after birth, the higher-level functions of their stress system are more directly affected. Even years after early maternal separations, there is evidence of an

increased startle response and difficulty with stress and emotional regulation (Gunnar et al., 2006). Taken as a whole, the primates' stress system seems to become hyper-responsive in response to early adversity. Similar to primates, the human HPA axis is relatively mature at birth. Therefore, it seems logical to conclude that early maternal deprivation in humans would have a similar affect on the stress system, as well.

In addition to the primates' stress system being adversely affected after separation from an attachment figure, there are also significant changes in behaviors. Suomi, Collins, Harlow, and Ruppenthal (1976) have found consistent behavioral evidence in primates after maternal separation. The infants respond with "active protest and sometimes with subsequent depression and that during the separation they exhibit marked decreases in levels of complex activities such as play" (Suomi et al., 1976).

Suomi et al. (1976) conducted an experiment with primates, which included three 2-week phases of separation. During the first separation phase, the infant monkeys were separated from their mothers by wire mesh that still allowed for arms and legs to reach through to the other side. During this period, the mothers' behaviors of ventral-ventral contact with the infant or the infant sitting within the mothers' arms increased, even though it was more difficult to contact each other through the wire mesh. The infants' play dropped almost to zero during this period. It seems that without the secure base of their mothers, the infants did not want to explore and play with their peers. The infants also had increased distress vocalizations with self-clasping and/or rocking and huddling (termed disturbance immobile), which peaked during the beginning of this two-week period. Toward the end of the wire mesh separation period, the infants showed increases in distress vocalizations with repetitive moving patterns (termed disturbance mobile) (Suomi et al., 1976).

The second phase of separation occurred when the infants and mothers were further separated by transparent plastic, which allowed no physical contact. The infants' play remained at almost zero despite still having contact with peers. During the transparent plastic separation period, the infants' disturbance immobile behavior and peer huddling behavior reached their highest levels. Without the opportunity for physical contact with their mother, the infants sought contact with their peers and refrained almost completely from exploratory behaviors (Suomi et al., 1976).

The third separation phase included the infants being separated from their peers, in addition to their mothers. During this period, the infants engaged in increased tactile or oral manipulation of their cage (termed environment). The infants continued with higher than baseline disturbance immobile behavior, as well. After all opportunity for physical contact was removed, the infants touched any objects that were proximal (Suomi et al., 1976). It seems they were seeking comfort first from their mothers, then their peers, and lastly with whatever object was available (their cage).

After being reunited with their mothers, the time was divided into three reunion episodes each being two weeks long. During the first reunion period, the separated infants' mother contact behavior was highest for either group during any time period. Also, during this period the separated infants' play remained depressed. It seems the infants were mostly concerned with maintaining proximity with their mother whom they had been separated from for the previous 6 weeks. During weeks 3 and 4 of the reunion period, the separated infants' play did return to control group levels. After maintaining proximity with their mothers during the first 2 weeks of the reunion period, it appears that the separated infants

were able to resume their previous behaviors of using their mother as a secure base from which they would explore and play and then return for comfort (Suomi et al., 1976).

Infant monkeys separated from their mothers and peers show clear protest and despair behaviors. Protest and despair behaviors demonstrated by the separated infant monkeys included increases in distress vocalizations accompanied by movement and/or stereotypy and distress vocalizations accompanied with self-clasping and/or rocking and huddling, and tactile or oral manipulation of the cage and decreases in their levels of play. These protest-despair reactions do not occur in all primate separations, but they are most likely to occur in cases where the affectional bonds appear to be the strongest (Suomi et al., 1976).

Face-to-Face Still Face Paradigm

Similar to primates, children who experience maternal deprivation, even for a moment, exhibit protest and despair behaviors. The Face-to-Face Still-Face (FFSF) Paradigm provides an example of this behavior in human infants. The FFSF Paradigm is a model for stress, which is inherent in normal interactions (Tronick, 2006). It is often used for evaluating young infants' ability to cope with an emotional stressor and an interactive disturbance. Through the FFSF paradigm, Tronick has demonstrated that caregiver unresponsiveness, even for a brief period, can cause distress in a child.

The FFSF consists of three episodes: (1) Mother is asked to play with her child through a "normal" face-to-face social interaction (FF), (2) Mother is asked to keep an unresponsive face toward her child and not smile, touch, or talk to the child (SF), and (3) Mother is asked to resume the face-to-face social interaction (FF), this is sometimes termed

the reunion episode. The reaction of the child during "the SF as well as to the normal FF interactions are predictive of" a child's security of attachment (Tronick, 2006). Their behaviors are thought to reflect their "accumulated experience with their mothers" (Tronick, 2006, p. 97).

Infants who are securely attached will display positive behaviors during the FF and will repeatedly seek their mothers' attention during the SF. They expect to have positive interactions with their mother based upon previous experiences and through repeatedly having their needs met, they have come to trust her. The FFSF produces social-emotional stress in these infants because the mothers' reaction during the SF is not expected (Tronick, 2006). During the SF, infants will try to make reparations with their mother to resolve their stress and return to normal interactions (FF). The secure infant will have a decrease in positive affect, an increase in negative affect, gaze aversion, visual scanning, pick-me-up gestures, distancing behavior (turning and twisting in their seat), and autonomic stress indicators such as spitting up. The infants also show additional physiological reactions to the stress of the FFSF, which have been shown to be related with the mother's physiological measures. It seems that during stressful interactions, there is mutual regulation of physiology by both the infant and the mother (Tronick, 2006).

In the FFSF Paradigm, a securely attached child will respond with the previously described protest and despair behaviors and physiological fluctuations even when deprived of maternal interaction for only a couple of minutes. In comparison, children who are in the foster care system, adopted, or have caregivers with a disorganized attachment style are often deprived of high quality caregivers for months or even years early in life. These children may experience caregivers who are neglectful, abusive, unresponsive, inconsistent,

intrusive, and/or controlling. Many of these children are provided for by multiple caregivers or inappropriate caregivers and may experience the majority of their early years never having an opportunity to form a meaningful, reciprocal, and affectional bond with anyone. These children begin to see themselves as unacceptable in the eyes of their caregiver as gauged by the caregiver's unresponsiveness (Pietromonaco & Feldman Barrett, 2000). In order to survive, children who receive inadequate early care either learn how to meet their own needs for survival (by developing coping strategies, often inappropriate ones) or they fail to thrive.

Maternal Deprivation in Humans

Children who experience early deprivation of care typically continue to experience threats to their development if they remain in the same environment. This makes it difficult from a research perspective to separate their outcomes from consequences of early deprivation or later abuse, neglect, or trauma. Children reared in orphanages are an exception to this research dilemma. After leaving the orphanage, these children are typically raised in enriched environments with adequate caregivers (Gunnar, 2001). Gunnar studied data of infants raised in orphanages, concentrating on three domains of development: cognition and language, physical growth, and socio-emotional (2001). These developmental domains were compared in infants from orphanages that provided different levels of care. The levels were based on the types of developmental needs that were being met by the institution. Rutter (1998) described a hierarchy of needs that were either met or not met in institutions. He concluded that there were at least three levels of privation in institutions: (1) No needs met, which he termed global privation; (2) Health and nutrition needs met, did not meet needs of stimulation or relationships; and (3) All needs met, except the need for a

consistent relationship with a stable caregiver. It seems that the duration and severity of privation modulate the degree of impairments in most developmental domains, with children raised in institutionalized care for shorter periods of time and with a higher level of care, having fewer and less severe impairments (Gunnar, 2001). The following impairments, developmental difficulties, in post-institutionalized children are relevant to this study (Gunnar, 2001):

1. Emotional regulation, e.g. especially anger and aggression.
2. Attention and inhibitory control related to regulation difficulties.
3. Insensitivity to social boundaries and social cues (e.g., don't adhere to social rules, not liked much by peers, excessive social approaches, indiscriminate friendliness [seen mostly in younger children], and problems with intimacy).
4. Greater difficulty forming secure attachments (e.g., only 37% of children adopted from a Romanian orphanage after more than 8 months of care formed secure attachments with their adoptive mother compared to about 60% of children reared solely within their family).
5. Relationship shallowness, attachment relationships are diffuse or nonselective; e.g. indiscriminately social or friendly behavior that is superficial, impersonal, and rarely reciprocated, approaching new adults without hesitation, willingness to go home with a stranger, and wandering away from parents with no distress.
6. Autistic-like behaviors, e.g. lack of social awareness and social boundaries, limited empathy, do not go to parents for comfort or security, and some stereotyped interests or movements.

7. Executive functioning is most common form of cognitive impairment, e.g. rigidity in thinking; difficulty in generalizing, logical, and sequential reasoning; excessive concreteness of thought; and difficulties in concentration, attention, regulation, and inhibition.
8. Neurotransmitter pathways and feedback signals at the level of the hypothalamus may be altered, e.g. growth hormone-releasing hormone (GHRH).
9. Language not used as readily for expressing emotions, asking for help from adults, and expressing ideas and fantasies.

In summary, it appears that human infants are especially vulnerable to "the impact of privation and neglect early in life" due to the dependence on adults for regulation and stimulation (Gunnar, 2001, p.626). Whereas, infant primates are able to climb, reach, grasp, and manipulate objects on their own; human infants rely on adults for motor competence, active stimulation, and regulation. A critical component in infants' developmental trajectory is likely developing the capacity to effectively manipulate their own environment (response-contingent stimulation) (Gunnar, 2001). Passive stimulation (e.g. child/toy, child/music, or child/book) seems to be able to modulate some of the developmental difficulties institutionalized children may experience and may even be adequate for sensorimotor, cognitive, and language development; but active stimulation (adult/child interaction) may be the key to more typical neural development in the areas of executive functioning, emotional regulation, appropriate social responsiveness and boundaries, and forming securely attached relationships with others (Gunnar, 2001). According to Gunnar (2001), there is no information available on institutions providing adequate relationship experiences because none are known to have met this need.

Children cared for in orphanages, foster homes, and/or with neglectful or abusive caregivers may experience significant effects on their developing brains and their resulting capabilities (Schore, 2001). The neural pathways that fail to develop due to improper interpersonal experiences are linked to the pathways used for creating meaning, regulating body states and emotions, organizing memory, and the ability for empathizing and communicating. Similar to primates who experience early maternal deprivation, these children may have memory and stress response system impairments, which are affected by chronically, elevated or depressed levels of neuroendocrine hormones, such as cortisol (Becker-Weidman, 2009).

Interventions for Improving Parent-Child Relationships

According to Gunnar et al. (2006), interventions for children who have been maltreated are typically divided into two subgroups: (1) interventions based on social learning theory with focus on parent training and (2) interventions based on developmental-organizational perspectives with focus on the parent-child relationship. Interventions for children who have been adopted and/or fostered should also focus on the child's developmental age, as opposed to their chronological age. Becker-Weidman (2009) administered the Vineland Adaptive Behavior Scales-II to 57 children who had either been adopted or were currently in the foster system and met the clinical criteria for complex trauma. In summary, the average adaptive behavior composite score, equivalent to a developmental age, for the children in this study was 4.4 years while the average chronological age was 9.9 years. A difference of 5.5 years! So, whereas the children in this study were an average of 9 years old, their adaptive behavior skills yielded that of an average 4 year old (Becker-Weidman, 2009). Therefore, when intervening with children

who have experienced maltreatment, have been adopted, and/or in the foster care system, it is important to treat the child at his/her developmental age while also focusing on parent training and the parent-child relationship.

There are several interventions designed specifically for parent-child dyads with attachment difficulties. Attachment and Biobehavioral Catch-up (ABC) (Dozier, Dozier, & Manni, 2002), The Circle of Security Project (COS) (Cooper, Hoffman, Powell, & Marvin, 2005), and Trust-Based Relational Intervention® (TBRI®) (Purvis & Cross, 2009) are three attachment based interventions aimed at improving the quality of the parent-child relationship. These three interventions have several shared elements, which include:

1. Focusing on enhancing the parent-child relationship;
2. Concentrating on improving parental sensitivity, awareness, and responsivity; and
3. Assisting parents in reflecting upon and modifying their own internal working models.

