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Chapters, Unpublished reports, Thesis

1. *Liggett-Creel, K. (2015). Parenting and Children's Mental and Behavioral Health.* Unpublished manuscript.
2. Connors, K. M., Lertora, J. & Liggett-Creel, K. (2011). Group work with children impacted by sexual abuse. In G. L. Greif & P. H. Eprhoss (eds.). *Group Work with Populations at Risk, 3<sup>rd</sup> edition.* New York: Oxford University Press.
3. Liggett-Creel, K. (2000). The collaboration realities of the urban African-American Protestant church with social workers in the fight against youth violence: A project based upon an independent investigation. Master's thesis- *Smith College School for Social Work.*

ABSTRACT

Title of dissertation: THE PARENT UNIVERSITY PROGRAM:  
FACTORS PREDICTING CHANGE IN  
RESPONSIVE PARENTING BEHAVIORS

Kyla Liggett-Creel, Doctoral Candidate, 2016

Dissertation directed by: Richard Barth, PhD, MSW and Lisa Berlin, PhD  
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There are few evidence-based parenting programs for children under the age of three and even fewer have been rigorously evaluated in comparison to parenting programs for older children (Barth & Liggett-Creel, 2014). Parenting programs such as Child-Parent Psychotherapy, Circle of Security, Promoting First Relationships, Chicago Parent Program, and Attachment and Biobehavioral Catch-up have shown positive outcomes. Common components are beginning to be identified in successful parenting programs for families with children ages birth to three years old. The Parent University Program (PUP) integrates common components of five evidence-based interventions for children birth through three years old. Parent-child dyads ( $N=86$ ) participated in the parenting program with the goal of increasing responsive parenting skills. This study aims to assess the changes that may occur in responsive parenting behaviors that promote social emotional growth, cognitive growth, sensitivity to cues, and responding to the distress of their child. Results will add to parenting program research on the use of common components, real world implementation and evaluation, and the use of peers as facilitators.

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Participants of the PUP showed a significant increase in responsive parenting behaviors. Participants who completed pre-test, post-test, and follow-up assessments showed a significant change from clinical to non-clinical status after attending the PUP. Neither the type of facilitator nor the number of hours attended showed an association with changing parenting behaviors. The age of the child was associated with the change in responsive parenting. Older children had higher scores at pre-test and showed less change over time. The results of this research suggest that further evaluation is warranted with more rigorous study design including a randomized clinical trial.

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The Parent University Program: Factors Predicting Change in Responsive Parenting  
Behaviors

By

Kyla Liggett-Creel, MSW

Dissertation submitted to the Faculty of the Graduate School of the  
University of Maryland, Baltimore in partial fulfillment  
of the requirements for the degree of  
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Dedication

To the families of Promise Heights

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## **Chapter I: Introduction**

Parenting programs are among the most common interventions used to address parent-child relationships, disruptive behavior, child mental health issues, and child development (Gross et al., 2009). Over 800,000 parents receiving child welfare services attend parenting programs each year in the United States (Barth et al., 2006). Parenting programs have been used for prevention, intervention, and treatment.

Parenting provides the foundations of a child's overall welfare and influences outcomes such as health, educational success, and emotional well-being (Bronfenbrenner, 1979; Day, Michelson, Thomson, Penney & Draper, 2012; Hoghughi, 1998; Olds, Safler & Kitzman, 2007). According to Johnson, et al. (2008), effective parenting includes at least two characteristics: a positive interaction style and a demonstration of warmth and affection between the parent and child to help strengthen the bond between them (Johnson et al., 2008). Children develop attachment to their parents based on the parent's responsiveness to their needs (attachment theory will be discussed in Chapter 2). The purpose of this study is both to evaluate a parenting program developed in a low-income community using common components of evidence-based parenting programs and to investigate what aspects of the program were associated with those outcomes. This study adds to the current research on parenting programs by examining (a) the use of common components in the development and implementation of community-based parenting programs; (b) the use of peers as facilitators; and (c) the evaluation of parenting programs in real-world settings.

The goals of parenting programs vary. Parenting programs focused on school readiness may have goals such as (a) to increase developmentally appropriate behaviors; (b) to promote positive parenting practices; and (c) to offer resource linkages to parents (e.g.,

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developmental services). Programs that focus on the health and wellbeing of the child may set goals such as (a) improving the child's body mass index; (b) decreasing episodes of asthma; and (c) improving the diet and nutrition of the child. Programs serving families who have contact with child welfare agencies have goals such as (a) improving parenting skills; (b) improving children's developmental outcomes; and (c) reducing the risk of child abuse and neglect (Johnson et al., 2008). The goal of the Parent University Program (PUP) is to increase responsive parenting skills. The PUP was developed using common components from five evidence-based programs: (a) Attachment and Biobehavioral Catch-up (ABC), (b) Child-Parent Psychotherapy (CPP), (c) Chicago Parent Program (Chicago PP), (d) Promoting First Relationships (PFR), and (e) Circle of Security (COS).

### **Theory**

The parenting theories that informed the development of the PUP were social learning theory, attachment theory, and developmental ecological theory. The program model used was informed by attachment theory (Ainsworth & Bowlby, 1991) that addresses responsive parenting skills such as attunement and nurturance. A peer leader component of the program, as well as the strategies of coaching and modeling used during the PUP sessions, were informed by social learning theory (Bandura, 1969). The implementation strategy was based on developmental ecological theory (Bronfenbrenner, 1979). Theory will be further discussed in Chapter 2.

### **Common Components**

Common components refer to “frequently seen components in promising and effective parenting programs” (Barth & Liggett-Creel, 2014, p. 7). The common components method is used to address the challenges of implementing evidence-based parenting

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programs such as financial constraints, extensive training requirements, and transitional staffing (Barth & Liggett-Creel, 2014).

Chapter 2 discusses the two studies that evaluated common components of parenting programs for children from birth to 7 years of age. Although the PUP is for children from birth through 3 years of age, the majority of the models used as a foundation for the development of the program deal with children up to age 5. Therefore, the studies of parenting programs for children up to 7 years of age offered guidance as to common components used with this population.

A meta-analysis of parenting programs for parents with children birth to 7 years of age was conducted by Kaminsky, Valle, Filene, and Boyle (2008). Kaminsky et al. (2008) identified program components of effective parent training such as positive parent-child interactions, teaching disciplinary strategies, and creating opportunities for parents to practice new skills during the parenting program session. The PUP focuses on supporting parent-child interactions and allows parents to practice new skills during the program. Teaching discipline was not a focus of the PUP. The majority of the children were very young—under 2 years old—and thus the goal was to increase attunement and responsive parenting strategies rather than correcting the child's behavior.

A review of common components of parenting programs evaluated by the California Evidence-Based Clearinghouse for Child Welfare (CEBC-CW) for parents with children under the age of 7 was conducted by Barth and Liggett-Creel (2014). The purpose of the CEBC-CW is to identify, assess, and disseminate information regarding evidence-based interventions related to child welfare. Common characteristics of effective evidence-based parenting programs identified were that providers were required to have a minimum of a high

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school diploma; the duration of programs ranged from 5 to 20 weeks; services were offered both in the home and in the clinic; and that feedback was provided during parenting sessions. The first primary research question in this study was to evaluate the PUP that is based on common components of the five evidence-based interventions identified above.

### **Peer Leaders**

A shared characteristic of the evidence-based programs reviewed by Kaminski and colleagues (2008) and Barth and Liggett-Creel (2014) was the use of professional group leaders with at least a bachelor's degree. None of the programs reported using peer leaders. However, the use of peer leaders is gaining popularity in parenting programs (Cavaleri, Olin, Kim, Hoagwood, & Burns, 2011). The potential benefits of using peer leaders are (a) increased engagement of hard to reach populations, (b) increased access to services with decreased cost to participants and program providers, and (c) empowerment of the peer leaders themselves (Day, Michelson, Thomson, Penney, & Draper, 2012). The PUP did not have peer leaders in the first two cohorts. Beginning in cohort 3 it became apparent that the use of peer leaders was beneficial to the parents as well as the program as a whole. The reasons for using peer leaders will be discussed further in Chapter 3. The use of peer leaders to facilitate the PUP sessions led to the development of the second primary research question which aims to define the relationship between type of facilitator and change in responsive parenting behaviors. The role of peer leaders will be discussed further in Chapter 3.

### **Harlem Children's Zone**

The PUP was developed within a federally funded Promise Neighborhood and fashioned after the Baby College, which is the early intervention program in the Harlem Children's Zone (HCZ). The HCZ provides comprehensive services to children and families

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from prenatal care through graduation from high school (Harlem Children's Zone, 2002). Services include education, nutrition, mental health, and financial support. The Baby College is one of the first programs in the pipeline of services in the HCZ. Baby College offers parenting programs to expectant parents through the first three years of the child's life. The PUP was developed to serve parents with children birth through 3, but, in keeping with attachment theory, the PUP focused on building responsive parenting behaviors rather than meeting concrete needs such as immunizations.

### **Research Questions**

The goal of this study was to evaluate the change in responsive parenting behaviors of participants in the PUP. One of the aims of this study is to add to the literature on the use of common components in parenting programs, the use of peers as facilitators, and the evaluation of community-based parenting programs in a real-world setting. I assessed for change in responsive parenting behaviors for participants of the PUP and explored factors that predicted change. The PUP was facilitated by social workers for the first three cohorts and by peers in cohorts 4 and 5. Due to the change in type of facilitator, I decided it was important to test whether the type of facilitator had any association with change in responsive parenting behaviors. Prior to examining the change in responsive parenting behaviors it was important to test for any association between parenting behaviors and parental age, education, and child's age. Significant associations informed what covariates and independent variables needed to be added to the primary analysis. Attendance in a program can be associated with change in outcome over time. The amount of effective intervention that a participant receives should be associated with more change in the outcome of interest. To test if this association is present with participation in PUP, the number of hours attended

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was added to the primary analysis. Therefore, the study answered five research questions, two preliminary and three primary. The preliminary analysis answered the following two research questions: (a) is there an association between the parent's age and education with responsive parenting behaviors and (b) is there an association between the child's age and responsive parenting behaviors. The purpose of these preliminary questions was to inform what variables needed to be included as covariates and independent variables in the primary analysis. Primary analysis answered the following three questions (a) does responsive parenting improve over time among caregivers who attended PUP; (b) is the type of facilitator a significant factor in the change in responsive parenting behaviors over time; and (c) are the number of hours of the PUP attended a significant factor in the change in responsive parenting behaviors over time.

The next chapter reviews the literature on the five evidence-based parenting programs used as a foundation for the PUP, peer-led parenting programs, and the HCZ community development initiative. Chapter 3 describes the development and implementation of the PUP within the Promise Heights Neighborhood in West Baltimore, as well as the research design, methods of data collection, measures, and data analysis plan. Chapter 4 presents the results of the analysis. Chapter 5 discusses the results, study limitations and strengths, as well as the implications for future research and practice.

## **Chapter II: Literature Review**

The development of the PUP was informed by (a) theory, (b) five evidence-based parenting programs for children birth to 5, (c) peer-led parenting programs, and (d) the HCZ initiative. As the PUP was developed and classes implemented, components of five evidence-based programs became part of the PUP model. The programs were chosen because they had components that fit the goals of the PUP and had positive outcomes in research done with methodological rigor. The literature reviewed below summarizes the theories and program evaluations relevant to PUP development.

### **Theory**

The program design of the PUP was based on developmental ecological theory. The goal of PUP is to increase responsive parenting skills in parents and attachment theory provided the foundation for that goal. Finally, social learning theory was the source for the innovative use of peer leaders in the PUP.

**Developmental Ecological Theory.** Developmental ecological theory was the foundational theory used for the development of the PUP. Urie Bronfenbrenner (1979) presented four contexts for human development. The first context, microsystem, was that a child must have an ongoing relationship with a primary caregiver who “possesses knowledge and skill not yet acquired by the child and with whom the child has developed a positive emotional relationship” (Bronfenbrenner, 1979, p. 845). The second context, mesosystem, was that the child be given the opportunity to explore and learn outside of the primary dyadic relationship. The third context, exosystem, emphasized the importance of social influences on the family, such as social support, which can either promote or discourage the child’s

growth and learning. The fourth context, macrosystem, was the connection between systems and the family that influenced opportunities for the child to grow and develop.

The PUP incorporated all four contexts of the developmental ecological theory. Children's relationship with the primary caregiver was supported through dyadic interaction (microsystem), children were allowed opportunities to explore outside of the dyadic relationship with child care providers (mesosystem), caregivers and children were given time to interact with others to build social support (exosystem), and service providers were invited in to the program (macrosystem). More information regarding components of the PUP are presented in Chapter 3.

**Attachment theory.** The foundational tenet of attachment theory is that the child seeks the primary caregiver for comfort and support that then enables exploration and supports socioemotional development (Bowlby, 1969; Zeanah, Berlin, & Boris, 2011). The child-parent attachment is formed during the first year of life. Attachment "security" is facilitated through interactions with an adult who is attuned to the needs of the child and consistently provides both comfort and support for exploration. Attunement is the "awareness of, sensitivity to, and responsiveness to the child's needs" (Rouhani, et al., 2015).

As will be discussed in Chapter 3, the PUP incorporated attachment theory into the model by encouraging the primary caregiver to be attuned and available to the child. Parents were encouraged to follow the child's lead during the PUP, which in turn built the parent's attunement to the child. Parents were also encouraged to offer comfort to their child when needed, which again met one of the principles of attachment theory, that children increase proximity to their parent during times of distress.

**Social Learning Theory.** The core principle of social learning theory was that learning occurs within a social context and through identification with a role model (Bandura, 1969). The process of identification was measured through the similarity of behaviors between the participant and the identified role model on applicable assessments (Bandura, 1969). The ability to identify with the role models was based on the characteristics of the role model and the benefits or costs of assuming new behaviors (Turner & Sheperd, 1999). Social learning theory posited that people learned parenting skills from their parents. Parents served as role models. If parental behaviors were negative, abusive, or neglectful then the use of a role model with positive parenting behaviors could reduce the risk of continued negativity and maltreatment. Parenting was a learned behavior that could be modified through parent education, which included peer educators who could model alternatives to negative parenting methods (Bavolek, 1989; Maher, Marcynyszyn, Corwin, & Hodnett, 2011).

As will be discussed in Chapter 3, the use of peer leaders in the PUP was based on the assumptions of social learning theory that parenting skills could be learned through role models. Peer leaders were established as the role models with the theory that parents would identify better with the peer leaders than with the social workers. The other benefit to having peer leaders from the community was the increased access to parents by the PUP leaders since they saw them regularly in natural settings such as the grocery store and bus stops. Modeling, coaching, and positive support were all strategies based on social learning theory and utilized in the implementation of the PUP through the role of the facilitators interaction with the parents.

### **Evidence-based Parenting Programs**

This literature review included only programs that were evaluated by the California Evidence Based Clearinghouse for Child Welfare (CEBC-CW) and the National Registry of Evidence-based Programs and Practices (NREPP) for methodological rigor. The CEBC-CW and the NREPP are two online databases used to evaluate evidence-based practices that will be elaborated upon later.

The CEBC-CW was created to identify and evaluate research supporting evidence-based programs related to child welfare. Guidelines for evaluating research can be found on the CEBC-CW website (<http://www.cebc4cw.org/ratings/scientific-rating-scale/>). The CEBC-CW then disseminates information regarding the evidence supporting the interventions. One type of intervention evaluated by the CEBC-CW is parenting programs. The CEBC-CW evaluated programs with the following criteria: (a) was there harm to participants, (b) had a manual been created for the model, (c) had the intervention been replicated at multiple sites, (d) had there been at least one randomized control trial with one-year follow-up showing that positive outcomes were maintained, (e) had the program been evaluated with at least one valid and reliable measure, and (f) had multiple outcome studies been published in peer reviewed journals. Models were scored based on the criteria listed above. A score of “1-Well Supported by Research Evidence” indicated that the model developers had conducted two randomized control trials, positive effect lasted for at least one year, and the results were published in a peer-reviewed journal. A rating of “2-Supported by Research Evidence” indicated that the model developers had conducted one randomized control trial and positive effects lasted at least six months. Models receiving a rating of “3-Promising Research Evidence” had at least one study completed using a control group and

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the participants benefited from the intervention. All of the models that informed the PUP development were rated at least as a 3-promising research evidence, which means at a minimum they (a) had no evidence of harm to participants, (b) were manualized, (c) had a study that included at least a control group, (d) used valid and reliable measures, and (e) multiple evaluation studies had been conducted.

NREPP evaluators assessed the rigor of research for evidence-based programs. The Substance Abuse and Mental Health Services Administration (SAMHSA) supported the database with the goal of providing information to the public on evidence-based interventions. Model developers submitted general information about interventions, a description of research outcomes, populations served, and access to published studies. NREPP evaluators rated the quality of research based on several criteria: (a) used valid and reliable measures to evaluate the program, (b) monitored fidelity to the model, (c) managed missing data and attrition, (d) accounted for confounding variables, and, if appropriate, (e) data analysis was used to evaluate the program (National Registry of Evidence-based Programs and Practices, 2014). One goal of NREPP was to decrease the amount of time between research and implementation by making intervention information more readily available to the public. The Chicago PP was the only model rated by NREPP evaluators that was used to inform the development of the PUP. The HCZ Baby College was not evaluated by either NREPP or CEBC-CW, but was recognized as a model community-based intervention by President Obama and has been nationally replicated.

The discussion of parenting programs below is not meant to be exhaustive, but rather an overview of the programs that were instrumental in the development and implementation of the PUP. These particular programs were chosen as foundational models for the PUP for

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the following four reasons: (a) evidence supporting efficacy, (b) focus on building responsive parenting skills, (c) community-based, and (d) culturally relevant to African-American communities, and thus included in this review. Models used to inform elements of the PUP had to have some evidence-supporting efficacy. Only peer-reviewed articles recommended on the CEBC-CW website, with comparison groups and/or randomized control trials conducted in the past 10 years, were reviewed for the purposes of this study. These criteria were chosen because (a) articles were recommended as examples of outcome studies by the evaluators at the CEBC-CW or NREPP, (b) the use of control groups or randomized control trials addressed several threats to validity, and (c) research conducted in the past 10 years allowed for a more recent and timely evaluation of studies being conducted on identified parenting models. The section below is a review of the evidence supporting these models (See Table 1 for information regarding evidence-based practices).

Table 1

*Common Components of Early Childhood Evidence-Based Interventions used as a foundation for the development of PUP.*

Model	Age of Child (years)	Provider Qualifications	Group	Community-based	Responsive parenting	Focused on AA population	Evaluated by CEBC-CW or NREPP	Rating on CEBC-CW or NREPP	Duration	Theory
ABC	0-5	Bachelor's degree			X		X	1	10 weeks	Attachment
CPP	0-5	Graduate degree			X		X	2	52 weeks	Attachment
Chicago PP	2-5	HS diploma	X	X	X	X	X	3.4-3.5	12 weeks	Social learning
PFR	0-3	"Professional"			X		X	3	10 weeks	Social learning
COS	0-5	HS diploma	X	X	X		X	"Not rated"	10 weeks	Attachment
PUP	0-3	Peer leaders-High school graduate  Professional leaders-master's degree	X	X	X	X			10 sessions	Attachment, social learning, developmental ecological

**Attachment and Biobehavioral Catch-up Program (ABC).** The ABC program is a weekly (1-hour per week) parenting program that teaches caregivers to respond to their children's needs in a nurturing manner (Bernard, Dozier, Bick, Lewis-Morrarty, & Lindheim, 2012). The parent trainer coaches, who are required to have a bachelor's degree, model interaction between the caregiver and the child in the home in order to become aware of the child's engagement and disengagement cues and to respond in a nurturing manner. It is through the relationship with the caregiver that the child is able to improve self-regulation. ABC focuses on children birth to five. The ABC is based on attachment theory. The use of coaching, modeling, and attention to responsive parenting skills within the ABC model guided the formation of the play interaction activity used in the PUP.

A randomized control trial of ABC was conducted by Dozier, Peloso, Lindhiem, Gordon, Manni, et al., (2006) to test the efficacy of ABC in improving young children's self-regulation. All children included in the study were in foster care and were 3.6-39.4 months of age. The majority of participants were African-American (63%) with Caucasians being the next largest group (32%). Cortisol levels, a hormone excreted during times of stress, were compared between children receiving ABC and the comparison intervention (Developmental Education for Families; DEF). Children who experienced trauma have shown both higher and lower cortisol production than children who have not experienced trauma (Dozier, et al., 2006). A normalized cortisol production level suggests better biological regulation and thus behavioral regulation. The goal for this study was to change the cortisol production levels of the children who had experienced trauma so they would measure similarly to those in the control group (non-traumatized children). Significant main effects of the intervention were found in the cortisol levels collected one-month post-intervention with the comparison group measuring with higher

cortisol levels than the ABC group. A second analysis of the same sample found similar cortisol levels between children in foster care receiving the ABC intervention and children not in foster care.

Another randomized control trial of ABC was conducted by Dozier, Peloso, Lewis, Laurenceau, and Levine (2008) with 141 parent-child dyads both in foster care and not in foster care. Children in the intervention group and comparison group were all in foster care and had higher cortisol levels at pre-test than children who were not in foster care. Half of the children received the ABC intervention. The other half of the children received the DEF intervention, which focused on cognitive development. At the conclusion of the 10-week period, all the children participated in the *Strange Situation* procedure (Ainsworth et al., 1978). The Strange Situation procedure codes the reaction of the child when their primary caregiver leaves the room and returns to the child. Children's cortisol level was measured prior to exposure to the Strange Situation procedure, 15 minutes after completing the Strange Situation, and 30 minutes after. None of the children included in this study showed a significant increase in cortisol production during the Strange Situation procedure. Children who received the ABC intervention presented with decreased cortisol levels from pre-test and no longer significantly differed from children who were not in foster care.

The ABC model was also evaluated for intervention effects on children's attachment behaviors (Dozier, et al., 2009). Using the same sample as Dozier and colleagues' (2008) study, 46 children in foster care were randomly assigned to ABC or DEF (comparison intervention). Children in the ABC group displayed significantly less avoidant attachment behavior than children in the DEF group.

The ABC program was evaluated again by Bernard and colleagues (Bernard, et al., 2012). Participants included 120 children with 113 biological parents who had been referred to child protective services due to safety concerns or risk of removal. The majority of the participants were African-American (61%) with biracial participants as the next largest group (20%). Parents were referred to the ABC program by child welfare staff. Participants were randomly assigned to either the experimental intervention (ABC) or the comparison intervention (DEF). Children who received the ABC program showed significantly fewer disorganized attachment behaviors and higher rates of secure attachment behaviors one month following the interventions compared with children who received the comparison intervention (DEF).

The four studies evaluating ABC that were reviewed had several strengths as well as some limitations. Three of the studies used random assignment, which decreases the threat of selection bias. The use of multiple comparison groups also improves the rigor of the research conducted and strengthens the assertion of causality. Dozier and colleagues (2008) used blind coders to score *Strange Situation* tapes which decreases the risk of researcher bias. Several limitations in research design were also present. None of the four studies included the use of a pre-test. Secondary data from 104 children not in foster care were used as a control group for secondary analysis by Dozier et al. (2006). Data used as a control group may not include comparable samples, missing data may be handled in a different way than the intervention sample, and the motivation to participate in the control study may be different from that of participants in the intervention study. The CEBC-CW has identified the ABC program as a promising practice in parenting programs.

**Child-Parent Psychotherapy (CPP).** The CPP is a program for children from age birth to 5 who have experienced trauma (Lieberman, Ippen & Van Horn, 2006). The goal of CPP is to

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strengthen the relationship between the parent and child as a method to promote healthy attachment and mental health. A master's-prepared therapist works with both the child and the parent to explore past caregiver experiences, current patterns of interaction, and to identify triggers related to trauma which increase dysregulation. Weekly sessions (1-1.5 hours per week) occur for 12 to 18 months and include both the parent and the child. The CPP model informed the development of the PUP by focusing on parent-child interaction and building attunement to the child's cues.

Randomized control trials were conducted in both Lieberman et al. (2006) and Toth, Rogosch, Manly, and Cicchetti (2006). Assessments were collected approximately one year apart. A threat of history and maturation is present when there is a significant lag between pre- and post-test assessments. The threat of history means there may have been an event between pre-test and post-test that would affect the outcome. Threat of maturation is especially a risk when working with young children because they may exhibit changes in outcomes due to developmental maturation rather than response to the intervention. Changes in association between attachment classification and group assignment could be a reflection of events that occurred between data collection and the natural maturing of the child versus the intervention. The use of random assignment is one approach that attempts to ameliorate this threat because children have an equal chance of experiencing natural maturation. Therefore, any changes are more likely to be a reflection of the intervention rather than history and maturation. The CPP model has been replicated in 143 locations with five randomized controlled trials (SAMHSA website, 2014). The CEBC-CW (2014) identified CPP as an intervention that is supported by research evidence (level 2).