Attachment and Biobehavioral Catch-up

Dozier, Dozier, and Manni (2002) identified four primary needs of children who had experienced adverse early care and disruptions in attachment. Subsequently, the authors developed a training program for foster and adoptive parents entitled Attachment and Biobehavioral Catch-up (ABC) based on addressing these four needs and consequently strengthening the caregiver-child attachment. The 4 needs identified for foster and adopted children and the ways ABC addresses them are as follows (Dozier et al., 2002):

(1) Need: Caregivers do not respond with nurturance when infants are distressed or upset; ABC promotes providing nurturance even when it does not come naturally.

(2) Need: Infants in foster care often fail to elicit nurturing caregiving by pushing caregivers away or appearing inconsolable; ABC encourages caregivers to provide nurturance even when infants do not elicit it.

(3) Need: Children appear dysregulated at the behavioral, emotional, and neuroendocrinal levels; ABC educates caregivers on providing a more predictable interpersonal environment for their child in order to enhance regulatory capabilities.

(4) Need: Children with adverse early care are at greater risk of feeling threatened and typical environments may be readily experienced as threatening; ABC assists caregivers in providing a safe, non-threatening environment for their child.

ABC is a manualized intervention, which consists of ten sessions conducted in the caregiver's home, typically by a social worker (Dozier, Lindhiem, & Ackerman, 2005). The sessions are videotaped using two cameras, one for fidelity of treatment and one to allow the caregiver access for observing their own interactions during the session. Most sessions involve caregiver and child interactions and the caregiver being assigned homework.

The focus of the first two sessions is to encourage the caregiver to nurture their child, even when it doesn't come naturally for the caregiver and/or when the child appears inconsolable or pushes the caregiver away (Dozier et al., 2005). The caregivers are also shown videos of babies who directly elicit care (secure attachment) and those who fail to elicit care (avoidant and resistant attachment). They are asked to think about how this could affect the caregiver and then are assigned a homework task of noticing and writing down how their child responds to distress. The following week the caregivers focus their attention on their own behaviors and emotions when their child is distressed with the goal of responding in more nurturing ways. The desired outcome in the child is for their attachment

patterns to become more organized. Sessions 3, 4, 5, 8, and 10 focuses on having the caregiver follow the child's lead when they are not in distress and taking the lead when the child is in distress. The caregiver's are aided in identifying their child's cues of engagement and disengagement by first watching videos of other children and identifying their cues. Sessions include parent-child interactions such as reading books and making pudding together. The desired outcome of the previously described sessions is for the children to become better capable of regulating their own behavior and biobehavioral systems (Dozier et al., 2005).

Sessions 6 and 7 focuses on the caregiver's own attachment history and how it may affect the way they interact, respond, and perceive their child. The authors borrow a videotape entitled *Shark Music* from the Circle of Security Project (Cooper, Hoffman, Powell, & Marvin, 2005). In this video, the same ocean scene is shown twice; the first time with peaceful, serene music and the second time with music typically known as shark music from the movie *Jaws*. During the second viewing, the ocean scene is typically interpreted as threatening instead of comforting. The point of this video is for the parents to become aware of the "shark music" they may hear while parenting (e.g. when their child is crying) and to be able to acknowledge it, resist the urge to react automatically, and consciously choose to react differently. During the next session, parents and children are videotaped in a brief separation and reunion assessment and then asked to reflect on how their child's response to the procedure affected them. They are also asked to imagine how their own parents would have responded to their distress when they were children. Strengths are emphasized in these sessions, as to reduce the intensity of emotions that may occur in caregivers when examining their own attachment histories (Dozier et al., 2005).

Lastly, session 9 is focused on creating a safe, non-threatening environment for their child. The caregiver's are provided assistance in reading their child's emotions, especially those viewed as negative. Then they are encouraged to help the child feel comfortable experiencing and expressing all emotions. The goal for the caregiver is to interact in non-frightening ways with their child and for the child to experience their environment as safe and non-threatening (Dozier et al., 2005). ABC's effectiveness is currently being assessed in a clinical trial of 200 foster families.

Circle of Security

The Circle of Security Project (COS) (Cooper et al., 2005) mentioned previously is a second intervention targeted to enhance attachment-caregiving relationships. COS is a twenty-week group based parenting intervention. The group consists of three to five caregivers who meet each week for seventy-five minutes, with each caregiver being the group's focus for approximately three of the twenty sessions. The COS Project is based on four principles: (1) The quality of the child-parent attachment plays a significant role in a child's life trajectory, (2) Parents must change their caregiving patterns for lasting change to occur, as opposed to learning techniques for managing their child's behavior; (3) Parents relational capacities are enhanced when they are operating within a secure base relationship themselves, the therapist should be a safe haven during the COS groups; and (4) Individualized plans must be designed for each dyad's strengths and struggles, in order to affect the quality of the child-parent attachment .

The COS Project has five goals based on these four principles. The first is to establish the therapist and group as a secure base for the caregivers, in order for them to feel

comfortable exploring their own relationship with their child. The second is to increase the caregiver's sensitivity and responsiveness to their child. One way this is achieved is through education about attachment. Caregiver's are provided with a map of children's basic attachment needs. The third goal is to increase the caregiver's recognition of their child's verbal and non-verbal cues which are used to signal internal states and needs. The fourth goal of the COS Project is to increase the caregiver's empathy by supporting their reflections about their own and their child's behaviors, thoughts, and feelings regarding their attachment-oriented behavior. Parents increased empathy allows them to view their child's behavior as being driven by genuine needs instead of viewing their behaviors as negative attributes. This leads to more sensitive caregiving behaviors. Finally, the last goal is to increase the caregiver's insight into how their own developmental history affects their current caregiving behaviors. This is achieved through what the authors term "reflective functioning" which is "the psychological capacity for understanding one's own mental states, thoughts, feelings, and intentions as well as those of" another (Cooper et al., 2005, p. 137). One strategy for this is for the caregivers to identify their "linchpin" or key defenses which keep them from fully utilizing their underdeveloped capacities, both in their parent-child relationship and in their own internal working model (Cooper et al., 2005).

The twenty sessions are divided into three phases. The first phase centers on the caregiver's watching edited Strange Situation video clips to engage in discussion and receive feedback from the facilitator and the group. The second phase is targeted toward the caregivers identifying their personal linchpins, or key defenses. The last phase is dedicated to celebrating the positive changes by watching a modified Strange Situation video clip of the caregiver and their child, which is filmed during the sixteenth week of the intervention.

Also during phase three, caregivers decide where they want to focus their efforts in the future.

Cooper, Hoffman, Powell, & Marvin (2006) conducted a protocol development study of the COS Project with sixty-five high risk dyads from Head Start and Early Head Start programs. Before treatment, sixty percent of the dyads were classified as having a disorganized-controlling or insecure-other attachment (Cassidy-Marvin preschool coding system). After the COS intervention, this percentage decreased by thirty-five percent with only twenty-five percent having a disorganized-controlling or insecure-other attachment. The number of secure dyads increased, also. Pre-treatment, twenty-five percent of the dyads were classified as securely attached. Post-treatment, fifty-four percent were classified as securely attached (a twenty-nine percent increase). Overall, seventy percent of those dyads labeled as disorganized before the intervention were rated as securely attached after the COS intervention. It seems that the COS Project is an effective intervention for improving the parent-child attachment in young children.

Trust-Based Relational Intervention

Trust-Based Relational Intervention® (TBRI®), a third attachment based intervention, has elements of both the ABC and the COS interventions. In addition to providing a safe, non-threatening environment and improving the quality of the caregiver-child relationship, TBRI® incorporates a wider, more holistic approach to intervention with families struggling with relationship difficulties. TBRI® incorporates what Gunnar (2006) and Becker-Weidman (2009) have determined to be useful in interventions with children who have experienced

adverse parent/child relationships; targeting children at their developmental level, providing caregiver education, and improving the parent-child relationship.

TBRI® was developed out of ideas and practices which were successful in a therapeutic day camp for adopted children developed by Purvis and Cross (2002). The intervention can be administered in several intensities depending on the situation, severity of the problem, and caregiver's level of commitment. For professionals and parents, a 5-day TBRI® training seminar is a good introduction to the principles and practices of this intervention. The weeklong training is intended for those, professionals and/or parents, wanting to acquire knowledge about TBRI® and/or improve their parent-child relationship.

For families requiring more intensive assistance, The Hope Connection© therapeutic day camp is held each summer. During camp, children are immersed in the culture of TBRI® and parents are assisted with the exploration of their own attachment histories, allowed to observe how TBRI® principles are put into action during camp, encouraged to practice using the principles of TBRI® with feedback, and provided with educational information about the TBRI® principles, attachment, sensory integration, healthy touch, behavioral and emotional regulation, neurochemistry, nutrition, and creating an environment where children have felt safety.

The most intensive TBRI® intervention is a home program. Facilitators observe, model, train, and provide feedback in TBRI® principles to parents and their children in their home. The home program is set up on three progressive levels. Level one includes the parent and child being within thirty-six inches of each other throughout all waking hours. As the child improves, he or she progresses through the levels and eventually, when level three is

achieved, the parent and child are working on maintaining their new relationship, behaviors, routines, and environment.

TBRI® Principles

TBRI® concentrates on three sets of principles: empowering, connecting, and correcting (Purvis, Cross, & Pennings, 2009). The empowering principles focus on the foundation of the parent-child relationship through addressing ecological and physiological concerns. Attention is given to a child's nutritional and hydration needs in order to stabilize their internal chemistry for optimum performance behaviorally, cognitively, emotionally, and physiologically. A child's environment is set up with predictability, consistent routines, and expected transitions. This enables a child to understand what is currently happening and to properly anticipate what is going to happen. Providing children with consistency and predictability in their day allows them appropriate control over their environment and schedule and assists them in developing self-regulatory behaviors. When a child is able to correctly predict what is going to happen to them, their heightened sense of alertness is given less energy and they may begin to focus their attention and energy into their relationships. Children in predictable environments begin to understand that a caring adult will meet their needs consistently. By understanding that their needs will be met, children are able to begin using their parent as a secure base and to acquire the feeling of felt safety.

The connecting principles focus on the parent-child relationship through situational awareness, playful engagement, and attunement (Purvis et al., 2009). Increasing the trust of the child through understanding the child's feelings and responses (cues) and interacting with them in a non-threatening, playful way is emphasized in the connection principles.

Recognizing a child's negative behavior and asking "What is the child really saying?" and "What does the child really need?" is key to understanding a child's feelings and assisting them in being able to verbalize their needs instead of acting out. Important in improving the parent-child relationship is gaining and maintaining eye contact, matching the physical position and voice of the children, and encouraging the processing of feelings, especially unpleasant ones (Purvis et al., 2009). Through observing, increasing awareness, and connecting physically, emotionally, and psychologically, parents may increase their connectedness and attunement with their child. Parent-child attunement is critical for developing a reciprocal relationship in which parent and child understand, engage, and care for each other. Increasing parental sensitivity, which includes improving parents' ability to read their child's cues when in distress and to respond with warmth and nurturance, can enhance a child's attachment behaviors (Ainsworth, 1973).

The correcting principles focus on teaching children to be self-managers through proactive and redirective strategies, including the IDEAL response (Purvis et al., 2009). The purpose of parents becoming proactive is to teach children strategies for self-regulation and to allow them sufficient opportunity for practice. Through teaching and repeating life value terms such as "showing respect," "being gentle and kind," and "using their words," parents encourage children to stop, evaluate their own behavior, and create an opportunity for a "re-do." Allowing a child a "re-do" of an inappropriate behavior, allows them the opportunity to practice appropriate ones, to feel confident in their own capabilities, and to receive for praise for a behavioral success. Parents can practice being proactive by giving a child two appropriate choices, e.g. "Would you like to brush your teeth first and then put on your pajamas or put on your pajamas first and then brush your teeth?" Giving children choices

allows them appropriate control of their environment and repetitive practice of making decisions. “In contrast to lecturing, scolding, and shaming, this approach has the advantage of providing opportunities for success instead of failure and for providing parent-child interactions that are positive, encouraging, and practical” (Purvis et al., 2009, p. 17).