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Lieberman, Van Horn, and Ippen (2005) conducted a randomized control study to evaluate the impact of CPP on behaviors related to traumatic stress and behavioral problems in children between the ages of 3 and 5 years old. Participants were diverse with 39% being biracial, 28% Latino, 15% African-American and 9% White. Parent/child dyads received either CPP or a comparison intervention that included case management and individual treatment. Dyads received services for 50 weeks. Children were evaluated before and immediately following the intervention. There was no long-term follow-up. Children who received CPP had fewer symptoms related to traumatic stress and decreased behavioral problems.

Lieberman, Ippen, and Van Horn (2006) also conducted a randomized control trial with 75 preschool children with behavioral concerns after witnessing or hearing domestic violence. Participants in the CPP group showed evidence of significant reduction in Total Problem Behavior Scores on the Child Behavior Checklist (CBCL) between pre-test, post-test, and follow-up assessments over time (Achenbach, 1991). The comparison group did not show a significant reduction on the CBCL Total Behavior Problem scores. Levels of distress for mothers in the CPP group significantly improved post treatment. Mothers in the comparison group did not have significant improvement in distress.

A randomized control trial of CPP was conducted by Toth, Rogosch, Manly, and Cicchetti (2006) to test the efficacy of the intervention with mothers who had a history of major depressive disorders compared to those with no history of major depressive disorders ( $N=68$ ). Assessments were collected at baseline and again at follow-up when the children were 36 months of age and had completed the intervention. The percent of children in the intervention group who were classified as having secure attachment (67.4%) after receiving CPP was higher than children in the depressed comparison group (16.7%) and non-depressed control group (47.6%).

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No statistically significant association was found between groups and rates of avoidant and resistant attachment classification at post-intervention. These findings indicate that CPP is an effective program in increasing secure attachment behaviors in children. The CEBC-CW rated the CPP as a 2- supported by research evidence.

**The Chicago Parent Program.** The Chicago PP was developed as a health promotion and challenging behavior prevention program for children ages 2 to 5 (Gross et al., 2009). The goal of this program is to teach caregivers methods of building relationships with children while implementing consistent and clear discipline. African-American and Hispanic community representatives consulted on the development of the Chicago PP. This model was used to inform the development of the PUP because it was created specifically for minority parents (African-American and Hispanic). The focus on empowering parents to actively participate in program development also informed the PUP model. Trained Chicago PP group leaders with at least a high school diploma meet with 8 to 10 participants, in a group, for 11-weeks (2-hours per week). Parents watch videos of caregivers interacting with children in real-world settings (such as the laundromat) and then process the interaction as well as the response of the caregiver to the behavior. Parents return one month later for a booster session. The Chicago PP was developed using Social Learning theory.

Data from two randomized control trials of the Chicago Parent Program were combined and outcomes between African-American ( $N=291$ ) and Latino ( $N=213$ ) participants were compared (Breitenstein, et al., 2012). Parents with children 2 through 5 years of age were recruited through childcare centers in Chicago serving low-income families. Eight childcare centers serving low-income families were included in the studies. Parents attending Chicago PP displayed less corporal discipline, were more consistent in following through with discipline, and

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reported greater parenting self-efficacy than the control group. Parents and teachers of children in the intervention group reported a reduction in the child's behavior problems. Latinos who attended the Chicago PP reported a greater reduction in their child's behavioral problems and a greater increase in their parenting self-efficacy as compared with African-American parents.

Parents who received the Chicago PP reported a decrease in the use of corporal punishment. Children displayed a decrease in behavioral problems. Parents who attended at least 6 out of the 11 sessions showed the greatest improvement in their children's behaviors and their own parenting self-efficacy compared to those parents who were in a control group or attended fewer than six sessions. Parents who attended at least six sessions showed a significantly greater reduction in use of corporal punishment than control group or parents who attended fewer than six sessions (Gross et al., 2009).

Over 1000 parents have participated in the Chicago PP and it has been replicated in 16 agencies (NREPP, 2012). A study was conducted in seven daycare centers with 253 parents located in low-income communities throughout Chicago (Gross et al., 2009). Childcare centers were matched on size, racial composition, median income, and parent marital status. The centers were then randomly assigned to control and intervention condition. Children in the control groups participated in completing research assessments but received no intervention. Assessments were completed prior to intervention, immediately following the intervention, and 6-months and one-year post-intervention. The parents who received Chicago PP were less likely to use corporal punishment and used fewer commands than those in the control group. The children in the intervention group also showed fewer negative behaviors. There was a significant association between attendance and change in parenting self-efficacy, consistent

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discipline, warmth towards their child, and the children showed more of a decrease in challenging behaviors compared to those families who did not receive the Chicago PP.

The NREPP rated the quality of research on the Chicago Parenting as 3.4-3.5 on a 4-point scale. The identified weaknesses of the studies were the presence of potentially confounding variables such as a higher employment rate in the intervention group. The Chicago PP has not been submitted to CEBC-CW for review.

**Promoting First Relationships (PFR).** The PFR (Kelly, Beuhman, & Caldwell, 2000) is a curriculum aimed at supporting parenting. The program uses “professional” facilitators to encourage attuned parenting of children birth to 3 years of age. The PFR curriculum teaches practitioners to offer parents developmental information, promote children’s emotional regulation, and encourage a trusting relationship between parent and child. The use of community-based professional practitioners supporting responsive parenting skills was the contribution that the PFR model made to the development of the PUP. The PFR model was informed by Social Learning theory.

Two evaluation studies of PFR conducted in the past 10 years were reviewed for this study. The outcomes of both studies showed an increase in responsive parenting behaviors. The limitations included small sample size, loss of positive outcomes by the 6-month follow-up assessments (Spieker, et al., 2012), and lack of follow-up assessments collection (Kelly & Korfmacher, 2008). PFR has been replicated in multiple sites. One randomized control trial has been conducted with positive outcomes and results have been published in a peer-reviewed journal (Spieker, Oxford, Kelly, Nelson, & Fleming, 2012). The CEBC-CW (2014) has identified PFR as being supported by research evidence (level 2).

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The first randomized control trial of PFR was conducted in 2007 with 210 children between 10 and 24 months of age in foster care (Spieker, et al., 2012). Participants were primarily white (65%), biracial (18%), and African-American (14%). Caregiver and child completed assessments at baseline, completion of the intervention, and at six-month follow-up. Participants were randomly assigned to either the treatment group or a comparison group.

Participants who received the PFR intervention showed a significant change in responsive parenting behaviors immediately following the intervention, but not at six-month post-intervention, indicating that the improvement was evident in the short term but was lost long-term. Significant associations were found between the child secure attachment and caregiver sensitivity to the child's needs. Foster parents reported improved child competence on the Brief Infant Toddler Social and Emotional Assessment (Briggs-Gowan & Carter, 2002) at post-intervention. Foster parents in the PFR condition scored higher in sensitivity to the child's needs than parents in the comparison group based on scores on the Nurse Child Assessment Teaching Scale (Barnard, 1994). These findings indicate that the PFR model is effective in increasing attunement of parents to their young child.

A second study was conducted with 14 mother-child dyads (with children birth to 3 diagnosed with a special need) working with 14 PFR-trained providers (Kelly, Zuckerman, & Rosenblat, 2008). Providers had at least 2 years of college education. Dyads received 9 weeks of PFR. Mother-child dyads were videotaped four times during those 9 weeks and were given feedback by the providers on the interaction with their children. The goals were to assess the ability of the PFR staff to support parent-child interactions and to evaluate the effectiveness of the intervention over time in increasing quality parent-child interactions. Participants completed research assessments prior to beginning the intervention and immediately following the

intervention. Parent-child interaction was measured with the Parent-Provider Coding System (Kelly, et al., 2000) which captures the frequency with which parents use positive statements, feedback, and reflective questions. The Nurse Child Assessment Teaching Scale (Barnard, 1994) was used to measure parent-child interactions during a teaching episode.

Providers showed a statistically significant improvement in encouraging parent-child interactions, providing positive feedback, using reflective questioning, and offering positive instruction post-training. Parents showed a significant improvement in responsive parenting behaviors. Children became more responsive to their parent's cues. The CEBC-CW rated the PFR as a Promising Practice (level 3).

**Circle of Security (COS).** COS is a group-based intervention developed for parents with children under the age of five. The goal is to help parents consider the internal working model of the child and how it relates to their parenting styles (Hoffman, Marvin, Cooper, & Powell, 2006). Built on attachment theory, parents were encouraged to consider the meaning they make of their child's behavior and how that affects their interactions. COS is implemented either in an individual or in a group format. The intervention lasts 10-20 weeks (90-minutes per week) and includes videotaping, feedback, and emotional support. The COS's focus on allowing the child to explore the environment, encouraging the parent to follow the child's lead, and being available to the child as a secure base directly informed the PUP model.

Two COS studies conducted in the past 10 years were reviewed for this study. Both studies showed a positive effect on infant attachment security (Hoffman et al., 2006; Cassidy et al., 2011). Limitations of the studies include lack of follow-up (Hoffman et al., 2006) and threat of maturation due to the one-year time lag between pre- and post-data collection in the Cassidy et al. (2011) study. The COS has been replicated in multiple sites and positive effects have been

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found. One randomized control trial has been conducted and peer-reviewed articles have been published on the efficacy of COS as an intervention. The CEBC-CW (2014) has identified COS as supported by research evidence (level 2).

Hoffman et al. (2006) conducted a pre-intervention/post-intervention design study of 65 children with their caregivers. Mother-child dyads were recruited from Head Start and Early Head Start programs in Washington State. Participants either completed the *Strange Situation* procedure (Ainsworth et al., 1978) or the *MacArthur Preschool Strange Situation* was conducted for children 24-60 months of age (Cassidy & Marvin, 1992). The child's attachment behaviors were measured 6-8 weeks prior to the beginning of the intervention and again 10 days following the intervention. Children in the intervention group were more likely to shift from a disorganized to organized attachment classification. Children in the treatment group who had an insecure attachment classification at pre-test were more likely to shift to a secure classification than children in the control group.

A randomized control trial of COS was conducted by Cassidy, Woodhouse, Sherman, Stupica, and Lejuez (2011). Participants in this study were all temperamentally irritable infants recruited from 14 hospitals within a large metropolitan area. Participants were racially diverse with 43.2% being African-American, 20.5% being White, 18.6% being biracial, and 14.1% being Hispanic. Infants were screened for irritability using the *Neonatal Behavioral Assessment Scale* (NBAS) (Brazleton & Nugent, 1995). Infants who scored in the top 20% of the NBAS examination were classified as "irritable". Data were collected during two home visits within the infant's first month of life. Dyads were randomly assigned to either COS or a control intervention group at six-months post baseline data collection ( $N=220$ ). Participants received three COS or control home visits between 6.5 months and 9 months of age. The dyads completed

the *Strange Situation* procedure (Ainsworth, Blehar, Waters, & Wall, 1978) when the child was 12-months old.

A significant effect on infant attachment classifications for highly irritable infants was found for infants in the treatment group. Highly irritable infants with securely attached mothers in the treatment group had a higher probability of being securely attached than the highly irritable infants in the comparison group. No main effect of the intervention or infant irritability was found on infant attachment security. Highly irritable infants who received COS were more likely to have secure attachment than those who were in the control group. No intervention effect was found for moderately irritable infants. The probability of secure attachment at post-test was higher for infants in the intervention group than those in the control group. The COS intervention was effective in increasing secure attachment behaviors in highly irritable infants of mothers who were classified as being “dismissing” but not for moderately irritable infants. The CEBC-CW website currently lists the COS as “Not Rated”.

### **Peer Leadership**

The above review of the evidence-based programs offers a summary of the models that include components used in the PUP. Another innovative component of the PUP is the use of peers to facilitate the sessions (information regarding peer leadership in PUP is discussed in Chapter 3). The following research supports this strategy as an effective method to impart information to participants in the various programs.

Five reasons to use peer leaders were identified by Solomon (2004). The first benefit is the building of social support for leaders and participants. The second benefit of the use of peer leaders allows for experiential knowledge to be shared with participants in the programs. The third benefit is that the use of peer leaders is supported by Social Learning theory. The fourth

benefit is that when recipients receive support from peers they are likely to compare themselves to those peers and feel empowered and hopeful that they too can become role models for others. The fifth benefit is the theory of “helper-therapy principle” (Riessman, 1965). Practitioners ascribing to this principle believe that by transforming recipients of help into dispensers of services, the peer leaders benefit as much as, if not more than, those receiving the services (Riessman, 1965).

Peer leadership has a long history and is growing in popularity. Turner and Sheperd (1999) conducted a literature review of peer education programs. The articles reviewed by Turner and Sheperd identified the benefits of using peer leaders. The benefits most often cited were (a) cost effectiveness, (b) peers were seen as credible sources of information who are easy to identify with, culturally competent, seen as role models, and may have more contact with participants than professionals, and (c) peer leaders also feel more empowered because of their leadership position (Turner & Sheperd, 1999).

A role model must be respected by recipients of the services being provided, (Bandura, 1977) and peer educators who often have a respected status in the community are seen as more credible than professionals. Participants who are taught by peer educators may see similarities between themselves and the educator and thus model themselves on the peer leader. They are likely to feel empowered to become leaders themselves (Turner & Sheperd, 1999). Identification with role models occurs when there are similarities between the participant and the role model (Bandura, 1969). Using peer educators increases the probability of identification and therefore increases the likelihood of internalizing new skills. Peer educators may also have greater access to participants through social networks or geographic proximity. This allows reinforcement to

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occur in a natural environment and in a consistent, long-term manner rather than solely in a formal and time-limited learning environment.

These rationales and theoretical postulates informed the implementation of the PUP. As will be discussed, the use of peer leaders allowed for fewer professional staff and therefore decreased the financial burden on the program. Several participants of the PUP became empowered and returned for a second and third round of the program to become peer leaders.

**Peer-led parenting programs.** Peer educators have been successful in accessing hard to reach populations (Turner & Sheperd, 1999). Hard-to-reach populations are “those sub-groups of the population that may be difficult to reach or involve in research or public health programmes” (Shaghghi, Bhopal, & Sheikh, 2011). Examples of hard-to-reach populations include adolescent mothers (Matthews, 2009), parents of adolescents (Wright & Wooden 2013), and parents living in low-income minority communities (Day et al., 2012). A consistent challenge for parenting programs is low recruitment and retention rates (Spoth & Redmond, 2000). Approaches to ameliorate the issue of enrollment and maintenance of participants include providing incentives such as offering meals, free childcare, and convenient logistics for parents. An additional approach that is gaining momentum is the use of peer leaders for the development, recruitment, and implementation of parenting programs (Cavaleri et al., 2011).

A systematic review of 25 randomized clinical trials of peer-based interventions was conducted by Webel, Okonsky, Trempeta, and Holzemer (2010) and results were mixed on the effectiveness of peer-led programs. The authors were specifically looking for the effect of using peers for health intervention. Seven domains of health issues were identified: (a) breastfeeding, (b) physical activity, (c) medication adherence, (d) smoking adherence, (e) participation in general activities (f) condom use, and (g) alcohol use. All studies included in the systematic

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review were randomized control trials using control groups. Positive results were found in increased physical activity, smoking cessation, and increased condom use. According to Webel, et al. (2010), these positive results “suggest that the use of peer-leaders may be effective for other outcomes” (p. 251).

In the implementation of the PUP, I noted that participants were accessing the peers in the program who were strong role models for resource assistance. I also noted that the parents were responding differently to peers than they were responding to staff. For example, there was a situation when a parent was cursing on the phone during the session. Staff asked the parent to stop using inappropriate language in the room. She did not stop. One of the parents in the group spoke with her and asked her to stop cursing. The parent apologized and got off the phone. There was another situation where a fight broke out between two parents. A staff person tried to stop the fight but was ineffective. One of the parents in the group stepped in and was able to stop the fight by discussing the issues with the parents who were fighting. In both of these examples the parents who intervened were well known and respected in the community. They also showed great leadership skills. The leadership skills that were noted included active participation during the parent group, helping to problem solve when there were challenges that others were facing, and the ability to welcome new, or shy parents, into the group. The examples described above, as well as general observations in routine interactions, suggested that the use of peer leaders might be a benefit to the PUP. The effect of peer leaders was unknown and thus needed to be tested. The need for testing this hypothesis led to the addition of the effect of type of facilitator as a variable to be investigated in this study.

Other peer-led programs for parents were reviewed for the purposes of this study Multiple Family Group (MFG), Arkansas University Teen Parent Program (AOTP), Helping Our

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Parents to be Educators (HOPE), and The Empowering Parents, Empowering Communities Program (EPEC). These programs were chosen because they shared characteristics with the PUP such as working with hard-to-reach populations, program design, and models for graduating participants into peer leaders. Research indicated positive effects of the parent led programs in decreasing parenting stress (McKay et al., 2011; Day, et al., 2012), decreasing oppositional behavior (McKay, et al., 2001; Day, et al., 2012; Chacko, et al., 2015), high group satisfaction (Matthews, 2009; Day, et al., 2012), and increased family communication (Wright & Wooden, 2013). The research is as yet preliminary and needs further development but the initial outcomes are promising.

The studies of peer led programs, as well as evidence-based programs, reviewed in this study did not include any comparisons between outcomes of social workers versus peers when facilitating the programs. This is an area that would benefit from further research and thus the effect of type of facilitator was included as a variable in the primary analysis of this study.

### **Harlem Children's Zone (HCZ) and Baby College**

The HCZ, developed by Geoffrey Canada in New York City, offers community-wide programs focused on meeting the needs of children and parents. The goal is to offer comprehensive support to children and families within a geographically defined catchment area.

The first program in the HCZ pipeline of services is the Baby College. Baby College is a program created by pediatrician and author T. Berry Brazelton in collaboration with HCZ staff to support parents in responding to their children's developmental prenatally through age 3 (Harlem Children's Zone, 2002). Parents meet for nine weeks at any point during the pregnancy or the child's first three years of life and learn about child development, health, and parenting skills from HCZ staff. Staff visits the parents' homes to support lessons learned during the weekly

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group meetings. The goal of this program is to provide parents “the information and support necessary to bring up happy and healthy children who enter school ready to learn” (Harlem Children’s Zone, 2002, p. 2). Each cohort includes 50 parents. Parents attend classes together and learn from each other’s experiences. Time is also set aside every week for parents to support, learn about, and become resources for each other. Presenters speak during the parent group and share information regarding health, nutrition, and development.

More than 5700 parents have graduated from Baby College (Harlem Children’s Zone, 2012). Reading to a child is considered an act of bonding. Of the parents who read to their child less than five times per week, 86% increased their frequency after attending the program. A large majority of parents (93%) reported learning “a lot” from the classes (Harlem Children’s Zone, 2013).

The HCZ’s Baby College is an innovative program that has sparked a national movement to develop community-wide early childhood programs. The number of parents and children touched by this program and the positive feedback by participants reflects the extent of the Baby College program outreach into the community. Unfortunately, there have been no peer-reviewed journal articles published regarding the efficacy of the Baby College. No scientific research could be found besides descriptive data collected by the HCZ. Thus, while there has been no evidence that this program is a risk or harmful, there is also no research including a control group, valid and reliable outcome measures, or any peer-reviewed literature supporting its efficacy. Nonetheless, the HCZ Baby College has been accepted as a model community-wide parenting program by the White House and is being implemented across the country.

The PUP has several shared components with the Baby College. Parents are recruited from a catchment area characterized by poverty, violence, and unemployment. Parents are given

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information on concrete parenting issues such as child development, nutrition, and health. The PUP is open to all members of the community with children birth through 3 years of age (the caregivers must speak English and be over 18 years of age). Attendance at the PUP is voluntary whereas many times other parenting programs such as those offered by child welfare services may require attendance in parenting programs while outpatient mental health clinics may offer programs but only in the clinic setting.

A notable difference between Baby College and the PUP is that the children are present in the PUP and the specific time for parent-child interaction is a key component. The addition of the parent-child interaction and assessments of parent-child interaction will add to the research on these types of community-wide parenting programs.

### **Conclusion**

The PUP was developed using components of five evidence-based programs serving young children, peer-led programs, and the HCZ. The PUP evolved as the program was implemented. The evidence-based programs informed that evolution through the focus on parent-child interaction, being community-based, and being developed for/by minority communities.

The goal of this study was to assess for change in responsive parenting behaviors for participants of the PUP and to explore factors that predicted change. This study adds to the literature on parenting programs because it (a) was researched in a “real world” environment that was not controlled in a clinical setting; (b) adds to the limited research available comparing professional led versus peer led parenting groups; (c) examines outcomes related to a parenting program established in a Promise Neighborhood which is a Federal initiative being implemented nationally by President Obama. This study answers the following two preliminary questions (a) is there an association between caregiver characteristics and responsive parenting behaviors, and

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(b) is there an association between the child's age and responsive parenting behaviors? Primary analysis answers the following three questions: (a) does responsive parenting improve over time among caregivers who attended PUP; (b) is the type of facilitator a significant factor in the change in responsive parenting behaviors over time; and (c) are the number of hours of the PUP attended a significant factor in the change in responsive parenting behaviors over time.

The following chapter describes the development of the PUP model, procedures for data collection, research design, measures, and the data analysis plan.

### **Chapter III. Method**

The goal of this study was to assess for change in responsive parenting behaviors for participants of the PUP and to explore factors that predicted change. This chapter is comprised of five sections. The first section describes the PUP implementation and research design. The second section describes the participants. Measures are described in section three. Research procedures are described in section four. Data analysis, independent variables, and covariates are described in the fifth section.

#### **PUP Implementation**

The PUP was developed using the common components of evidence-based models, peer-led parenting models, and the HCZ framework. The program was implemented as part of the Promise Heights Initiative. The Promise Heights Initiative is a program led by the University of Maryland, Baltimore School of Social Work. The program's mission is to "surround children and families with a holistic set of supports that enable them to succeed at home, in school, and in the community" (Promise Heights, 2014). The Promise Heights Initiative has established a network of community service providers that includes churches, social service providers, and schools.

The Promise Heights community is predominately (94.3%) African-American and 30% of residents are children (from birth to 17 years old). The median household income is \$13,388 and 17.5% of residents are unemployed (Ames, Evans, Milam, Petteway, & Rutledge, 2011). Approximately 50% of the children in this community are living in poverty and only 50% of adults living in the community have a high school diploma (Promise Heights, 2012).

The University of Maryland received a Promise Neighborhood Planning Grant in 2010 from the U.S. Department of Education to implement the Promise Heights Initiative. The PUP has been funded through multiple sources including the Baltimore Women's Giving Circle,

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Patrick and Aimee Butler Family Foundation, and the Batty Charitable Trust. The Promise Heights Initiative continues to access funding streams through federal and private grants.

**The PUP model.** Faculty at the University of Maryland, Baltimore developed the PUP to increase responsive parenting skills used by parents with children birth through three years of age. Five cohorts of parents graduated from the PUP Program between June 2011 and 2014 (See Table 2 for description of cohorts). The first three cohorts were facilitated by social workers, the last two were facilitated by peers. The number of families who attended ranged from 11 (cohort 1) to 22 (Cohort 2). Cohorts lasted between 6-10 weeks. The number of social workers involved in the implementation of the PUP ranged from 2-8 between cohorts. Social work interns assisted during four of the five cohorts. Community volunteers were involved during three of the five cohorts. Peer leaders became active during cohort 2 and continued throughout all five cohorts. The activities changed between the first three cohorts but then were the same for the last two cohorts. The number of hours attended ranged from 9.09 (SD=6.62) hours for cohort 2 to 12.38 (SD=8.45) for cohort 5. The PUP incorporates common components from the aforementioned parenting program models and the HCZ Baby College to meet the specific culture and needs of the community. Group sessions take place in a community church. Breakfast, childcare, books, and gifts are provided to parents weekly. Parents receive at least one home visit from program staff to assess for any case management needs and weekly calls or text messages reminding participants of the session the following day. Case management is available if the parent expresses a specific need.

The length of the PUP changed as the cohorts were implemented. Cohort 1 lasted 6 weeks, Cohort 2 lasted 8 weeks, and Cohort 3-5 lasted 10 weeks. Feedback is offered to the parents during the session in the form of coaching and modeling during the parent-child

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interaction. The Social Worker Program coordinators have master's degrees. The Peer Program coordinator has a high school diploma. The program is intentionally held in the community to increase ease of access to participants and provide services in their home environment.