When a child is unable to self-regulate, a safe adult assists the child by using redirective strategies. The goal for correcting behavior is to use the least invasive intervention possible. Parents should try to redirect behavior first through playful engagement, second through giving two choices, third through directing a child to a “time-in” or “think it over,” and lastly, through physical interruption of physical aggression. Finally, parents should always aim the redirection at the child’s behavior and not the child.

The parent-child relationship is the focus of the TBRI® principles of empowering, connecting, and correcting implemented during TBRI® trainings, summer camps, and home programs.

Predictions

The quality of parent-child interaction on the MIM-RS will improve post-intervention.

Post-intervention children will illustrate closer proximity between child-parent and less negative/neutral indicators on Family Drawings.

Parents will report more positive attachment behaviors on the BBADC/BBADC-R post-intervention.

The 2007 5-week camp will show greater improvements than the 2009 2-week camp as assessed by the MIM-RS, BBACD/BBACD-R, and Family Drawings.

METHOD

Participants

Participants were 19 adopted children (11 males, 8 females) living in the United States. Families were recruited to participate in the Hope Connection© Summer Camp through adoption agencies, parent support groups, and the Institute of Child Development mailing list. Ten children participated in the 2007 summer camp intervention and 9 children participated in the 2009 Summer Camp. Participants were screened during the admission process in order to minimize admittance of those with the most severe disturbances. In 2009, greater adherence to this process was maintained through home-visits. This resulted in a population with less severe disturbances in 2009. Children ranged in age from 4 to 9 (M = 6.21, SD = 1.40). The children's age at adoption ranged from birth to 48 months (M = 19.37, SD = 15.71). Most (84.21%) of the children had spent time in foster or institutional care. Length of institutional stay or time spent in foster care ranged from none to 42 months (M = 11.84, SD = 12.44). Over half (57.9%) of the sample had experienced some form of maltreatment. All parents reported their children as having special needs and most had took part in several other interventions prior to attending camp. Number of other interventions tried ranged from 0 to 16 (M = 7.44, SD = 3.48). The majority of the participants (78.9%) had at least one other sibling living the adoptive home.

Measures

Marschak Interaction Method. The Marschak Interaction Method (MIM) (2005, 1991, 1987) is a set of parent-child play tasks (see Appendix A) developed and used in Theraplay® interventions (Jernberg, 1984). The play tasks are designed to elicit a particular dimension(s) of behavior, i.e. nurture, engagement, structure, and challenge. The parent and the child are both examined for each dimension of behavior. The parent is evaluated for how well they can: (1) respond in a nurturing way to the child's needs, (2) engage the child in interaction while being attuned to the child's state and reactions, (3) structure the environment and set clear, appropriate expectations and limits, and (4) provide appropriate challenge. The child is evaluated for how well they can: (1) accept nurturing care from the adult, as opposed to looking only to themselves for comfort, (2) engage with the adult, as opposed to being avoidant or super-independent, (3) accept structure from the adult, as opposed to insisting on being in charge, and (4) respond to appropriate challenge, as opposed to being helpless and clinging, or being competitive, and making too high demands on themselves. The MIM is used frequently to assess the quality of the relationship between a parent-child dyad especially in the foster and adoption field.

In the current study, the MIM was videotaped and was scored using the Marschak Interaction Method Rating System (MIM-RS) developed by O'Connor, Ammen, Backman, and Hitchcock (2001; see Appendix B). The MIM-RS consists of a Parent subscale, a Child subscale as well as the Total score. The MIM-RS is divided into two sections. First, 29-items rated on a 5-point Likert-type scale, which address how the parent, child, and dyad approach and handle the tasks on the 4 dimensions of Theraplay® which include Nurture, Engagement, Structure, and Challenge. This section yields an overall Parent score ($\alpha = .90$),

an overall Child score (α = .92), an Emotional/Relational for both parent (α = .87) and child score (α = .84), a Total score (α = .96), and a summary score for each of the four Theraplay® dimensions; Nurture (α = .93), Engagement (α = .90), Structure (α = .74), and Challenge (α = .77). Collectively, these dimension scores will be referred to as the MIM Dimension Scores. Second, 20-items rated on a 3-point Likert-type scale, which indicate potentially harmful or dangerous behaviors (e.g. physical aggression). Scores on these items were summed to create a Critical Indicator score, where a larger number indicates more potentially harmful behavior. Pairs of two experimenters scored each MIM session. Inter-rater reliability for the MIM-RS was 82%.

Beech Brook Attachment Disorder Checklist. The Beech Brook Attachment Disorder Checklist (BBADC) is a parent-report questionnaire focusing on attachment and behaviors related to attachment disturbances (Hussey, Moss, Weinland, & Lester, 1997; Howard, Purvis, Cross, McKenzie, & Dandy, 2009). The BBADC measures both positive attachment behaviors (e.g. child expresses affection and concern for caretaker, child accepts comfort from caretaker when upset) and negative or disturbed attachment behaviors (e.g. child hurts others, child seeks negative attention over positive). The BBADC consists of four factors Machiavellianism (α = .83), Affection/Attachment (α = .76), Aggression/Anxiety (α = .78), and Executive Functioning (α = .77). Participants in the 2007 summer camp completed a 72-item version of the BBADC, while participants in the 2009 summer camp completed a 35-item revised version of the BBADC or the BBADC-R (See Howard et al. for details). All items in the BBADC-R are also in the BBADC except four. The current analysis will use the 31-items that are consistent between the two measures (see Appendix C).

Family Drawings. Family Drawings are child-produced drawings that are scored for attachment characteristics. The Family Drawings are important to include in this study because they assess change in attachment as reported by the child rather than the parent. Two sets of scores were used based on the Family Drawings: the Objective measures and the Global rating scales. The Objective measures include a count of the number of colors used (Color) and a set of attachment-related criterion (e.g. Proximity to Mother, Presence of Mother). The Global rating scales are scored on a three-point scale with one being low and three being high. These scores are based on subjective measures of Vitality, Family Pride, Vulnerability, Isolation, Anger, Bizarreness, and Global Pathology as specified by Fury, Carlson, and Sroufe (1997; see Appendix D). Several studies have demonstrated the validity of this measure: Fury et al. (1997) demonstrated reliable difference between the drawings of children with different attachment histories, and Kirsh and Cassidy (1997) showed that children remembered different attachment-relevant information and paid attention to different information based on their attachment histories. Two experimenters scored each drawing. Inter-rater reliability was 84%.

Procedure

Families attended a pre-testing session approximately 2-weeks prior to camp and a post-testing session approximately 1 to 2-weeks following camp. Pre-testing and post-testing procedures were identical. During the testing, mother-child dyads came into the laboratory in individual sessions. Children completed the MIM with the mother and then completed Family Drawings. At the end of testing mothers were given questionnaires to complete; included in this packet was the BBADC (2007) / BBADC-R (2009).

MIM Procedure. At the beginning of the MIM session, the parent and child are seated at a small table. A video camera is located on the wall in the testing room facing the parent-child dyad, and recorded their heads, torsos and arms, and the tabletop. Each mother was given six instruction cards (selected from the set as indicated in the MIM manual) and corresponding packets containing materials needed for each task. Parents were instructed to read each instruction card aloud, and to perform each task in order, using the contents of the appropriate packet while spending three to five minutes on each task. MIM procedures were identical for both testings.

Family Drawings Procedure. Children were tested individually in a clinical testing room of a speech and hearing clinic. The researcher gave each child a variety of colored construction paper and crayons to choose from, then invited the child to draw a picture of his or her family in any way and taking as much time as the child required. A trained graduate or undergraduate student administered all of the testing sessions.

The Hope Connection© Procedure. Children attended a 5-week, Monday through Thursday (2007) or 2-week, Monday through Friday (2009) therapeutic summer camp. The schedule, activities, and facilitators during camp attempt to create an attachment-rich, behaviorally-structured, and sensory-rich environment. Three types of activities enhance this environment. First, there were sensory integration activities, which were designed to stimulate sensory processes (e.g., vestibular processing) and promote self-regulation. Second, there were general learning activities (e.g., board games and sports). Third, there were scripted activities designed to teach the children socially appropriate behaviors (e.g., a compliance script). Children find these activities fun, and in the past the camp has led to dramatic improvements in the children's cognitive, linguistic, and social functioning.

Attachment-based principles such as responsiveness and warmth are at the core of the intervention. Additional activities related to attachment include beginning each morning with an "attachment ritual" between the children, parents, and camp director and learning and practicing "scripts" for dealing with strangers. The children also participate in a daily nurture group. This group is intended to build trust in a safe, playful manner. The camp program has been described in further detail elsewhere (e.g. Purvis, Cross, & Sunshine, 2007).

During camp, parents attended educational trainings, observed and participated in camp, and received feedback regarding their personal histories, specific situations, and questions. The goal of these sessions was to educate the parents on attachment, sensory, and neurological issues that may be applicable to their children, provide them with individualized feedback on their children, and help them develop strategies for interacting with their children more effectively.

RESULTS

Relationships among Demographic Variables

A series of analyses were conducted in order to uncover potential relationships between year of camp attended, history of maltreatment, gender, and presence of at least one sibling in the adoptive home. More specifically, crosstab analyses with Pearson's chi-square (χ^2) test and Cramer's *V* test were conducted to examine relationships between the categorical demographic. Crosstab analyses are used to examine the relationships between categorical variables measured on nominal or ordinal scales. Pearson's chi-square (χ^2) tests are used to determine whether or not a significant relationship exists between the variables. Cramer's *V* tests are used to determine the strength of the relationship between the variables.

The results did not reveal a significant relationship between year of camp attended, history of maltreatment, gender, and presence of at least one sibling in the adoptive home (all *ns*).

Independent samples *t* tests were conducted to examine group differences between the categorical demographic variables on age at entry into institutional care, length of institutional stay, age at adoption, age during camp, and number of interventions tried prior to camp. Independent samples *t* tests are used to determine if differences exist between two groups of an independent variable on a continuous dependent variables. The results revealed a significant association between gender and age at entry into institution, $t\ (17) = 2.82, p < .05$. Males were older when they entered institutional care ($M = 5.09, SD = 4.93$) than females ($M = .13, SD = .35$). The results did not reveal significant differences for the rest of the demographic variables (all *ns*).

Pearson's product moment correlations were conducted to examine the relationship between age at entry into the institution, length of stay in the institution, age at adoption, age during camp, and number of interventions tried prior to camp. Pearson's product moment correlations are used to examine the relationships between continuous variables measured on interval or ratio scales. Correlation coefficients can range between -1.00 and +1.00. A positive correlation indicates that increases in one variable are associated with increases in the other variable. A negative correlation, on the other hand, indicates that decreases in one variable are associated with increases in the other variable. Correlation coefficients close to 0 indicate a weak relationship or a lack of a relationship between variables.

The results revealed a significant positive correlation between age at adoption and age at entry into the institution, $r\ (19) = .56, p < .05$. Children that were older at age of entry

into the institution were also older when adopted. The results revealed a significant negative correlation between age during camp and age at entry into the institution, r (19) = -.49, p < .05. Children that were older at age of entry into the institution were younger during camp. The results revealed a significant positive correlation between age at adoption and length of institutional stay, r (19) = .65, p < .01. Children that were older at adoption had a longer institutional stay. The results did not reveal any other significant correlations between the remaining continuous demographic variables (all *ns*).

Relationships Between Demographic Variables and Dependent Variables

Crosstab analyses with Pearson's chi-square (χ^2) test and Cramer's V test were conducted to examine relationships between history of maltreatment, gender, and presence of a sibling in the adoptive homes and categorical dependent variables. Pre and post intervention differences between the 2007 and 2009 summer camps will be explored later in the results. Independent samples t tests were conducted to examine group differences between the categorical demographic variables on the continuous dependent variables. Pearson's product moment correlations were conducted to examine the relationship between continuous demographic variables and continuous dependent variables.

BBADC Pre-Intervention. The results did not reveal significant differences for pre intervention BBADC subscales for history of maltreatment, gender, and presence of a sibling in the adoptive homes. However, results revealed significant differences for gender on the BBADC Executive Functioning subscale prior to the summer camp intervention, t (16) = 2.93, p < .01. Males had higher scores on the Executive Functioning subscale (M = 2.36, SD = .46) prior to the summer camp intervention than females (M = 1.62, SD = .62).

Further, the results revealed a significant negative correlation between the pre intervention BBADC Attachment/Affection subscale and age during camp, r (18) = -.48, $p < .05$. Older children were rated as expressing fewer attachment behaviors and being less affectionate than younger children prior to the intervention.

BBADC Post-Intervention. The results did not reveal significant differences for post intervention BBADC subscales for all demographic variables (all *ns*).

MIM Pre-Intervention. The results did not reveal significant differences for pre intervention MIM subscales for history of maltreatment, gender, and presence of a sibling in the adoptive homes. Results revealed a significant negative correlation between pre intervention MIM Critical Item sum and age at adoption, r (17) = -.48, $p < .05$. Mothers of older children used more potential harmful behavior during play interaction than mothers of younger children prior to camp. The results did not reveal significant differences for all other pre intervention MIM subscales for all demographic variables (all *ns*).

MIM Post-Intervention. The results did not reveal significant differences for post intervention MIM subscales for history of maltreatment, gender, and presence of a sibling in the adoptive homes. Results revealed a significant positive correlation between post intervention MIM Parent scale score and age at adoption, r (17) = .52, $p < .05$. Mothers of older children at age of adoption had higher quality interactions with their children than mothers of younger children at age of adoption after camp. Furthermore, a significant positive correlation emerged between the post intervention Nurture scale score and length of stay in the institution, r (17) = .64, $p < .01$. Mother-child dyads in which the child had a longer institutional stay displayed more nurturing behavior during their interactions after the

intervention than mother-child dyads in which the child had a shorter institutional stay. Results also revealed a significant negative correlation between the post intervention Nurture scale score and number of interventions, r (16) = -.52, $p < .05$. Mother-child who had tried more interventions prior to attending camp displayed less nurturing behavior during their interactions following the intervention than mother-child dyads that tried fewer interventions.

Family Drawings Quantitative Indicators Pre-Intervention. The results revealed a significant relationship between history of maltreatment and the child not being present in the family drawing prior to the intervention, χ^2 (1) = 4.00, $p < .05$, Cramer's $V = .46$. Children with a history of abuse were more likely to include themselves in their family drawing than children that did not have a history of abuse. The results revealed a significant relationship between gender and unusual markings prior to the intervention, χ^2 (1) = 6.74, $p < .01$, Cramer's $V = .60$. Males were more likely to have unusual markings in their drawings prior to camp (72.7%) than females (12.5%). Further, results revealed a significant difference for colors used prior to camp for gender, t (17) = -4.52, $p < .01$. Females used more total colors in their family drawings prior to the intervention ($M = 3.63$, $SD = 1.85$) than males ($M = 1.09$, $SD = .30$). Results also revealed a significant positive correlation between distance between the mother and children prior to the intervention and length of institutional stay, r (12) = .78, $p < .01$. Children that stayed in institutional care longer drew themselves further away from their mother prior to camp than children who were in institutional care for shorter periods of time. The results did not reveal significant differences on the family drawing quantitative indicators prior to the intervention for all other demographic variables (all *ns*).

Family Drawings Quantitative Indicators Post-Intervention. The results revealed a significant difference for the number of details on the mother's body following camp for gender, t (15) = -2.69, $p < .05$. Females used more body detail on the mother in their family drawings following the intervention ($M = 4.13$, $SD = 1.64$) than males ($M = 1.78$, $SD = 1.92$). The results revealed a significant difference for number of clinical markers on the mother following the intervention for presence of a sibling in the adoptive home, t (14) = 2.38, $p < .05$. Children without siblings in the adoptive home drew more clinical markers on the mother following the intervention ($M = 5.33$, $SD = 1.15$) than children with siblings in the adoptive home ($M = 3.62$, $SD = 1.12$). The results failed to reveal significant differences on the family drawing quantitative indicators following the intervention for all other demographic variables (all *ns*).

Family Drawings Global Indicators Pre-Intervention. The results did not reveal significant differences for pre intervention family drawing global indicators for history of maltreatment and presence of a sibling in the adoptive homes. However, results revealed a significant difference on gender prior to intervention for Vitality, t (17) = -3.25, $p < .01$, Vulnerability, t (17) = 4.25, $p < .01$, Isolation, t (17) = 2.74, $p < .05$, Anger, t (17) = 4.93, $p < .01$, and Global Pathology, t (17) = 2.61, $p < .05$. Prior to the intervention family drawings of females displayed more Vitality ($M = 1.81$, $SD = .70$), a positive indicator, than family drawings of males ($M = 1.09$, $SD = .20$). Further, females display fewer negative indicators in their family drawings prior to camp than males. Family drawing by females displayed less Vulnerability ($M = 1.81$, $SD = .59$) than drawings by males ($M = 2.72$, $SD = .34$). Family drawing by females displayed less Isolation ($M = 1.81$, $SD = .70$) than drawings by males ($M = 2.59$, $SD = .53$). Further, family drawing by females displayed less Anger (*M*

= 1.55, *SD* = .71) than drawings by males (*M* = 2.86, *SD* = .23). Family drawing by females displayed less Global Pathology (*M* = 2. 31, *SD* = .59) than drawings by males (*M* = 2.86, *SD* = .32). Results also revealed a significant positive correlation between amount of Isolation displayed in family drawings prior to intervention and length of institutional stay, *r* (19) = .52, $p < .05$. Children who spent more time in institutional care had displayed more isolation in their family drawings prior to the intervention than children who spent less time in institutional care. Finally, results revealed a significant positive correlation between age at entry into the institution and the amount of anger displayed in their family drawing prior to the intervention, *r* (19) = .52, $p < .05$. Children who entered institutional care at an older age displayed more anger in their family drawing prior to the intervention than children who entered institutional care at a younger age.

Family Drawings Global Indicators Post-Intervention. The results did not reveal significant differences for post intervention family drawing global indicators for all demographic variables (all *ns*).

Differences Between Groups Prior to Camp.

The researchers wanted to examine potential pre-intervention differences between the children who attended camp in 2007 versus children who attended camp in 2009 for all dependent variables. Ideally, there would be few, if any, differences between groups prior to the intervention. Post-intervention differences between camp years will be explored later. Crosstab analyses with Pearson's chi-square (χ^2) test and Cramer's *V* test were conducted to examine relationships between camp year and pre-intervention categorical dependent

variables. Independent samples *t* tests were conducted to examine group differences between camp year on the pre-intervention continuous dependent variables.

The results did not reveal significant differences between the 2007 and 2009 summer camps for the BBADC subscales, MIM scales, and Family Drawing Global Indicators. However, results revealed a significant difference prior to the intervention between the 2007 and 2009 summer camps for the total number of Clinical Markers for the mother, t (17) = -2.58, $p < .05$. Children who attended the 2007 summer camp used more Clinical Markers in their Family Drawings prior to the intervention ($M = 4.33$, $SD = 1.32$) than children who attended the 2009 summer camp ($M = 2.57$, $SD = 1.40$). All other pre-camp Family Drawing quantitative indicators were not significant (all *ns*).

Differences Between Groups Following Camp.

The researchers also wanted to examine potential post-intervention differences between the children who attended camp in 2007 versus children who attended camp in 2009 for all dependent variables. Considering the 2007 summer camp was longer in duration, the researchers predicted that the children who attended the 2007 camp would have more behavioral gains and display more attachment related behavior than the children who attended the shorter 2009 summer camp. Crosstab analyses with Pearson's chi-square (χ^2) test and Cramer's *V* test were conducted to examine relationships between camp year and post-intervention categorical dependent variables. Independent samples *t* tests were conducted to examine group differences between camp year on the post-intervention continuous dependent variables.

Means and standard deviations for the BBADC subscales following the intervention for 2007 and 2009 can be found in Table 1. The results did not reveal significant differences between the 2007 and 2009 summer camps for the BBADC Attachment/Affections, t (16) = -.28, p = .78, and Machiavellianism subscales, t (16) = -1.24, p = .23. However, results revealed a significant difference following the intervention between the 2007 and 2009 summer camps for the BBADC Executive Functioning, t (16) = 2.38 $p < .05$, and Aggression/Anxiety subscales, t (16) = -2.25, $p < .05$. Children who attended the 2009 summer camp exhibited higher levels of executive functioning following the intervention according to their mothers (M = 1.20, SD = .55) than children who attended the 2009 summer camp (M = .70, SD = .36). Further, Children who attended the 2007 summer camp exhibited higher levels of anxiety post intervention according to their mothers (M = 1.20, SD = .55) than children who attended the 2009 summer camp (M = .70, SD = .36).

Table 1

Means and Standard Deviations for Post-Intervention Beech Brook Attachment Disorder Checklist (n = 9)

	Mean	SD	t	df	p
Attachment/Affection			-0.28	16	0.783
2007	2.76	0.40			
2009	2.71	0.33			
Executive Functioning			2.38	16	0.031
2007	1.67	0.53			
2009	2.37	0.72			
Aggression/Anxiety			-3.28	16	0.005
2007	1.36	0.48			
2009	0.70	0.36			
Machiavellianism			-1.25	16	0.236
2007	2.36	0.47			
2009	1.93	0.92			

Means and standard deviations for the MIM scales following the intervention for 2007 and 2009 can be found in Table 2. Results did not reveal any significant differences between the 2007 and 2009 summer camps following the intervention for MIM Parent score, t (15) = -1.54, p = .15, MIM Child score, t (15) = -.00, p = .99, MIM Parent Relational/Emotional score, t (15) = -1.48, p = .16, Child Relational/Emotional score, t (15) = -.36, p = .73, MIM total, t (15) = -.83, p = .42, and MIM Critical Item Sum, t (17) = .74, p = .47. Means and standard deviations for the MIM Principle Scales following the

intervention for 2007 and 2009 can be found in Table 3. Results did not reveal any significant differences between the 2007 and 2009 summer camps following the intervention for Structure, t (15) = -1.78, p = .10, Challenge, t (15) = -1.13, p = .28, Engagement, t (15) = -1.39, p = .18, Nurture, t (15) = -1.03, p = .32.

Table 2

Means and Standard Deviations for Post-Intervention Marschak Interaction Method – Rating System

		n	Mean	SD	*t*	*df*	*p*
Parent					-1.54	15	0.146
	2007	9	2.50	0.47			
	2009	8	2.05	0.72			
Child					0.00	15	0.997
	2007	9	1.99	0.53			
	2009	8	1.99	0.77			
Parent Relational/Emotional					-1.48	15	0.159
	2007	9	2.43	0.39			
	2009	8	2.02	0.73			
Child Relational/Emotional					-0.36	15	0.725
	2007	9	2.24	0.58			
	2009	8	2.13	0.73			
Total					-0.83	15	0.419
	2007	9	4.49	0.85			
	2009	8	4.04	1.36			
Critical Item Summary					0.74	17	0.47
	2007	10	2.10	1.73			
	2009	9	2.89	2.85			

Table 3

Means and Standard Deviations for Marschak Interaction Methods – Rating System Dimension Scales

		n	Mean	SD	*t*	*df*	*p*
Structure					-1.78	15	0.096
	2007	9	2.56	0.53			
	2009	8	2.00	0.76			
Challenge					-1.13	15	0.277
	2007	9	2.44	0.53			
	2009	8	2.13	0.64			
Engagement					-1.39	15	0.184
	2007	9	2.33	0.50			
	2009	8	1.88	0.83			
Nurture					-1.03	15	0.319
	2007	9	2.56	1.13			
	2009	8	2.13	0.53			

Frequencies and percentages for the Family Drawings categorical Quantitative Indicators by year of camp can be found in Table 4. Results did not reveal significant differences between the 2007 and 2009 camps following the intervention for the Child being the appropriate size in comparison to mother in the drawing, $\chi^2(1) = .42, p = .52$, Cramer's $V = .17$, and the Child being present in the drawing, $\chi^2(1) = .53, p = .47$, Cramer's $V = .17$. However, results revealed significant differences following the intervention between the 2007 and 2009 summer camps for Unusual Markings, $\chi^2(1) = 7.89, p < .01$, Cramer's $V = .65$, and the Mother being present in the drawing, $\chi^2(1) = 3.96, p < .05$, Cramer's $V = .46$.