Analysis of covariance was conducted to test for difference in rate of attendance between cohorts. Levene's test of homogeneity of variance was significant indicating that the assumption of homogeneity was met. No significant association between cohort and rate of attendance were present,  $F(4, 85) = 1.75, p = .147$ . An independent  $t$ -test was conducted to test for difference in mean rate of attendance between cohorts facilitated by peers and facilitated by social workers. There was no significant difference in rate of attendance,  $t(84) = .69, p = .492$ .

Table 2

*PUP cohorts 1-5 with number of sessions, social workers, interns, community members, activities and attendance (N=86)*

Cohort/Date	Facilitator of session	Number of Families	Number of hours invited to attend	Social workers	Social work interns	Community Volunteers*	Peer leaders**	Activities to promote responsive parenting skills	Average number of hours attended <i>M (SD)</i>	Average rate of attendance % ( <i>SD</i> )
Cohort 1 June – August 2011	Social Worker Coordinator	11	15	8	n/a	n/a	n/a	Parent instructed to allow child to explore specific toy provided and comment on play	11.36 (4.09)	76 (27)
Cohort 2 February – April 2012	Social Worker Coordinator	22	20	5	4	2	1	Parent given structured activities to play with child	9.09 (6.62)	45 (33)
Cohort 3 February – April 2013	Social Worker Coordinator	12	25	3	4	1	3	Parents instructed to play with their child and describe what the child is doing	11.88 (8.40)	47 (34)
Cohort 4 October - December 2013	Peer Program Coordinator	21	25	4	4	2	3	Follow the child's lead, enjoy the interaction, describe the play	11.79 (9.22)	47 (37)
Cohort 5 October – July 2014	Peer Program Coordinator	20	25	2	2	0	7	Follow the child's lead, enjoy the interaction, describe the play	12.38 (8.45)	50 (34)

\*Community volunteers were grandmothers from Promise Heights who had not attended PUP but volunteered for childcare.

\*\*Peer leaders included Parent Mentor, Assistant Peer Program Coordinator, and Peer Program Coordinator.

*PUP history and staffing.* Each iteration has encouraged the growth and leadership of community members as leaders of the PUP (See Appendix A for description of PUP staff roles and Table 3 for description of staff responsibilities). The Social Work facilitator was responsible for recruitment, facilitating routine, addressing challenging behavior of participants, and helping with resource linkages. Social work interns assist with recruitment, linkages to resources, and child care. Social work staff assist with recruitment, addressing challenging behaviors of parents, linkages to resources and child care. The role of program facilitator changed from a social worker to a peer during cohort 4. The social worker who typically facilitated the program then became a support for the peer program facilitator who was a graduate of the PUP. Once community members graduate from the PUP, participants who show leadership skills and positive parenting skills are promoted to Parent Mentor. The role of the Parent Mentor is to help recruit participants, address challenging behavior of parents, help with linking participants to resources, and to provide child care. Community volunteers help with recruitment and child care.

The amount of support for facilitators changed once parents became facilitators. Social Work facilitators were trained in the model and then only received consultation as needed. The Peer Facilitator required more support and needed to meet with the model developer prior to the sessions, immediately following the sessions, and as needed throughout the program implementation. The model developer was present in four of the five cohorts (was not present in cohort 1).

Table 3

*Responsibilities of Program staff*

Program Staff	Recruit participants	Facilitate PUP session	Address challenging behavior of parents	Resource linkages for parents	Child care during session
Peer Program Coordinator	X	X	X	X	
Assistant Peer Program Coordinator	X		X	X	X
Parent Mentor	X		X	X	X
Social Worker Program Coordinator	X	X	X	X	
Social Work Staff	X		X	X	X
Social Work Interns	X			X	X

***PUP weekly routine.*** Each component of the PUP was developed and implemented in a very intentional manner. Each week follows the same routine. This is done to model consistency and stability for caregivers. If an emergency occurs, peer leaders and staff attempt to maintain consistency of routine while explaining why changes had to be made if necessary. This approach is used to model problem solving and the importance of routine even in the face of difficulties.

***Greetings and breakfast.*** As parents and children come in, staff seat parents and serve them breakfast. Staff refer to parents by titles such as “Mr.” and “Ms.” to show respect. This is done to create a supportive environment for the parent but also to create a parallel process that allows parents to politely care for their children as they were being cared for by the staff. Each table has approximately three families and a staff person who sits with them and encourages conversations among families. Every interaction aims to build confidence, competence, and enjoyment for the parent, as well as to establish a consistent routine with their child. At the completion of breakfast, the program facilitator asks parents to introduce

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their family and give a “thumbs up” or “thumbs down” as a check-in about how they feel that day. Parents decide whether they will rate their week, overall wellbeing, or morning with the “thumbs up or down” check-in. This is done intentionally so that parents are regarded as the leader of their family. The check-in allows staff to become aware and sensitive to the needs of the families who are present. This also creates an opportunity for families to be exposed to appropriate emotional expressions as well as social emotional teaching strategies that can be used with their child. Staff repeats the same schedule weekly to model the importance of routine for children. The meal time interaction and well-being check-in reflects the social support that the HCZ Baby College creates for their participants.

***Parent-child engagement.*** After breakfast, the program leader signals transition to the next activity with the same song every week. The importance of music as a transition cue is discussed. Parents escort their children to the carpeted area where all the participants sit for parent-child engagement time. Children sit in their parent’s lap, and staff sit on the outside of the circle to support the parents interacting with their children. The circle leader asks parents for suggestions on the songs to be sung. This allows parents to lead the circle time with support. The positioning of parents is intentional so that the children are contained within the circle thus encouraging interaction with their parents. Staff members are positioned behind parents to offer coaching, modeling and/or praise as appropriate. The facilitator encourages parents to sing between 4-5 songs and then signals a transition to book time with a song.

During the parent-child interaction the staff uses coaching, modeling, and attention to responsive parenting skills, which is modeled after the ABC model. The focus on parent-child interaction and increased recognition of the child’s cues is modeled after the CPP and the Chicago PP. The encouraging of the child to explore the environment, encouraging the

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parent to follow the child's lead, and be available to the child as a secure base is modeled after the COS model.

***Parent group.*** The peer-leader facilitates a parent group for approximately 30 minutes while program staff care for the children. Service providers located within Baltimore City present on topics such as asthma, lead, literacy, and attachment. Parents are encouraged to share experiences, worries, and resources during this time. The presentation of concrete parenting issues such as health was modeled after the HCZ.

Children are reunited with their parents at the end of the parent group. Staff members tell parents of positive behaviors, skills, and accomplishments of the children while the parent was in group. Many times parents are worried about leaving their child in the care of staff, partially because they feel that their child would not behave appropriately. Staff members praise the children to their parents in an attempt at decreasing these feelings of unease.

***Graduation.*** At the conclusion of all of the PUP sessions, a graduation ceremony is held. The program facilitator (either social worker or peer) is the master of ceremonies. The pastor of the church where the program is held is the guest speaker. Cohorts 2-5 had valedictorians identified, who spoke about their experience in the PUP. The social worker and peer program coordinators in consultation with all program staff select valedictorians. Selection is based on the participation of the parent in the PUP, their role as a positive role model, and their integration of the PUP information into their parenting skills. All participants receive certificates of completion.

***Curriculum.*** Whereas the strategies to meet parents' needs and the importance of routine have remained the same throughout the PUP, there have been changes made at each

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iteration (see Table 4 for a description of each iteration). Changes were made based on recommendations of parents, staff, and students. Recommendations were verbally requested each week during a team meeting with parent leaders, staff, and students immediately following each session. Meetings were facilitated by the program leader (Social Work Program Coordinator or Peer Program Coordinator) at the end of the session to discuss the events of the morning, any changes that needed to be made, and feedback on any changes that were implemented. An example of a major change that occurred was the instructions to parents during circle time. The Peer Program Coordinator summarized the desired responsive parenting behaviors with a simple acronym, F.E.D. (Follow the child's lead, Enjoy the interaction, and Describe the play). Parents are encouraged to follow their child's lead by allowing their child to choose the toy and how to engage in play with that toy. Parents are also reminded that the play should be enjoyed by both parties. If the parent is feeling stressed and find themselves yelling or avoiding play with the child, then this goal of enjoyment is not being met. Finally, parents are encouraged to describe how the child is playing with the toy and the attributes of the toy. These instructions are repeated weekly and visual reminders are displayed in the room in the form of posters. An example of a change that was suggested and not implemented was a recommendation that each table have a staff person and parent leader assigned to meet the needs of participants. After discussion as a team, the Peer Program Coordinator decided that this approach would be too prescribed and would not meet the tone that we were trying to establish during the sessions.

### **Research design**

This study had a single group pre-post design. Random assignment was not possible due to financial constraints. Participants voluntarily enrolled in the PUP and attended the

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group that was starting at the time closest to their enrollment. Pre-tests were completed within two weeks of the group starting, post-tests were completed within two weeks of the group ending, and follow-up assessments were completed three months after the group terminated.

### **Participants**

Participants were recruited from area elementary schools, public housing projects in the community, and Head Start Programs. The PUP staff, social workers, and Parent Mentors/facilitators handed out fliers in the community and offered presentations to parent groups describing the PUP program. Eligible participants were adults 18 years and older with children birth through three years of age who were the primary caregiver of the child. Legal status was not necessary. The caregiver had to be able to speak English since the program only had English speaking staff and materials. There were no other inclusion or exclusion criteria. Recruitment procedures were the same for all cohorts with the exception of the use of Parent Mentors/facilitator beginning in cohort 4.

The PUP has enrolled 86 participants. The majority of the participants were single, unemployed, African-American mothers with a high school diploma or less. Most participants (81.4%) were mothers ( $n=70$ ). The second most common participant (7%) were fathers ( $n=10$ ) and the third most common participant were other relatives such as grandmothers and aunts ( $n=6$ , 7%). The average age of the caregiver participant who attended the PUP was 27.58 years of age with the youngest being 18 and the oldest being 61 years of age. The average age of the child was 18.40 months ( $SD=12.90$ ). The youngest participant was one month old and the oldest participant was 43 months old. The gender of the child was not collected (See Table 4 and 5 for sample description).

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Table 4

*Categorical participant characteristics by cohort (N=86)*

	Cohort 1 (n=11)	Cohort 2 (n=22)	Cohort 3 (n=12)	Cohort 4 (n=21)	Cohort 5 (n=20)	Cohort 1-5 (N=86)
	<i>n (%)</i>					
Caregiver's relationship to child:						
Mother	9 (81.8)	22 (100)	9 (75.0)	14 (66.7)	16 (80.0)	70 (81.4)
Father	1 (9.1)	0 (0)	1 (8.3)	6 (28.6)	2 (10)	10 (11.6)
Relative*	1 (9.1)	0 (0)	2 (16.7)	1 (4.8)	2 (10.0)	6 (7.0)
Caregiver's race:						
African-American	9 (90)	18 (90)	10 (100)	20 (95.2)	20 (100)	77 (95.1)
Other**	1 (10)	2 (10)	0 (0)	1 (4.8)	0 (0)	4 (4.9)
Education:						
Diploma/ GED and above	0 (0)	9 (40.9)	0 (0)	4 (19)	4 (20)	17 (20)
No diploma or GED	10 (100)	13 (59.1)	12 (100)	17 (81.0)	16 (80)	68 (80)
Employment:						
Employed (full or part time)	2 (20%)	2 (9.1)	3 (25.0)	6 (28.6)	1 (5.0)	14 (16.5)
Unemployed	8 (80)	20 (90.9)	9 (75.0)	15 (71.4)	19 (95.0)	71 (83.5)
Cg partner status***:						
Partnered	4 (40)	5 (22.7)	1 (8.3)	12 (60)	9 (45.0)	31 (36.9)
Single	6 (60.0)	17 (77.3)	11 (91.7)	8 (40.0)	11 (55.0)	53 (63.1)

\* Relative= grandmother, great-grandmother, aunt \*\*Other- Caucasian, Latino, Biracial. \*\*\* Cg partner status= Partnered means married or living with a partner, Single means divorced, separated, widowed, living alone. \*\*\*\*  $p < .05$

Table 5

*Continuous family member characteristics by cohort (N=86)*

	Cohort 1 (n=11)	Cohort 2 (n=22)	Cohort 3 (n=12)	Cohort 4 (n=21)	Cohort 5 (n=20)
	<i>Mean (SD)</i>				
Mother age	27.33 (5.74)	27.82 (5.26)	28.83 (11.53)	27.57 (6.49)	27.65 (7.61)
Father age	30.33 (6.76)	31.91 (10.11)	27.50 (8.13)	28.28 (6.44)	28.15 (4.75)
Child age (months)	24.73 (13.81)	18.64 (15.55)	14.46 (9.70)	14.38 (8.59)	21.25 (13.6)

\*significant at p<.05

**Measures**

Participants completed the PUP Questionnaire and engaged in parent child interaction that was later coded for responsive parenting behaviors.