Children in the 2007 summer camp were more likely to have Unusual Markings in their drawings following the intervention (60.0%) than children form the 2009 summer camp (0.0%). Further, children in the 2007 summer camp were more likely to include their mother in their family drawings following the intervention (100.0%) than children from the 2009 summer camp (66.7%).

Table 4

Frequencies and Percentages for Post-Intervention Family Drawing Categorical Indicators

		n	%	$\chi 2$	*p*
Child Appropriate Size Compared to Mother				0.42	0.519
	2007	9	33.3		
	2009	6	50.0		
Unusual Markings				7.89	0.005
	2007	10	60.0		
	2009	9	0.0		
Mother Present				3.96	0.047
	2007	10	100.0		
	2009	9	66.7		
Child Present				0.53	0.466
	2007	10	90.0		
	2009	9	77.8		

Means and standard deviations for the continuous Family Drawings Quantitative Indicators by year of camp can be found in Table 5. Results did not reveal significant differences between the 2007 and 2009 camps following the intervention for total Colors used, t (17) = .01, p = .99, Distance to mother, t (13) = -1.32, p = .21, Number of details on mothers body, t (15) = -.04, p = .97, and Number of details on the self, t (14) = .95, p = .36. However, results revealed significant differences between the 2007 and 2009 post intervention family drawings for number of Clinical markers on the mother, t (14) = -2.68 p < .05, and number of Clinical markers on the self, t (14) = -3.06, p < .05. Children who attended the 2009 summer camp drew less Clinical indicators on mother following intervention (M = 3.00, SD = 1.10) than children who attended the 2007 summer camp (M = 4.50, SD = .1.08). Similarly, children who attended the 2009 summer camp drew less Clinical indicators on themselves following intervention (M = 3.00, SD = 1.00) than children who attended the 2007 summer camp (M = 4.56, SD = .1.01).

Table 5

Means and Standard Deviations for Post-Intervention Family Drawing Quantitative Indicators

		n	Mean	SD	*t*	*df*	*p*
Total Colors					0.01	17	0.992
	2007	10	2.10	1.60			
	2009	9	2.11	2.98			
Distance to Mother					-1.32	13	0.21
	2007	9	11.33	3.96			
	2009	6	8.75	3.30			
Details on Mother					-0.04	15	0.969
	2007	10	2.90	1.97			
	2009	7	2.86	2.48			
Details on Self					0.95	14	0.357
	2007	9	2.56	2.46			
	2009	7	3.71	2.36			
Clinical Markers on Mother					-2.68	14	0.018
	2007	10	4.50	1.08			
	2009	6	3.00	1.10			
Clinical Markers on Self					-3.06	14	0.008
	2007	9	4.56	1.01			
	2009	7	3.00	1.00			

Means and standard deviations for the Family Drawings Global Indicators by year of camp can be found in Table 6. Results did not reveal significant differences between the 2007 and 2009 camps following the intervention for Vitality, t (16) = .22, p = .83, Family Pride, t (17) = -.43, p = .67, Vulnerability, t (17) = -.51, p = .62, Isolation, t (17) = .54, p =

.60, Anger, t (17) = -1.18, p = .26, Bizarre, t (17) = -1.16, p = .26, and Global Pathology, t (17) = -.39, p = .70.

Table 6

Means and Standard Deviations for Post-Intervention Family Drawing Global Indicators

		n	Mean	SD	*t*	*df*	*p*
Vitality					0.22	16	0.829
	2007	9	1.22	0.51			
	2009	9	1.28	0.57			
Family Pride					-0.43	17	0.67
	2007	10	1.80	0.63			
	2009	9	1.67	0.71			
Vulnerability					-0.51	17	0.619
	2007	10	2.35	0.71			
	2009	9	2.17	0.87			
Isolation					0.54	17	0.598
	2007	10	2.05	0.64			
	2009	9	2.22	0.75			
Anger					-1.18	17	0.256
	2007	10	2.65	0.53			
	2009	9	2.28	0.83			
Bizarre					-1.16	17	0.263
	2007	10	2.65	0.53			
	2009	9	2.33	0.66			
Global Pathology					-0.39	17	0.702
	2007	10	2.65	0.41			
	2009	9	2.56	0.63			

Changes from Pre to Post Intervention.

Due to the few pre intervention differences found between the 2007 and 2009 summer camps, year of camp attended was collapsed for pre to post intervention analyses. Paired sample t-tests were used to examine change from pre to post intervention for all continuous dependent variables. The paired t test is generally used when measurements are taken from the same subject before and after a manipulation, in this case the summer camp intervention. McNemar tests were conducted to examine changes from pre to post intervention on categorical dependent variables.

BBADC. Means and standard deviations for the BBADC subscales from pre to post intervention can be found in Table 7. The results revealed a significant change from pre to post intervention for the Machiavellianism subscale, $t\ (17) = 3.20, p < .05$, but not the Attachment/Affection, $t\ (17) = -2.03, p = .06$, Executive Functioning, $t\ (17) = .27, p = .79$, or Aggression/Anxiety, $t\ (17) = .07, p = .94$, subscales. Parents reported that children displayed less Machiavellian behaviors after the intervention ($M = 2.69, SD = .64$) than prior to the intervention ($M = 2.14, SD = .75$).

Table 7

Means and Standard Deviations for Beech Brook Attachment Disorder Checklist (n = 18; df = 17)

	Mean	SD	t	p
Attachment/ Affection			-2.03	0.058
Pre	2.55	0.39		
Post	2.74	0.36		
Executive Functioning			0.27	0.787
Pre	2.07	0.63		
Post	2.02	0.71		
Aggression/Anxiety			0.07	0.944
Pre	1.04	0.55		
Post	1.03	0.53		
Machiavellianism			3.20	0.005
Pre	2.69	0.65		
Post	2.14	0.75		

MIM. Means and standard deviations for the MIM subscales from pre to post intervention can be found in Table 8. The results did not reveal a significant change from pre to post intervention for MIM Parent scores, t (14) = .29, p = .78, Parent Relational/Emotional scores, t (14) = .08 p = .94 Child scores, t (14) = .76, p = .46, Child Relational/Emotional scores, t (14) = .50, p = .63, MIM Critical Sum, t (18) = -1.15, p = .27, and MIM Total score, t (14) = .57, p = .58.

Table 8

Means and Standard Deviations for Marschak Interaction Method – Rating System

		Mean	SD	*t*	*df*	*p*
Parent						
(*n* = 15)				0.29	14	0.777
	Pre	2.33	0.61			
	Post	2.29	0.63			
Parent Relational/Emotional						
(*n* = 15)				0.08	14	0.939
	Pre	2.29	0.49			
	Post	2.28	0.58			
Child						
(*n* = 15)				0.76	14	0.46
	Pre	2.16	0.71			
	Post	2.03	0.63			
Child Relational/Emotional						
(*n* = 15)				0.50	14	0.625
	Pre	2.30	0.60			
	Post	2.22	0.62			
Critical Item Summary						
(*n* = 19)				-1.15	18	0.265
	Pre	1.68	1.63			
	Post	2.47	2.29			
Total						
(*n* = 15)				0.57	14	0.576
	Pre	4.49	1.16			
	Post	4.32	1.08			

Family Drawings. Frequencies and percentages for changes in the child drawing him or herself the appropriate size in comparison to the mother from pre to post intervention can be found in Table 9. The results did not reveal a significant change in the likelihood of the child drawing him or herself the appropriate size in comparison to the mother from pre to post intervention, $p = .1.00$. Frequencies and percentages for changes in presence of unusual marking in drawings from pre to post intervention can be found in Table 10. The results did not reveal significant changes in the likelihood of drawings containing unusual marking from pre to post intervention, $p = .51$. Frequencies and percentages for changes in presence of mother in drawings from pre to post intervention can be found in Table 11. The results did not reveal significant changes in the likelihood of drawings containing the mother from pre to post intervention, $p = 1.00$. Frequencies and percentages for changes in presence of self in drawings from pre to post intervention can be found in Table 12. The results did not reveal significant changes in the likelihood of drawings containing the self from pre to post intervention, $p = .69$.

Table 9

Frequencies and Percentages for Changes in Family Drawing Categorical Indicators - Child Drawing Self Appropriate Size Compared to Mother

Child Appropriate Size Compared to Mother, $p = 1.00$

	Pre	Post
Yes	4 40%	3 30%
No	6 60%	7 70%

Table 10

Frequencies and Percentages for Changes in Family Drawing Categorical Indicators - Unusual Markings

Unusual Markings, $p = .508$

	Pre	Post
Yes	9 47%	6 32%
No	10 53%	13 68%

Table 11

Frequencies and Percentages for Changes in Family Drawing Categorical Indicators - Presence of Mother

Mother Present, $p = 1.00$

	Pre	Post
Yes	15 79%	16 84%
No	4 21%	3 16%

Table 12

Frequencies and Percentages for Changes in Family Drawing Categorical Indicators - Presence of Self

Child Present, $p = .687$

	Pre	Post
Yes	14 74%	16 84%
No	5 26%	3 16%

Means and standard deviations for the Family Drawing Quantitative Indicators from pre to post intervention can be found in Table 13. The results did not reveal a significant change from pre to post intervention for total Colors used, t (18) = .12, p = .91, Distance to mother, t (9) = -.89, p = .40, Number of details on self, t (11) = 1.38, p = .19, Number of clinical markers on the mother, t (14) = -.47, p = .65, and Number of clinical markers on the self, t (13) = -1.17, p = .26. However, results revealed a significant change from pre to post intervention for Number of details drawn on mother, t (14) = 2.87, $p < .05$. Children drew more details on the mother prior to the intervention (M = 4.25, SD = 2.18) than following the intervention (M = 3.58, SD = 2.27).

Table 13

Means and Standard Deviations for Family Drawing Quantitative Indicators

		n	Mean	SD	*t*	*p*
Total Colors					0.12	0.908
	Pre	19	2.16	1.74		
	Post	19	2.11	2.28		
Distance to Mother					-0.89	0.396
	Pre	10	8.16	4.41		
	Post	10	9.88	3.35		
Details on Mother					2.87	0.012
	Pre	15	4.20	2.14		
	Post	15	2.93	2.19		
Details on Self					1.38	0.194
	Pre	12	4.25	2.18		
	Post	12	3.58	2.27		
Clinical Markers on Mother					-0.47	0.647
	Pre	15	3.73	1.49		
	Post	15	3.93	1.33		
Clinical Markers on Self					-1.17	0.263
	Pre	14	3.36	1.69		
	Post	14	3.93	1.33		

Means and standard deviations for the positive Family Drawing Global Indicators from pre to post intervention can be found in Table 14. The results did not reveal any significant changes in Vitality, t (17) = .62, p = .55, Family Pride, t (18) = -.34, p = .74. Means and standard deviations for the negative Family Drawing Global Indicators from pre to post intervention can be found in Table 15. The results did not reveal any significant changes in Vulnerability, t (18) = .41, p = .69, Isolation, t (18) = .61, p = .55, Anger, t (18) = -.47, p = .64, Bizarre, t (18) = -.83, p = .42, and Global Pathology, t (18) = .25, p = .80.