**The PUP Questionnaire.** The *PUP Questionnaire* (PUP-Q) was developed at the University of Maryland School of Social Work by Promise Heights staff for the purposes of the PUP program evaluation (See Table 6 for questions and coding information). Participants provided demographic information, family characteristics, and information about persons living in the home. Parents were asked their age, race, ethnicity, partner status, employment status, and highest level of education. Finally, participants were asked to list the number of adults and children who lived in their homes. Participants completed the questionnaire in approximately 5 minutes.

Table 6

*Questions and coding information*

Measure	Question example	Coding
Ordinal	What is your age?	Record actual age
Ordinal	What is the age of your child?	Record actual age
Nominal	What is your race?	African American=1 Other=2
Nominal	How much education have you completed?	No diploma or GED=1 Diploma/GED and above=2
Nominal	What is your current employment status?	Unemployed=0 Employed=1
Nominal	What is your marital status?	Single=0 Partnered=1
Nominal	Are you living with your baby's other parent?	Yes=1 No=2
Nominal	How often does you baby see his/her other biological parent?	Nearly every week=1 A few times a month=2 Never or almost never=3
Ordinal	What is the age of the other biological parent?	Record actual age
Nominal	Is the child's other parent deceased?	Yes=1 No=2
Nominal	What is the primary language you speak at home?	English=1 Spanish=2 Other=3
Nominal	What is the secondary language you speak at home?	No secondary language=1 English=2 Spanish=3 Other=4

**Nursing Child Assessment Teaching Scale (NCATS).** The *NCATS* assesses responsive parenting behaviors for parents with children 0-36 months of age (Sumner & Speitz, 1994). According to Monica Oxford, Executive Director of NCAST, the *NCATS* is a valid measure to use with children over the age of 36 months as long as the length of the video tape is long enough for parent teaching techniques to be noted and the tasks are novel to the child being recorded (February, 2014). Therefore, the *NCATS* was used with children up to 41 months of age in the current study. The *NCATS* is an outcome measurement tool and has been used in hundreds of scholarly studies as well as in peer reviewed journal articles (*NCATS*, 2015). The *NCATS* measures responsive parenting skills for both mothers and

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fathers (Benzies, Harrison, & Magill-Evans, 1998; Boechler, Harrison, & Magill-Evans, 2003; Yago, et al., 2014).

The *NCATS* coding scheme includes 73 dichotomous items assessing presence/absence of responsive parenting behaviors such as praising the child or helping the child sit in a supported position to engage successfully in a task. There are four parenting behavior subscales: *Sensitivity to Cues (11 items)*; *Response to Distress (11 items)*; *Social-Emotional Growth Fostering (11 items)*, and *Cognitive Growth Fostering (17 items)*. The sum of the four subscales add up to the *Caregiver Total Score (CTS)*. The goal of this study was to test for change in responsive parenting behaviors thus the *CTS* will be the primary score used to track change.

Internal consistency reported by *NCATS* developers for the *Total Caregiver Score* is indicated by a Cronbach's alpha of 0.87 (Sumner & Speitz, 1994). Internal consistency is an analysis to measure whether items are measuring one dimension (Salkind, 2008). To determine if the items are measuring one dimension a correlation between items is measured. A low score (less than .70) indicates that the items are not measuring one dimension and may be measuring different constructs. Cronbach's alpha for the *CTS* based on all available pre-tests on the current sample was 0.64, post-test was .41, and follow-up was .46. These scores are low. The Early Head Start Technical Report (US Department of Health and Human Services, 2002) reported the same issues with low Cronbach's alpha scores (ranging from .24-.74). The authors of the report consulted with Kathryn Barnard, developer of *NCATS*, to explore possible reasons for low internal consistency. Based on the Early Head Start (EHS) report, there were three possible explanations for the low Cronbach's scores. The explanations included (a) the detailed coding that is required when scoring video tapes; (b)

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the shorter time allotted for the parent-child interaction that was allotted by the EHS researchers; and (c) the researchers only allowed parents to choose from two options for tasks to teach the child (US Department of Health and Human Services, 2002). The Early Head Start researchers chose to only use the Caregiver Total Score in their study which had a coefficient  $\alpha = .66$ . The issues with the NCATS faced by the EHS study may also be a factor in the current study, primarily the first two issues with the detailed coding required and length of taping. The NCATS Teaching Manual (Sumner and Speitz, 1994) did not define a minimum length of parent-child interaction but based on the EHS technical report there may have been an effect of the length of parent-child interaction on the internal consistency, this would be an issue in this study as well since there was no required minimum length of tape defined. I spoke with the Director of NCAST, Monica Oxford, regarding the issue of low Cronbach's alpha (March 18, 2016). She said, they have experienced low Cronbach's alpha as an issue in other studies as well. Their issues arose due to coder drift, lack of variability in the scoring, and the contingency items not be consistent due to the scoring being related to both the parent and the child. According to Fields (2006), alphas less than 0.70 can be acceptable when studying human behavior due to the "diversity of the constructs being measured" (p. 1). While the *CTS* Cronbach's alpha score in this study is considered to be in acceptable range based on Field's interpretation, the fact that there is a low Cronbach's alpha must be taken into account when interpreting the results of this study.

According to Monica Oxford, Executive director of *NCAST* programs, personal communication, February 26, 2014, if parents were able to teach a new task and the videos for parents with older children were not significantly shorter than those with younger children, then the use of the *NCATS* with older children was valid. A bivariate correlation

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analysis was conducted examining the relationship between the child's age and the length of video tape. There was a significant correlation between the child's age and the length of tape at pre-test and post-test but not at follow-up. The older a child was, the longer the recording was. This may be due to the complexity of the task being taught to older children. The longer tapes for older children support the use of the NCATS because there was time for parents to show their teaching skills.

One certified *NCATS* researcher coded 100% ( $N=188$ ) of the *NCATS* videos. A second certified *NCATS* coder who was blind to the intervention scored 47% ( $n=88$ ) randomly selected *NCATS* videos. Research staff labeled the tapes with numbers that did not reveal the cohort nor the time point of data collection (i.e. pre-test, post-test, or follow-up). The two certified *NCATS* researchers had a moderate to strong inter-rater reliability. The intra-class correlation coefficient (ICC) was used to test for inter-rater reliability due to: (a) its suitability for use with nominal data; (b) its value for studies with two coders; (c) its applicability when only a subset of participants tapes was double coded; and (d) the ICC addresses the amount of disagreement between coders (Hallgren, 2012). The ICC for the *CTS* was  $r=0.80$ ,  $p<.001$  at pre,  $r=0.77$ ,  $p<.001$  at post, and  $r=0.80$ ,  $p<.001$  at follow-up. The high intra-class correlation coefficient indicates that the *NCATS* coding scores given by the *NCATS* researcher who scored 100% of the videos was valid and issues of bias and coding drift were not significantly present. The scores recorded by the researcher who reviewed 100% of the videotapes were used for preliminary and primary analysis.

**Attendance.** Program staff documented attendance throughout the program in two ways. Parents signed in as they entered the room for the PUP on a weekly basis. The PUP staff also recorded attendance independently. Research staff crosschecked the attendance

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records with the sign-in sheet for accuracy at the end of each session. Any discrepancies were discussed and were resolved through discussion with research and program staff. If one staff person said they did not see a parent's name on the sign-in sheet, then staff were asked if they saw that parent during the session. If staff did see the parent during the session, then they were marked as being present. All five cohorts offered the same length of session, 2.5 hours thus each participant was offered 2.5 hours of intervention per session attended.

Parents were not required to sign-out after the PUP session therefore it is unknown if parents were present at the session actually received the full 2.5 hours of intervention. If participants completed the pre-test, post-test, and follow-up assessments then they were considered as "completers" of the program. The "completer" status was not attendance based but rather based on them engaging in all three time points of data collection.

### **Research Procedures**

Participants completed one written survey, *PUP Questionnaire*, and completed one parent-child interaction (*NCATS*) at three data collection time points. The study protocol was approved by the University of Maryland Institutional Review Board. Participants completed consent forms and assessments at the same location where they attended the PUP. Either the social work facilitator (cohorts 1-3) or the peer facilitator (cohorts 4 & 5) called the participants of the PUP to schedule assessments. Participants were individually scheduled with their child at a time they chose on specific days. Participants were reminded to bring their child. Assessments were scheduled one hour apart. The researcher, who was known to the participants due to her participation as a social work staff person in the PUP, met them at the door and walked them into the assessment room. The assessment room was used for childcare on the weekends and thus was child friendly with artwork on the walls and toys for

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the children to play with. The researcher and the parent(s) sat at a table to discuss the assessments while the child played with the toys.

A certified Nursing Child Assessment Teaching Scale (*NCATS*) researcher and an additional member of the PUP team collected data three times from each cohort. All participants engaged in the same research procedures on the same timeline. The same *NCATS* researcher collected data from all participants

After informed consent was obtained in writing from participants, they were asked to complete the Parent University Questionnaire, and engage with their child in play, which was videotaped and later scored using the *NCATS*. The majority of participants completed the assessments within 30 minutes. All participants were financially compensated. Each participant received \$30 at pre-test and post-test, and \$40 at follow-up. During each data collection session, the *NCATS* researcher offered to read the questionnaires aloud to the parent/caregiver and did so if it was requested. The researcher read one question at a time and documented the parent's response. The researcher marked the answers on the questionnaire using a pen. If the parent chose to read the questionnaires themselves, the researcher gave the parent a pen and sat quietly with them while they completed the forms. Once the questionnaires were completed, the researcher conducted the videotaped parent-child interactions.

Participants were shown a card that listed developmentally appropriate tasks to teach their child. The researcher instructed participants to select a task listed on the card, which the child was not familiar with. Once the parent selected the task, the *NCATS* researcher provided the parent with the necessary materials to teach the task. Examples of materials include a rattle, a crayon and paper, or one-inch blocks. Parents were asked to instruct their

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child on how to do the selected task and to notify the *NCATS* researcher when they were finished so the recording could be stopped. Participants sat at a small table positioned in the middle of the room if appropriate for the specific task chosen. If the task required gross motor activity such as hopping on one foot, they stood in the center of the room. Participants who had very small infants were seated on a child-sized chair facing the researcher videotaping the interaction. The *NCATS* researcher sat quietly and recorded the parent-child interaction. The taping was limited to 7 minutes. The average length of pre-test recording was 3.52 minutes ( $SD=2.32$ , range .41-7.00), at post-test 3.38 ( $SD=1.92$ , range .26-7.00), and at follow-up 3.90 minutes ( $SD=2.35$ , range .56-7.00). According to Monica Oxford, *NCATS*, the minimum length of taping was not documented in the Technical manual but they set an expectation of 60 seconds. When asked if 56 seconds was acceptable she said she felt that it was within range (March 18, 2016)

At post-test and follow-up, the researcher discussed the “Teaching loop” prior to beginning the assessment. This was done because it was part of the clinical protocol. The “Teaching Loop” is not used in research studies but because of the researcher’s experience with clinical use she taught it as part of the data collection process. The “Teaching Loop” is a three-step method for parents to teach their child a new task: (a) obtain the child’s attention, (b) demonstrate the task, and (c) praise the child’s attempts at completing the tasks. The “Teaching Loop” describes the steps for teaching a new task but not the specific strategies to be used in each of those steps. Research staff did not discuss specific strategies as part of the description of the “Teaching Loop”.

### **Data Analysis Plan**

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Data were entered in Statistical Package for the Social Sciences (SPSS) version 20 (SPSS, Inc., 2011) by research staff and student interns at the University of Maryland School of Social Work. Data were double-checked by second researcher/intern to decrease the risk of data entry error. An alpha level of  $p < .05$  was used for all analysis. Only participants who completed all three times ( $n = 42$ ) of data collection were included in the preliminary and primary data analysis.

This study answered five research questions, two preliminary and three primary. The preliminary analysis answered the following two research questions: (a) is there an association between the parent's age and education with responsive parenting behaviors and (b) is there an association between the child's age and responsive parenting behaviors. The purpose of these preliminary questions was to inform what variables needed to be included as covariates and independent variables in the primary analysis. Primary analysis answered the following three questions (a) does responsive parenting improve over time among caregivers who attended PUP; (b) is the type of facilitator a significant factor in the change in responsive parenting behaviors over time; and (c) are the number of hours of the PUP attended a significant factor in the change in responsive parenting behaviors over time.

**Preliminary and primary data analysis.** Data analysis by preliminary and primary research questions are described below.

***Preliminary questions.*** Preliminary questions were answered using *Pearson's Correlation Coefficient* and *t*-tests. *T-test* analysis was used to analyze differences in *NCATS* scores based on caregiver education. *Pearson's Correlation* was used to test for association between caregiver's age and *CTS*. Child's age and *CTS* was tested using *Pearson's Correlation Coefficient*. Any significant association or difference led to the inclusion of the

variable as either an independent variable as a covariate in the primary analysis due to possible effects on outcome.

**Primary questions.** Primary questions were answered using repeated measures analysis of variance so that change over time could be examined. Descriptives, estimates of effect size, and homogeneity tests were requested for all repeated measures analysis. A full factorial model was selected. The main effects of this model were compared with Sidak confidence interval adjustment. Assumptions of multivariate normality, homogeneity of covariance matrices, and sphericity were tested. Homogeneity of covariance matrices was tested using Box's Test of Equality of Covariance Matrices. A non-significant indicated that the assumption of homogeneity of covariance was met. A significant value indicated that the assumption had been violated. If the assumption was violated, then the Pillai's Trace would be interpreted in the Multivariate test rather than the Wilks Lambda. Homogeneity of variance was also tested for the covariates using Levene's test (Levene, 1960). A non-significant ( $p > .05$ ) Levene's test indicated that the assumption of homogeneity had been met. A significant result ( $p < .05$ ) indicated that the variances are not homogenous and thus the assumption of homogeneity had been violated. Mauchly's test of sphericity which tests for differences in variance between observation points was conducted. Sphericity is the assumption that the variance and covariance between observations are approximately equal. A significant result indicated that the assumption of sphericity had been violated. If the assumption was violated, I used the Huynh-Feldt or Greenhouse-Geisser correction (if the epsilon was greater than 0.75). Both of these corrections provide a valid  $F$  ratio if the assumption of sphericity was violated.

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The first primary question measured the change in responsive parenting behaviors over time. The dependent variable (*CTS*) was continuous. The within-subjects factor (“time”) had three levels.

The second primary question assessed for the effect of type of facilitator on change in responsive parenting behaviors over time. Cohorts 1-3 were facilitated by social workers. Cohort 4 and 5 were facilitated by a peer leader. The type of facilitator (social worker versus peer) was chosen as a variable to test for the effect of type of facilitator for change in responsive parenting behaviors.

The third primary question assessed for the effect of number of hours attended on change in responsive parenting behaviors over time. The issue of number of hours attended speaks to the dosage of the PUP. According to Gross, et al., (2014), it is important to test associations between dosage and outcomes in order to maximize understanding of implementation effects. Number of hours were measured as both percent attended and number of hours attended. A Pearson correlation analysis was conducted and as expected the two methods of measurement were highly correlated,  $r = .928, p = .001$ . The five cohorts were offered for different number of weeks (6-10 weeks) thus the percent attended does not speak to the dosage. A participant who came to 100% of sessions during cohort 1 received 15 hours of the PUP while a participant who came to 100% of sessions in cohort 5 received 25 hours of PUP. Therefore, the number of hours a parents was exposed to PUP was used as a covariate in the third primary research question. The number of hours attended ranged from 0-25.

A *t-test* was conducted to determine if there was as significant difference in the number of hours attended by type of facilitator. Cohorts facilitated by social workers were

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offered for 6-10 weeks (15-25 hours) whereas cohorts facilitated by peers were only offered for 10 weeks (25 hours). Thus, participants who attended groups facilitated by peers were able to receive more hours of the PUP than those who attended groups facilitated by social workers. Participants who attended the groups facilitated by social workers attended an average of 10.22 (SD=6.07) hours of the PUP whereas participants who attended groups facilitated by peers attended 17.76 hours (SD=6.06),  $t(40) = -4.01$ ,  $p = .000$ . This difference in average number of hours attended may be a reflection of the possible number of hours a participant could attend. As stated previously, social work facilitated groups ranged in possible hours from 15-25 but peer facilitated groups were all 25 hours. Whereas there was a significant difference between number of hours attended and type of facilitator there was also a significant difference in number of hours attended between cohorts,  $F(4, 41) = 5.02$ ,  $p = .002$ . Due to the difference in number of hours between cohorts and by type of facilitator, both number of hours and type of facilitator are included in the primary analysis.

**Covariates and independent variables.** All five research questions use the *CTS* on the *NCATS* as the outcome variable. The caregiver's age and level of education are frequently seen as confounding variables in evaluation studies of parenting programs (Sumner & Speitz, 1994) thus age was entered as a covariate and level of education was entered as an independent variable in preliminary analysis. Based on the work of Sumner and Speitz (2004), teen parents and older parents differed in their scores on the *NCATS*. Levels of education were also seen as a factor predicting differences in scores on *NCATS* (Sumner & Speitz, 2004).

## Chapter IV. Results

This chapter has three sections. The first section describes the results of the preliminary data analysis. The second section describes the results of the three primary research questions. The conclusions from the results are described in the third section.

### Preliminary Data Analysis

Participants completed assessments within two weeks of beginning the PUP ( $N=86$ ). Valid *NCATS* tapes were completed by 79 participants at pre-test for the PUP (see Table 7 for description of participant data completion by time point). Several participants came for the pre-test taping but were not able to complete the recording due to child sleeping or technical difficulties ( $n=7$ ). At post-test, 57 participants completed the *NCATS* videos and 52 completed the follow-up videos. Pre-test and post-test *NCATS* were completed by 52 participants (62%). Approximately, half  $n = 48$  (55.8%) of the participants completed the pre-test and follow-up *NCATS*. Participants completed both the post-test and follow-up tests,  $n = 46$  (53.5%). There were 42 participants (49%) who completed all three-time points of videos. Only participants who completed all three times of data collection were included in this study ( $n=42$ ). An analysis of variance was conducted to test for differences between participants who completed all three time points of data collection and those who did not. There were no significant differences in caregiver age,  $F(1,83) = 2.73, p = .102$ , and child age,  $F(1,84) = 2.96, p = .089$ , between those who completed three time points of data collection and those who did not. Parents with higher education (high school diploma/GED and above) were more likely to complete all three data collection time points than those with lower education,  $\chi^2(1, N=86) = 6.79, p = .009$ . Parents who were included in the study did have a

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significantly more responsive parenting behaviors than parents who were not included in the study,  $F(1, 78) = 9.03, p = .004$ .

Table 7

*Completed NCATS videos (N=86)*

	Measures collection	Completed valid NCATS
Pre-test		79
Post-test		57
Follow-up		52
Participants who completed all 3 valid tapes		42

Caregiver scores on the *CTS* are the primary outcome variable being measured. The research question being answered was whether the caregivers who participate in the PUP displayed a change in responsive parenting behaviors. The caregiver who attended the PUP had to be the primary caregiver for the child whether that be a grandmother, father, mother, or aunt etc. The same caregiver attended each week and they were the person to complete the assessments. The majority of caregivers who completed all three time points of data collection were mothers ( $n=36, 86\%$ ), fathers were the second largest group ( $n=4, 10\%$ ) and grandmothers were the third largest group ( $n=2, 5\%$ ). Analysis showed there were no significant differences in *CTS* between types of caregivers at pre-test, post-test, and follow-up nor differences in change scores (See Table 8 for results).

Table 8

*CTS pre-test, post-test, and follow-up means for mothers versus other type of caregivers (n=42)*

	Relationship		<i>t</i>	<i>df</i>	<i>p</i>
	Mother ( $n=36$ ) <i>M</i> ( <i>SD</i> )	Others ( $n=6$ ) <i>M</i> ( <i>SD</i> )			
Pre-test	33.61 (5.15)	33.50 (6.16)	.05	40	.962
Post-test	38.08 (4.47)	37.17 (6.05)	.44	40	.661
Follow-up	38.00 (4.22)	36.83 (3.76)	.64	40	.529

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Change between					
Pre-post	4.47 (6.02)	3.67 (3.93)	.32	40	.755
Pre-follow-up	4.39 (5.88)	3.33 (3.27)	.43	40	.672
Post-follow-up	-.08 (4.46)	-.33 (2.94)	.132	40	.896

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The research questions and corresponding data analysis are described below.

**Preliminary research question 1. Is there an association between caregiver characteristics and responsive parenting behaviors?** Before conducting the primary analysis, it is important to test for association with possible confounding variables as identified by theory (Sumner & Speitz, 1994). Associations between caregiver's education (no high school diploma or GED versus with high school diploma/GED or greater) and age with CTS and changes scores were tested (See Table 9 and 10 for results of tests of association and differences in mean score).

*Pearson Correlation Coefficient* analysis was conducted to test for associations between continuous variables. The caregiver's age and CTS (and change scores) had no significant association.

*T*-tests were conducted to test for differences in CTS and change scores for categorical variables. A mean difference in score on the CTS post-test was found for caregivers with high school diplomas and above versus those with less than a high school diploma,  $t(39) = -2.56, p = .014$ . Caregivers with higher education scored significantly higher ( $M = 40.62, SD = 4.09$ ) on the post-test than those with lower education ( $M = 36.86, SD = 4.49$ ). No other significant differences in CTS (or change scores) were found based on the caregiver's education.

The significant association between the caregiver's level of education and CTS at post-test indicates that education may be a confounding factor and thus should be included as

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an independent variable in the primary analysis. Caregiver age and CTS were not significantly correlated thus age was not included in the primary analysis.

Table 9

*Mean CTS by caregiver education (n=42)*

	Caregiver education		<i>t</i>	<i>df</i>	<i>p</i>
	Low education <i>M (SD)</i>	High education <i>M (SD)</i>			
Pre-test	33.11 (4.72)	34.08 (6.14)	-.56	39	.581
Post-test	36.86 (4.49)	40.62 (4.09)	-2.56	39	.014
Follow-up	37.29 (4.08)	39.31 (4.09)	-1.48	39	.148
Change between					
Pre-post	3.75 (5.43)	6.54 (5.43)	-1.53	39	.134
Pre-follow-up	4.18 (5.02)	5.23 (6.13)	-.58	39	.564
Post-follow-up	.43 (4.86)	-1.31 (2.50)	1.21	39	.234

Table 10

*Correlation for CTS (and change scores) and caregiver age (n=42)*

	Caregiver age	
	<i>R</i>	<i>p</i>
Pre-test	.13	.434
Post-test	-.09	.571
Follow-up	.08	.622
Change between pre-test and post-test	-.19	.224
Change between pre-test and follow-up	-.06	.711

**Preliminary research question 2: Is there an association between the child's age and responsive parenting behaviors?** The child's age had a small to moderate association ( $r=.24$ ) with *NCATS* scores in the study conducted by Sumner and Speitz (1994) thus child's age was included in the preliminary analysis in this study to test for possible effects on outcomes. *Pearson correlation* analysis was conducted in order to test for an association between the child's age and scores on the CTS (See Table 11 for results). Significant results would indicate that the child's age needed to be controlled and would be entered as a covariate in the primary analysis.

The average age of the child whose parents completed all three time points of data collection was 20.54 months ( $SD=12.80$ , range- 4 weeks-41 months). A significant association between the CTS at pre-test was found with the child's age,  $r=.44$ ,  $p=.003$ . The older a child was, the higher their CTS at pre-test. A significant association between child's age and change in CTS between pre-test and post-test was also found,  $r=-.38$ ,  $p=.012$ . Older children showed less change than younger children indicating a possible ceiling effect. This pattern continued between pre-test and follow-up,  $r=-.40$ ,  $p=.008$ .

The significant association between the child's age and the pre-test CTS as well as the change in CTS between pre-test and post-test and pre-test and follow-up test, support the inclusion of the child's age in the primary analysis. Child's age at pretest was entered as a covariate in the primary analysis to control for the effect.