Table 14

Means and Standard Deviations for Family Drawing Positive Global Indicators

		n	Mean	SD	*t*	*p*
Vitality					0.62	0.547
	Pre	18	1.33	0.54		
	Post	18	1.25	0.52		
Family Pride					-0.34	0.742
	Pre	19	1.68	0.65		
	Post	19	1.74	0.65		

Table 15

Means and Standard Deviations for Family Drawing Negative Global Indicators

		n	Mean	SD	*t*	*p*
Vulnerability					0.41	0.686
	Pre	19	2.34	0.65		
	Post	19	2.26	0.77		
Isolation					0.61	0.55
	Pre	19	2.26	0.71		
	Post	19	2.13	0.68		
Anger					-0.47	0.644
	Pre	19	2.39	0.74		
	Post	19	2.47	0.70		
Bizarre					-0.83	0.42
	Pre	19	2.42	0.61		
	Post	19	2.50	0.60		
Global Pathology					0.25	0.804
	Pre	19	2.63	0.52		
	Post	19	2.61	0.52		

Change from Baseline.

Correlations between pre intervention scores and change scores (subtracting pre intervention scores from post intervention scores) were used to identify pre intervention scores that indicate change.

As can be seen in Table 16, all pre-intervention BBADC subscales were negatively correlated with the change scores of that subscale, thought results were only significant for the positive BBADC scales. The results revealed a significant negative correlation between Attachment/Affection and the Attachment/Affection change score, r (18) = -.59, $p < .05$. The results also revealed a significant negative correlation between Executive Functioning and the Executive Functioning change score, r (18) = -.57, $p < .05$. Scatterplots show that most change scores are negative, suggesting that most children had an increase in both Executive Functioning and Attachment/Affection score from pre to post intervention. Thus, the negative correlation between pre intervention scores and change in scores indicates that children with lower Attachment/Affection and Executive Functioning before camp had greater increase in Attachment/Affection and Executive Functioning from pre to post intervention.

Table 16

Pearson Product Moment Correlations between Beech Brook Attachment Disorder Checklist Pre-Intervention Scores and Change Scores (n = 18)

	Pre-Intervention			
Change	Attachment/Affection	Executive Functioning	Aggression/Anxiety	Machiavellianism
Attachment/Affection				
r	**-0.59**	-0.23	-0.08	-0.01
p	0.011	0.366	0.749	0.973
Executive Functioning				
r	**-0.51**	**-0.57**	0.11	0.39
p	0.029	0.014	0.655	0.111
Aggression/Anxiety				
r	0.30	-0.11	-0.40	0.28
p	0.222	0.662	0.101	0.256
Machiavellianism				
r	0.36	0.01	0.10	-0.41
p	0.141	0.978	0.691	0.092

MIM. As can be seen in Table 17, all pre-intervention MIM scales were negatively correlated with the change scores of the scales. Results revealed significant negative correlations between MIM Child Score and the Child Change score, r (15) = -.59, $p < .05$. Results also revealed a significant negative correlation between the MIM Total score and the MIM change score, r (15) = -.57, $p < .05$. Further, results revealed a significant negative correlation between the MIM Critical Item summary score and the Critical Summary change score, r (19) = -.65, $p < .01$. Similarly, as can be seen in Table 18, results revealed significant negative correlations between most of the MIM Principle Scale scores Structure, r (15) = -.60, $p < .05$, Challenge, r (15) = -.65, $p < .01$, and Engagement, r (15) = -.62, $p < .05$, and their respective change scores.

Table 17

Pearson Product Moment Correlations between Marschak Interaction Method – Rating System Pre-Intervention Scores and Change Scores (n = 15)

	Pre-Intervention					
Change	Parent	Parent Emotional /Relational	Child	Child Emotional /Relational	Critical Items Summary	Total
Parent						
r	-0.41	-0.23	-0.42	-0.34	0.29	-0.47
p	0.127	0.415	0.116	0.212	0.289	0.074
Parent Emotional /Relational						
r	-0.21	-0.20	-0.29	-0.29	0.31	-0.29
p	0.445	0.473	0.29	0.3	0.267	0.294
Child						
r	-0.49	-0.36	**-0.59**	-0.46	0.47	**-0.62**
p	0.066	0.191	0.02	0.085	0.076	0.015
Child Emotional /Relational						
r	-0.28	-0.26	-0.39	-0.48	0.22	-0.38
p	0.313	0.344	0.153	0.069	0.428	0.159
Critical Items Summary						
r	0.30	0.17	0.28	-0.02	**-0.65**	0.33
p	0.241	0.523	0.276	0.95	0.003	0.198
Total						
r	-0.47	-0.31	**-0.54**	-0.42	0.41	**-0.57**
p	0.076	0.258	0.039	0.116	0.131	0.025

Table 18

Pearson Product Moment Correlations between Marschak Interaction Method-Rating System Pre-Intervention Dimension Scale Scores and Change Scores (n = 15)

	Pre-Intervention			
Change	Structure	Challenge	Engagement	Nurture
Structure				
r	**-0.60**	-0.25	-0.30	-0.37
p	0.018	0.361	0.283	0.181
Challenge				
r	-0.50	**-0.65**	-0.40	-0.34
p	0.059	0.008	0.14	0.209
Engagement				
r	-0.26	-0.26	**-0.62**	**-0.52**
p	0.359	0.359	0.014	0.045
Nurture				
r	-0.42	-0.42	-0.20	-0.41
p	0.12	0.12	0.474	0.125

Family Drawings Quantitative Indicators. As can be seen in Table 19, all pre-intervention Quantitative Indicators were negatively correlated with their change scores. The results revealed significant negative correlations between Distance to mother, r (10) = -.85, $p < .01$, Number of clinical markers drawn on the mother, r (15) = -.64, $p < .05$, and Number of clinical markers drawn on themselves, r (14) = -.72, $p < .05$.

Table 19

Pearson Product Moment Correlations between Family Drawing Pre-Intervention Quantitative Indicators and Change Scores (n=15)

		Pre-Intervention					
Change		Total Colors	Distance to Mother	Details on Mother	Details on Self	Clinical Markers on Mother	Clinical Markers on Self
Total Colors							
	r	-0.24	0.02	0.23	0.40	-0.22	-0.15
	p	0.318	0.949	0.414	0.156	0.42	0.581
	n	19	12	15	14	16	16
Distance to Mother							
	r	-0.07	**-0.85**	-0.40	-0.27	-0.40	-0.58
	p	0.857	0.002	0.249	0.444	0.256	0.078
	n	10	10	10	10	10	10
Details on Mother							
	r	0.26	-0.25	-0.37	-0.53	-0.09	0.13
	p	0.341	0.443	0.17	0.062	0.76	0.665
	n	15	12	15	13	15	14
Details on Self							
	r	-0.52	-0.41	-0.13	-0.33	-0.20	-0.11
	p	0.086	0.239	0.715	0.303	0.55	0.734
	n	12	10	11	12	11	12
Clinical Markers on Mother							
	r	0.21	-0.16	-0.43	-0.38	**-0.64**	0.02
	p	0.457	0.631	0.106	0.197	0.01	0.945
	n	15	12	15	13	15	14
Clinical Markers on Self							
	r	-0.19	0.08	**-0.58**	-0.03	0.09	**-0.72**
	p	0.509	0.828	0.046	0.93	0.764	0.004
	n	14	10	12	12	13	14

Family Drawings Global Indicators. As can be seen in Table 20, all pre-intervention Global Indicators were negatively correlated with their change scores. The results revealed significant negative correlations between Vitality, r (18) = -.67, $p < .05$, Family Pride, r (19) = -.52, $p < .05$, Vulnerability, r (19) = -.49, $p < .05$, Isolation, r (19) = -.69, $p < .01$, and Anger, r (19) = -.55, $p < .05$.

Table 20

Pearson Product Moment Correlations between Family Drawing Pre-Intervention Global Indicators and Change Scores

	Pre-Intervention						
Change	Vitality	Family Pride	Vulner-ability	Isola-tion	Anger	Bizarre	Global Pathology
Vitality (n = 18)							
r	**-0.57**	-0.39	**0.51**	0.46	**0.48**	0.27	0.30
p	0.014	0.115	0.031	0.054	0.043	0.286	0.229
Family Pride (n = 19)							
r	-0.02	**-0.52**	0.21	0.40	0.12	0.18	0.17
p	0.936	0.022	0.393	0.093	0.62	0.467	0.478
Vulnerability (n = 19)							
r	0.21	0.39	**-0.49**	-0.34	-0.35	-0.29	-0.17
p	0.396	0.103	0.035	0.161	0.14	0.235	0.499
Isolation (n = 19)							
r	0.37	**0.59**	-0.26	**-0.69**	-0.22	**-0.51**	-0.42
p	0.115	0.008	0.274	0.001	0.362	0.027	0.077
Anger (n = 19)							
r	0.28	0.26	**-0.53**	-0.26	**-0.55**	-0.11	-0.17
p	0.25	0.283	0.02	0.293	0.015	0.653	0.476
Bizarre (n = 19)							
r	0.09	0.30	-0.21	-0.26	-0.11	-0.36	-0.11
p	0.708	0.209	0.391	0.282	0.663	0.132	0.642
Global Pathology (n = 19)							
r	0.45	0.44	-0.39	-0.45	-0.42	-0.16	-0.45
p	0.051	0.06	0.097	0.055	0.072	0.517	0.053

DISCUSSION

The aims of the current study were to explore how a short-term, attachment-based intervention affected attachment-based behaviors on three measures (MIM-RS, Family Drawing, and BBADC-R) and to explore the differences between a 5-week and a 2-week intervention. Pre to post intervention scores suggest that the short-term therapeutic intervention (The Hope Connection Camp© is a predictor of positive change on all three measures. For example, on the BBADC-R children who were reported as having the lowest scores on the Attachment/Affection and Executive Functioning scales pre-intervention appeared to show the greatest amount of change post-intervention. On the MIM-RS, as scored by independent observers, the parent-child dyads who scored the lowest on the following Theraplay® Dimensions: Structure, Challenge, and Engagement seemed to show the most improvement post-intervention. Similarly, on the Family Drawings, children's self-representations, many of the scales moved in the predicted direction post-intervention. The children who drew themselves farther away from their mothers pre-intervention tended to draw themselves closer to their mothers (Proximity) post-intervention. The children who drew the most Clinical Markers on themselves and their mothers pre-intervention also displayed movement post-intervention and tended to draw fewer Clinical Markers on themselves and their mothers. On the Global Indicators scales of the Family Drawings, the children who earned the lowest scores in the positive areas of Vitality and Family Pride markers tended to show the most improvement in these areas post-intervention. Contrastingly, the children who scored the highest on the negative indicators of Vulnerability, Isolation, and Anger pre-test seemed to show the greatest decrease in these areas post-test. Where as, the primary analysis failed to reveal significant results, the

exploratory analysis did seem to reveal some movement in predicted directions post-intervention.

Marschack Interaction Method

The first research objective was to evaluate the change in the quality of the parent-child interaction between pre- and post-intervention assessments. As stated above, MIM-RS scores tended to move in the predicted direction. The results revealed non-significant t-tests from pre- to post-intervention. These results reflect some of the limitations with small samples, short-term interventions, and stable internal working models (See summary section for details).

Interestingly, mothers whose children were older at age of adoption had a significant improvement in the quality of their interactions during the MIM play tasks when compared to mothers with younger children at the age of adoption. Similarly, mothers whose children had a longer institutional stay displayed significantly more Nurture during the MIM play tasks post-intervention than mothers whose children had a shorter institutional stay.

Improving both quality of play and a mother's ability to nurture are important components for improving parent-child relationships as a whole. During the intervention, parents were educated about developmental risks (e.g. multiple caregivers, abuse, neglect) and their possible consequences (e.g., changes in neurochemistry, difficulties in self-regulation). It is possible that parents gained a deeper understanding into their child's risk factors and current level of functioning. This understanding could have lead to greater compassion for their child's past (e.g., older age of adoption, longer institutionalization) and a more sensitive, responsive, nurturing approach to difficult behaviors. This is relevant

because of the implications for subsequent interventions, both TBRI® and other attachment-based interventions, which should include the parent education component as a tool for building compassion and improving nurturing interactions.

Another result that could impact future interventions was found with mothers and the number of interventions tried prior to camp (e.g., play therapy, family therapy, occupational therapy). The mothers who had tried the greatest number of interventions displayed less nurturing behaviors during the play tasks than mothers who had tried fewer interventions. This suggests that the mothers who had tried the most interventions may also be the most doubtful about the effectiveness of an additional intervention. This hesitancy could result in less willingness or more resistance in changing current behaviors and beliefs. The implications for further research suggest that earlier interventions might be more effective and interventions for mothers who have tried many interventions may need to be longer in duration than interventions for mothers who have tried fewer interventions.

Family Drawings

The second research objective was to evaluate the change in proximity of mother and child on the Family Drawing. The results revealed non-significant t-tests from pre- to post-intervention on the Quantitative Indicators. However, the Distance to Mother, or proximity, score was negatively correlated with its change score at a significant level ($r(10) = -.85$, $p<.01$). This suggests that these children with greater distance between self and mother drew themselves closer at the post-test. Previous studies have supported the use of Family Drawings as a measure for tapping into children's representational models of attachment (Fury et al., 1997; Madigan et al., 2003). These results imply that after the intervention

children drew themselves closer to their mothers because they felt emotionally closer to them.

Similarly, the Number of Clinical Markers on Mother and Number of Clinical Markers on Self (e.g., hollow eyes, floating figures) were significantly correlated with their change scores post-intervention. These results suggest that the children's perceptions of themselves and their mothers improved. This improvement could be from the time spent during the intervention having their needs met and their voices heard. When children learn how to get their needs met in appropriate ways (e.g., using words, asking for help) and they are responded to, they develop self-efficacy and self worth (Sroufe, 2000).

Overall, research on Family Drawings suggests that the Global Indicators are the best predictors for classification of attachment (Madigan et al., 2003). In the current study, the results revealed non-significant t-tests from pre to post intervention on the Global Indicators. However, Vitality, Family Pride, Vulnerability, Isolation, and Anger all had significant negative correlations with their change scores indicating movement in the desired direction. Vitality and Family Pride both received higher scores post-intervention indicating that the children's sense of belonging, happiness in the family, and emotional investment in the drawing increased. Whereas, Vulnerability, Isolation, and Anger all received lower scores post-intervention suggesting that the children were experiencing greater amounts of appropriate control, more relational connections, and less anger.

Interestingly, the Global Indicators revealed significant gender differences on five of the seven scales (Vitality, Vulnerability, Isolation, Anger, and Global Pathology) before the intervention as shown in Table 21. Surprisingly, there were no gender differences (all *ns*)

post-intervention. Gender differences in Family Drawings have been found in one other known study (Cherney, Seiwert, Dickey, & Flichtbeil, 2006). Cherney et al. asked 109 5-13 year old children to draw their family and then the drawings were coded on 16 criteria. They found gender differences in three areas: inclusion of clothing, use of stereotyping, and proportionality. "Girls were more likely than boys to use clothing and stereotyped features in their drawings and they were more likely to draw proportionate figures (Cherney et al., 2006, pp. 135-136)." Although their findings are interesting, the scales used in Cherney et al. and in this study are not compatible.

Table 21

Means and Standard Deviations for Family Drawing Global Indicator Scales by Gender

	n	Mean	SD	*t*	*df*	*p*
Vitality				-3.25	17	0.005
Males	11	1.09	0.20			
Females	8	1.81	0.70			
Family Pride				-1.94	17	0.069
Males	11	1.45	0.52			
Females	8	2.00	0.71			
Vulnerability				4.25	17	0.001
Males	11	2.73	0.34			
Females	8	1.81	0.59			
Isolation				2.74	17	0.014
Males	11	2.59	0.54			
Females	8	1.81	0.70			
Anger				4.91	17	0.000
Males	11	2.86	0.23			
Females	8	1.75	0.71			
Bizarre				1.95	17	0.068
Males	11	2.64	0.50			
Females	8	2.13	0.64			
Global Pathology				2.61	17	0.018
Males	11	2.86	0.32			
Females	8	2.31	0.59			

Studies using the same Global Indicator scales (Fury et al., 1997) have not reported gender differences in their results (Madigan et al., 2003; Fihrer & McMahon, 2009). The current study results revealed that pre-intervention, females had significantly higher scores on Vitality and males had significantly higher scores on Vulnerability, Isolation, Anger, and

Global Pathology. Post-intervention these significant differences disappeared. Although, the females' mean score on Vitality continued to be higher than males, and the males' mean scores on Vulnerability, Isolation, Anger, and Global Pathology continued to be higher, they were no longer significant. The data revealed that females' mean scores in Vulnerability, Isolation, and Anger actually increased while males' mean scores in these areas decreased. For Vitality, females' mean scores decreased while males' mean scores increased. For Global Pathology, both female and male means decreased. For Family Pride, both female and male means increased. This finding warrants further research using a larger sample size, including a non-clinical population, to determine if gender differences are typical and the effects of attachment-based interventions on these differences.

Contrary to what would be predicted, the Number of details drawn on the mother was significantly higher pre-intervention than post-intervention. Children tended to draw more details on their mother before camp (e.g., eyes, hand, ears). This finding should be researched further using a larger sample to see if this trend is typical in non-clinical populations and clinical populations, specifically children who have been adopted.

Beech Brook Attachment Disorder Checklist – Revised

The third research objective was to evaluate the change in positive attachment behaviors on the BBADC-R. The results revealed non-significant t-tests from pre- to post-intervention on the Executive Functioning, Attachment/Affection, and Aggression/Anxiety subscales. However, Machiavellianism behaviors significantly decreased post-intervention. The behaviors included in this subscale include items such as: no matter what the caretaker does for the child it is never enough, the child can turn on the charm for strangers, the child

makes eye contact when he/she is lying, and the child tries to be the boss even when it may get him/her in trouble. These negative strategies tend to be used when a child does not know another way to get their needs met or does not have felt safety.

During the intervention, the environment is set-up to encourage children to have a sense of felt safety. When children know their needs are going to be met (e.g., food, rest, play, affection) they can begin to feel safe. The intervention environment is predictable, also. This predictability allows children to know the schedule for the day in advance and to anticipate what will happen next. The children can begin to relax in the comfort of knowing what to expect. Even transitions from one activity to another are predictable. Children are given 5-, 3-, and 1-minute warnings before beginning something new. Children are taught and given many opportunities to practice getting their needs met by using positive strategies such as using their words to ask for what they need and listening to their bodies. Every effort is made to meet the child's need when they make a request in an appropriate manner. This increases the likelihood of the child replicating these positive strategies in other environments and situations. When the child feels safe, knows their needs are going to be met, and feels like their voice is heard, this replaces the need for the Machiavellianism-like behaviors.

Although not statistically significant on t-test measures, the Executive Functioning and Attachment/Affection subscales did have significant negative correlations with their change scores. These subscales changed in the predicted direction. According to Gunnar (2001), these are two areas of common developmental difficulty with post-institutionalized children. These are commonly found in the areas of generalizing, reasoning, attention, regulation, social interaction, and affection. During the intervention, children are taught

strategies for self-regulation (e.g. deep breathing, pressure points, chair sit-ups) and scenarios are set-up that allow them the opportunity to practice using these skills in real situations.

Many of these scenarios also provide opportunities for practicing other skills, as well. For example, toward the end of the camp, after many opportunities for practicing self-regulation in less stimulating environments, water squirt guns are brought out. The children typically become very excited. After the children make eye contact with the facilitator and ask for the color they want, they are given a squirt gun. Next, they are told the rules of the water play; you must ask a person for permission before you squirt them and you may not squirt anyone in the face. Finally, the children go outside and play. As you can imagine, the level of excitement is high. The facilitators typically observe high amounts of energy and high rates of compliance with the rules. The children are practicing self-regulation (e.g., running and then stopping to ask if they can squirt someone, not squirting anyone in the head), interacting with peers and adults (e.g., making eye contact when asking for the color of squirt gun they would like and asking for permission before they squirt someone), accepting no (e.g., instances when a person says "no" in response to being asked permission to squirt them), and connecting with peers and adults through playful interactions. It is during activities such as this, where children are able to practice and improve on their Executive Functioning and Attachment/Affection skills.

5-Week / 2-Week Intervention

Contrary to what was predicted, there were few statistical differences between the two-week and the five-week interventions. The results did reveal significant differences on

the Family Drawings Quantitative Indicators. The five-week intervention had higher rates of Unusual Markings, Number of clinical markers on the mother, and Number of clinical markers on the self. As described in the Methods section, the 2-week intervention had a higher functioning population due to revised screening procedures. These findings might be expected due to the differences in populations.

Interestingly, after the 5-week intervention 100% of all children included their mothers in their Family Drawings as compared to 66.7% of children in the 2-week intervention. It seems that the children who attended camp for the longer period of time tended to have a greater understanding of who was a member of their family. During the intervention, assisting children in defining their family members and recognizing the uniqueness of their family is taught through therapeutic games, books, and art activities. It seems reasonable that the 5-week intervention would have a greater impact on children's definition of their family.

Summary

Overall, the results revealed consistent movement in the desired direction on three measures, MIM-RS, BBADC-R, and Family Drawings. The MIM-RS is an independently scored measure, the BBADC-R is a parent report measure, and the Family Drawings are a self-report measure. Based on the evidence from this study and in concordance with previous research, the intervention seems to have demonstrated some efficacy for children with relational and behavioral problems (Purvis, Cross, & Pennings, 2009; Purvis & Cross, 2007; Purvis, 2004).

Although encouraged by the described trends, the current study has several limitations. These include a small sample size, a short-term duration, and the intervention's attempt to affect parent's state of mind regarding attachment in a short period of time. This intervention has demonstrated efficacy in small groups such as the current study, but currently there is not empirical data for a large population of children. At the present time, research is being conducted on implementing TBRI® within larger organizations.

Another limitation is the brief period in which the intervention was implemented (2-weeks or 5-weeks) and the need for long-term follow-up. Other attachment-based interventions described in the introduction, such as Circle of Security (20 weeks) and Attachment Bio-behavioral Catch-up (10 weeks), have a longer duration with empirical evidence of long-term follow-up. As mentioned above, TBRI® is currently being implemented within large organizations with plans for long-term implementation and follow-up.

Furthermore, interventions focused on improving parent-child relationships can take a considerable amount of time. The parent-child relationship is shaped by the parent's state of mind regarding attachment. This state of mind tends to be relatively stable over time (Aikins, Howes, & Hamilton, 2009; Scharfe, & Cole, 2006). Seemingly then, effective interventions would foster a shift in parent's state of mind regarding attachment and as a result, provide the most effective long-term effects.

Overall, this study has provided information about important and significant benefits that TBRI® produces in both a 2- and 5-week camp setting. Children's scores were affected in important ways on the MIM-RS, Family Drawings, and BBADC-R assessments,

indicating improved psychological and behavioral changes. In addition to highlighting these benefits, this study also provides insight as to ways TBRI® may be utilized to produce even greater results, such as lengthening the time of the intervention. There is a critical need for interventions to aid foster and adoptive families as well as institutions (e.g., group homes) that struggle with children who carry the socio-emotional wounds of neglect, abuse, and other forms of maltreatment. This study adds to the growing evidence base for TBRI®'s effectiveness in producing positive change not only for children that come from hard places, but also for the parents, families, and organizations that care for them.

APPENDIX A

MARSCHAK INTERACTION METHOD
LISTS OF TASKS

Mother

Adult and child put hats on each other.

Adult and child each take paper and pencil. Adult draws quick picture, encourages child to copy.

Adult and child take off each other's shoe and sock and tickle each other's foot.

Adult and child play "peek-a-boo."

Adult asks child to feed the baby doll, wipe her nose, and rock it.

Adult and child feed each other (raisins, candy, fruit, etc.)

Father

Adult and child each take one stuffed animal. Make the two animals play together.

Adult ask child to "draw a circle," "draw a square," "draw a face," then "draw something you like."

Adult and child play "patty cake."

Adult and child each take one bottle of lotion. Apply lotion to each other.

Adult builds a block structure. Then says to child, "Build one just like it you're your blocks." (2 sets of same 5 blocks)

Adult and child feed each other (raisins, candy, fruit, etc.)

APPENDIX B

Marschak Interaction Method – Rating System

MARSCHAK INTERACTION METHOD RATING SYSTEM

Adult 1: Relationship to Children: Adult 2: Relationship to Children:

Child 1: (Birthdate:) Child 2: (Birthdate:) Child 3: (Birthdate:)

Administrator Location Date:

*NOTES: 1. Every behavioral item assumes the parent's or child's behavior is **appropriate**. When that is not the case the rating should be reduced accordingly.
2. Rate the following 29 items across all tasks **except** for the Separation-Reunion task.

STRUCTURE	Clearly Dysfunctional	Problematic	Good	Optimal	NOTES
1. Parent provides clear structure, directions and limits throughout the MIM	0	2	3	4	
2. Child clearly signals communicates response to all structuring, directions and limits	0	1	3	4	
3. Parent modifies structure, directions and limits as needed in response to child's cues	0	2	3	4	NA
4. Child accepts structure, direction and limits	0	2	3	4	NA
	Neg			Positive	
5. When processing structure the parent's affect was	0	2	3	4	NA
6. In response to the parent's structuring the child's affect was	0	2	3	4	NA

CHALLENGE	Clearly Dysfunctional	Problematic	Good	Optimal	NOTES
7. Parent mutually selects, or helps child to select, ways of accomplishing the tasks that are developmentally appropriate	0	2	3	4	
8. Child clearly signals communicates response to tasks and or asks to help when needed	0	2	3	4	
9. Parent provides help and or modifies task as needed in response to child's cues	0	2	3	4	NA
10. Child completes the task (as modified)	0	2	3	4	
	Neg			Positive	
11. When challenged the child the parent's affect was	0	2	3	4	NA
12. In response to the parent's challenging the child's affect was	0	2	3	4	NA

ENGAGE	Clearly Dysfunctional	Problematic	Good	Optimal	NOTES
13. Parent initiates verbal and physical interactions in a developmentally appropriate manner.	0	1	2	3	4	
14. Child clearly signals communicates response to parent's attempts to interact.	0	1	2	3	4	
15. Parent modifies attempts to interact as needed in response to child's cues.	0	1	2	3	4	NA
16. Child maintains optimal level of arousal and or engagement.	0	1	2	3	4	
17. Child initiates verbal, nonverbal and physical interaction.	0	1	2	3	4	
18. Parent responds to child's initiating by interacting with child.	0	1	2	3	4	NA
	Neg				Positive	
19. When engaging the child the parent's affect was	0	1	2	3	4	NA
20. In response to the parent's engaging the child's affect was	0	1	2	3	4	NA
	Clearly Dysfunctional	Problematic	Good	Optimal	
21. Parent and child have fun together.	0	1	2	3	4	

NURTURE	Clearly Dysfunctional	Problematic	Good	Optimal	NOTES
22. Parent provides developmentally appropriate level of nurturing, affection, reinforcement, and or soothing calming	0	1	2	3	4	
23. Child clearly signals communicates response to parent's attempts to nurture and or be affectionate.	0	1	2	3	4	NA
24. Parent modifies attempts to nurture and or be affectionate as needed in response to child's cues.	0	1	2	3	4	NA
25. Child responds positively to nurturance and or affection.	0	1	2	3	4	NA
26. When child seeks nurturance and or affection parent responds appropriately	0	1	2	3	4	
27. When child is affectionate towards the parent, the parent responds appropriately	0	1	2	3	4	
	Neg				Positive	
28. When nurturing the child the parent's affect was	0	1	2	3	4	NA
29. In response to nurturing by the parent the child's affect was	0	1	2	3	4	NA

Rate the following 11 items for the Separation-Reunion task only.

SEPARATION-REUNION	Clearly Dysfunctional	Problematic	Good	Optimal	**NOTES**
1. Parent provides sufficient structure to prepare child for the separation	0	1	2	3	4
2. Child clearly signals communicates response to impending separation	0	1	2	3	4 NA
3. Parent modifies task in response to child's cues reactions to impending separation so as to make it appropriately challenging	0	1	2	3	4 NA
4. Child manages during the separation	0	1	2	3	4
5. Parent seeks to reengage with child upon reunion	0	1	2	3	4
6. Parent nurtures child upon reunion	0	1	2	3	4
7. Child responds appropriately to reunion	0	1	2	3	4
	Neg.				Positive
8. Prior to leaving the room the parent's affect was	0	1	2	3	4
9. Prior to the parent's leaving the room the child's affect was	0	1	2	3	4 NA
10. Upon reentering the room the parent's affect was	0	1	2	3	4 NA
11. Upon the parent's re-entry the child's affect was	0	1	2	3	4 NA

*Rate the following 10 items across **ALL** tasks administered including the Separation-Reunion Task.*

SUMMARY RATINGS	Clearly Dysfunctional	Problematic	Good	Optimal	**NOTES**
1. The parent's use of structure was	0	1	2	3	4
2. The parent's use of challenge was	0	1	2	3	4
3. The parent's engagement was	0	1	2	3	4
4. The parent's nurturing was	0	1	2	3	4
5. The parent's facilitation of regulatory processes was	0	1	2	3	4
6. The child's demonstrated communication abilities were	0	1	2	3	4
7. The child's demonstrated exploratory behaviors were	0	1	2	3	4
8. The child's demonstrated reciprocity with the parent was	0	1	2	3	4
9. The child's demonstrated regulatory capacities were	0	1	2	3	4

*Rate the following 20 items across **ALL** tasks administered.*

CRITICAL ITEMS	Not a Problem	Possible Problem	Serious Problem	NOTES
1. Parent is physically aggressive toward the child	0	1	2	
2. Parent is verbally abusive toward the child	0	1	2	
3. Parent behaves in a sexualized manner toward the child	0	1	2	
4. Parent fails to set basic safety limits.	0	1	2	
5. Parent interacts with the child as a peer	0	1	2	
6. Parent cues child in parental role.	0	1	2	
7. Parent requests an inappropriate amount of nurturance from child and or child provides parent with an inappropriate amount of nurturance.	0	1	2	
8. Parent fails to recognize and or does not acknowledge child's feelings.	0	1	2	
9. Parent misinterprets child's feelings and or behavior (e.g. projects their feelings onto child).	0	1	2	
10. Parent stays with own agenda needs, overriding the child's needs, (e.g. parent gets too competitive.)	0	1	2	
11. Parent fails to or is unable to respond to child in ways that de-escalate the child's distress and or parent's response to child's distress escalates child's behavior or discomfort.	0	1	2	
12. Parent makes fun of or teases the child in ways that are not in best interest of child's emotional experience.	0	1	2	
13. Child is physically aggressive toward the parent	0	1	2	
14. Child is verbally aggressive hostile controlling toward the parent	0	1	2	
15. Child behaves in a sexualized manner toward the parent	0	1	2	
16. Child has fun at the expense of the parent.	0	1	2	
17. Child displays fear startle response to parent.	0	1	2	
18. Child displays excessive anxiety or hypervigilance.	0	1	2	
19. Child's behavior suggestive of problems with regulation of sensory processes (clumsy, poor motor planning, distractible, reactive to sounds, light, touch)	0	1	2	
20. Child's behavior is grossly atypical (e.g. minimal interest in the environment) suggestive of pervasive developmental impairment or neurological deficits	0	1	2	

MMI Rating Scale 5

CLINICAL OBSERVATIONS

TASKS ASSIGNED	**Was task completed?**	**If modified, how so?**
1.	Yes . . Partially Modified . . No	
2.	Yes . . Partially Modified . . No	
3.	Yes . . Partially Modified . . No	
4.	Yes . . Partially Modified . . No	
5.	Yes . . Partially Modified . . No	
6.	Yes . . Partially Modified . . No	
7.	Yes . . Partially Modified . . No	
8.	Yes . . Partially Modified . . No	
9.	Yes . . Partially Modified . . No	
10.	Yes . . Partially Modified . . No	

TOTAL TIME TO COMPLETE: . . . . . .

APPENDIX C

Beech Brook Attachment Disorder Checklist – Revised

Never	Rarely	Occasionally	Frequently	Very Frequently
A	B	C	D	E

1) The child expresses affection, concern, or closeness to a family member or caretaker.
2) The child initiates positive interactions.
3) The child holds back and/or seems awkward when hugging (e.g., uses one arm or holds body stiff).
4) The child naturally sits close to a caretaker or a family member, or shows signs of affection.
5) No matter what the caretaker does for the child it is never enough.
6) The child asks for or accepts help or comfort from caretaker when ill, injured, frightened, or upset.
7) The child is fearful in new or strange situations.
8) The child is usually worried when separated from the caretaker.
9) The child likes to be cuddled or hugged by caretaker or family members.
10) The child engages in persistent, meaningless chatter, or asks many nonsense questions, especially when the person he/she is talking to is busy.
11) The child tries to be the boss even when it may get him/her in trouble.
12) The child steals from home or from household members.
13) The child openly destroys property of other household members.
14) The child is cruel to animals.
15) The child hurts him or herself.

Never	Rarely	Occasionally	Frequently	Very Frequently
A	B	C	D	E

16) The child seriously hurts or kills animals.
17) The child destroys his/her things.
18) The child increases aggravating behavior until it is dangerous or cannot be ignored.
19) The child destroys property of other household members secretly when no one is looking.
20) The child is able to put himself/herself in someone else's shoes (see from another person's point of view).
21) The child gets excessively angry or has temper tantrums over seemingly small things.
22) The child seems to know what is right and wrong.
23) The child gets very upset when he/she cannot do things his/her own way.
24) The child distances him/herself from others in relationships where closeness is expected.
25) The child realizes that negative behaviors generally bring about unpleasant consequences.
26) The child seems to know exactly the negative behaviors the caretaker cannot stand ("button pushing").
27) Intense emotional or physical reactions are generated between caretaker and child during negative interactions (e.g., yelling or spanking).
28) How often do well-laid plans about how to handle chronic problems go out of the window?
29) The child blames the caretaker for a negative interaction rather than taking responsibility for his/her behavior.
30) The child fears things (new situations, bugs, parties) to the point that it is irrational.
31) The child seems to think that the world revolves around him/her (self centered).
32) The child is able to respect others opinions even when he/she does not agree.

33) When a caregiver does not give the child his/her way the child seeks out someone else who will (the other caregiver, another adult).

34) The child must always be the center of attention.

35) The child is able to understand and regulate his/her emotions.

Bold Questions indicate questions not used in data analysis.

APPENDIX D

Family Drawing Global Indicators

Vitality/Creativity	Emotional investment as seen in embellishment, detail, creativity
Family Pride/ Happiness	Sense of belonging/ happiness w/in family
Vulnerability	Uncertainty reflected in size distortions, placement of figures on page, and exaggeration of body parts
Emotional Distance/Isolation	Loneliness as seen in disguised expressions of anger, neutral/negative affect, distance between mother and child
Tension/Anger	Figures appear constricted, closed, w/out color or detail, careless in appearance, or scribbled/crossed out
Role Reversal	Inferred from relations of size or roles of figures
Bizarreness/ Dissociation	Disorganization, unusual signs, symbols, fantasy themes
Global Pathology	Negativity reflected in global organization, completeness of figures, use of color, detail, affect, and background scene

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ABSTRACT

EFFECTS OF AN ATTACHMENT-BASED INTERVENTION ON PARENT-CHILD RELATIONAL MEASURES

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The current study explored how children's post-adoption attachment related behaviors might be improved through a therapeutic day camp. Children who have been adopted, domestically or internationally, often times have developmental difficulties due to abuse, neglect, and/or trauma. Frequently, these children experience difficulty with attachment related behaviors. In the current study, these behaviors were assessed in a variety of methods including observing and rating the parent-child relationship (Marschack Interaction Method-Rating Scale; MIM-RS), child report measures (Family Drawings), and parent report measures (Beech Brook Attachment Disorder Checklist – Revised; BBADC-R). The authors compared these measures before and after 5-week and 2-week therapeutic day camps (The Hope Connection Camp©). During the camp, Trust-Based Relational Intervention® (TBRI®) was implemented. Post-intervention scores on the BBADC-R indicated a significant change on the Machiavellianism subscale. In addition, movement in the desired direction on the MIM-RS and Family Drawings, suggest improved parent-child relationships in general.