Table 11

*Correlation for CTS (and change scores) and child age (n=42)*

	Child's age	
	<i>r</i>	<i>p</i>
Pre-test	.44	.003
Post-test	.02	.886
Follow-up	.01	.929
Change between pre-test and post-test	-.38	.012
Change between pre-test and follow-up	-.40	.008

### Primary Data Analysis

Results of primary data analysis are described below:

**Primary research question 1: Does responsive parenting improve over time among caregivers who attended PUP?** A repeated measures analysis of variance was conducted to test whether there was a change in responsive parenting behaviors over time for participants of the PUP (See table 11 for results of repeated measures analysis of variance). Caregiver level of education was entered as an independent variable. Child's age was entered as covariate. The average score on the *CTS* at pre-test was 33.43 ( $SD=5.22$ ), at post-test it was 37.98 ( $SD=4.70$ ), and at follow-up it was 37.88 ( $SD=4.18$ ). Box's Test of Equality of Covariance Matrices and Levene's test of equality of error variances were both non-significant indicating that the assumption of variance-covariance as well as homogeneity of variance were met. Mauchly's test of sphericity was non-significant indicating that the assumption of sphericity was met,  $\chi^2 (2) = .98, p=.722$ . Scores on the *CTS* were statistically significantly different between the different time points of data collection,  $F (2, 74) = 4.31, p=.017, \eta^2=.104$ . Pairwise comparison indicated a significant increase in responsive parenting behaviors between pre-test and post-test as well as pre-test to follow-up. The interaction between child's age and time was significant,  $F (2,74) = 7.78, p=.001, \eta^2=.17$

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indicating that whereas the change in responsive parenting over time was significant, the age of the child must be taken into account when considering the efficacy of the PUP. As seen in the preliminary analysis, older children had higher scores at pre-test and showed less change than younger children but due to the risk of ceiling effect this outcome should be interpreted with caution.

Based on the Sidak pairwise comparison, there were significant mean increases between pre-test and post-test as well as pre-test and follow-up (See Table 12 for results of pairwise comparison). There was no significant change in CTS post-test to follow-up indicating that the change in responsive parenting behaviors was maintained three months after the intervention concluded. The effect sizes were very small ranging from .10-.17 in the significant findings indicating that time could explain 10% of the change in scores and the child's age and time explained 17% of the change in score. A small effect is  $r=.10$ , medium is  $r=.30$ , and large is  $r=.50$  (Cohen, 1992). Cohen defined a medium size effect as “an effect likely to be visible to the naked eye of a careful observer” (p. 156). These effect sizes are small but were statistically significant.

The NCATS has clinical cut-off scores. The clinical cut-off score for African American participants with children 1 month-12 months is than 30 points on the CTS, or 34 points for participants with children 13 months-36 months. For Hispanic participants the cut-off scores for 1-36 months is 33. For Caucasian parents it is 34 points for 1-12 months and 39 points for 13-36 months. Approximately 31% of participants who completed all three time points of data collection for this study scored in the clinical range at pre-test and only 9.5% scored in the clinical range at post-test (See Table 13 for breakdown of clinical classification by time of data collection). Approximately 24% of participants who completed pre-test, post-

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test, and follow-up assessments changed from clinical status to non-clinical status between the pre-test and post-test. A chi-square test was performed to examine the relation between clinical status and time point of data collection (pre-test vs post-test). The relationship between these variables was significant,  $\chi^2 (1, n=42) = 9.86, p < .002$ . Participants were more likely to be in the clinical range at pre-test than at post-test.

Table 12

*Repeated measures ANOVA (n=42)*

Effect	MS	df	F	p	$\eta^2$
Time	47.91	2	4.31	.017	.10
Child's age	72.08	1	1.93	.173	.05
Caregiver education	123.63	1	3.31	.077	.08
Time*Child's age	86.49	2	7.78	.001	.17
Time*Caregiver education	16.62	2	1.49	.231	.04

Table 13

*Pairwise comparison of CTS results between pre-test, post-test and follow-up (n=42)*

Time point	Mean difference	SE	P	CI	
				LL	UL
Pre-test to Post-test	-4.55	.76	.001	-6.49	-2.61
Pre-test to Follow-up	-4.45	.76	.001	-6.37	-2.54
Post-test to Follow-up	.100	.69	.999	-1.64	1.84

Table 14

*Participants who scored within clinical range and change in clinical status between pre-test and post-test (n=42)*

Clinical status	n (%)
Clinical status at pre-test	13 (31)
Clinical status at post-test	4 (9.5)
Clinical status at follow-up	4 (9.5)
Maintained clinical status	3 (7.1)
Moved from clinical to non-clinical status	10 (23.8)
Maintained non-clinical status	28 (66.7)
Moved from non-clinical to clinical status	1 (2.4)

**Primary analysis research question 2: Is the type of facilitator a significant factor in the change in responsive parenting behaviors over time?** A repeated measures analysis of variance was conducted with the CTS at pre-test, post-test and follow-up as the variable for time (See Table 15 for results). Type of facilitator was entered as the between-subjects' variable. Caregiver education was entered as an independent variable and child's age was entered as a covariate. Box's test of equality of variance-covariance matrices and Levene's test of equality of error variances were non-significant indicating that the assumptions of homogeneity of variance-covariance matrices as well as homogeneity of variance were met. Mauchly's test of sphericity was non-significant indicating that the assumption of sphericity was met,  $\chi^2 (2) = .98, p = .646$ . The  $F$  statistic for sphericity assumed was used to report the test of within-subjects' effects. The main effect of the PUP over time was significant,  $F (2, 72) = 5.03, p < .009, \eta^2 = .12$  indicating that participants did show a significant increase in responsive parenting behaviors as measured by the CTS. Type of facilitator did not have a significant main effect on change in responsive parenting for participants in the PUP,  $F (1, 36) = .75, p = .393, \eta^2 = .02$ . The interaction effect between the type of facilitator and time was non-significant,  $F (2, 72) = 2.80, p = .067, \eta^2 = .07$  indicating that over time the type of facilitator did not have a significant effect on the change in responsive parenting behaviors. The interaction effect between age of child and time was significant,  $F (2, 72) = 8.62, p = .001, \eta^2 = .19$  indicating that again, the age of the child must be taken into account when assessing the efficacy of the PUP. A Sidak pairwise comparison was conducted to test for differences between pre-test, post-test, and follow-up (See Table 16 for results). Parents displayed a significant increase in responsive parenting behaviors between pre-test and post-test as well as pre-test and follow-up. There was no significant

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change between post-test and follow-up indicating there was a significant improvement in responsive parenting behaviors, which was maintained. The effect sizes were again small ranging from .12-.19 for significant factors. Time explained 12% of the change in responsive parenting behaviors and time with child's age explained 19%.

Table 15

*Repeated measures ANOVA with time and type of facilitator (n=42)*

Effect	<i>MS</i>	<i>Df</i>	<i>F</i>	<i>p</i>	$\eta^2$
Time	53.40	2	5.03	.009	.12
Facilitator	28.07	1	.75	.393	.02
Child's age	68.26	1	1.74	.196	.05
Caregiver education	98.98	1	2.64	.113	.07
Time x caregiver education	9.04	2	.85	.431	.02
Time x child's age	91.44	2	8.62	.001	.19
Time x facilitator	29.74	2	2.80	.067	.07

Table 16

*Pairwise comparison of change in mean CTS (n=42)*

Time point	Mean difference	<i>SE</i>	<i>P</i>	<i>CI</i>	
				LL	UL
Pre-test to Post-test	-4.51	.73	.001	-6.33	-2.69
Pre-test to Follow-up	-4.47	.77	.001	-6.40	-2.55
Post-test to Follow-up	.032	.66	1.00	-1.62	1.68

### **Primary analysis research question 3: Are the number of hours of the PUP attended a significant factor in the change in responsive parenting behaviors over time?**

A repeated measures analysis was conducted with the CTS at pre-test, post-test and follow-up as the variable for time (See Table 17 for results). Number of hours attended and child's age were entered as covariates. Caregiver's education was entered as an independent variable. Box's test of equality of variance-covariance matrices and Levene's test of equality of error variances were non-significant indicating that the assumptions of homogeneity of

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variance-covariance matrices as well as homogeneity of variance were met. Mauchly's test indicated that the assumption of sphericity was met,  $\chi^2 (2) = .99, p=.764$ . The main effect of the PUP over time was significant,  $F (2, 72) =5.16, p<.008, \eta^2=.13$ . There was no significant main effect or interaction effect of number of hours attended and the PUP. There was a significant interaction between the age of the child and the change in responsive parenting behaviors over time,  $F (2, 72) =89.47, p=.001, \eta^2=.19$  indicating that the child's age must be taken into consideration when assessing the efficacy of the PUP. Pairwise comparison showed that there was a significant increase in CTS between pre-test and post-test as well as pre-test and follow-up (See Table 18 for results). There was no significant change between post-test and follow-up. The effect size in the results of this analysis are small, ranging from .12-.18 for significant factors. Time explained 12% of the change in responsive parenting behaviors and time with child's age explained 18%.

Table 17

*Repeated measures ANOVA with time and number of hours attended (n=42)*

Effect	MS	Df	F	P	$\eta^2$
Time	54.79	2	5.09	.009	.12
Number of hours attended	.128	1	.00	.954	.00
Child's age	65.86	1	1.76	.193	.05
Caregiver education	117.26	1	3.13	.085	.08
Time x number of hours attended	23.91	2	2.22	.116	.06
Time x child's age	84.86	2	7.88	.001	.18

Table 18

*Pairwise comparison of change in mean CTS (n=42)*

Time point	Mean difference	SE	P	CI	
				LL	UL
Pre-test to Post-test	-4.63	.74	.001	-6.48	-2.79
Pre-test to Follow-up	-4.51	.76	.001	-6.41	-2.62
Post-test to Follow-up	.12	.68	1.00	-1.81	1.57

## **Conclusions**

The results of the primary analysis conducted in this study suggest that participants in the PUP did have a significant change in responsive parenting behaviors between pre-test, post-test, and follow-up but the type of facilitator and mean number of hours attended were not significantly associated with this change. The age of the child was a significant covariate and thus must be considered when implementing and evaluating the PUP. The lack of association between number of hours attended and change in responsive parenting behaviors brings into question whether the changes noted were as a result of maturation or due to intervention. This issue is further examined in the discussion chapter.

## Chapter V. Discussion

The results of this study suggest that further exploration of community-based parenting programs based on common components and facilitated by peers is warranted. PUP participants showed improvement in responsive parenting behaviors. The change in responsive parenting behaviors using a model developed with common components of evidence based models is both informative and important due to (a) financial constraints, (b) transitional staffing, and (c) clinicians' concerns that evidence-based models are not created and implemented in the "real-world". The type of facilitator was not associated with the change in parenting behaviors. Due to the small sample size and lack of random assignment and control group this result should be interpreted with caution but does suggest that further exploration may be beneficial. The number of hours attended was not associated with the change in behaviors which raises questions about what other variables, besides attendance, might influence the positive changes noted.

The change in responsive parenting behaviors was less for caregivers with older children than younger children. The *NCATS* was developed for parents with children of 1 month to 36 months of age (Sumner & Speitz, 1994). The PUP had children of up to 41 months old. Parents with older children had a higher pre-test score than parents with younger children. It is possible then that parents with older children felt more comfortable teaching them new skills because they had more practice and familiarity with that child. It is also possible that the children already had some exposure to the "novel" task unbeknownst to the parents. It is also possible that the PUP, which was developed using common components of programs targeting children birth to three, is more effective and appropriate for children younger than 36 months of age. And thus it is possible that the age of acceptance for children

into the program should be adjusted to children of birth through two years rather than birth through three years.

Change in responsive parenting behaviors was not associated with the type of facilitator. If there had been a significant relationship, and professionals had higher change scores that would have suggested that peers could not facilitate programs as effectively as professionals. There was no clear pattern of change related to type of facilitator.

No significant association between type of facilitator and rate of attendance was present. Due to this non-significant association it would suggest that the type of facilitator was not a significant variable in rate of attendance. The interaction between time and type of facilitator was non-significant. The non-significant finding may be as a result of small sample size rather than truly reflecting a non-significant effect. Research design also must be accounted for when interpreting results due lack of randomization and control group. None of the evidence-based programs reviewed for this study had evaluated the efficacy of using peers as facilitators. Conversely, none of the peer-facilitated programs reviewed in this study had evaluated the efficacy of using professionals as facilitators either.

The current study offers a preliminary look at the comparative effects of using peers as facilitators versus social workers as well as implementing a community-based parenting program modeled after common components of evidence-based parenting programs. Due to the design limitations (to be discussed in a subsequent section) and small sample size it would be important to continue exploratory studies and follow-up with randomized control trials as the confirmatory analysis.

It would seem intuitive that the number of hours attended would be associated with the change in responsive parenting behaviors but in this study that association was not the

case. There are several possible explanations for why attendance is not associated with changes in parenting behaviors. First, there may be unknown variables mediating the effect of number of hours on responsive parenting. Children with health and developmental impairments have significantly lower cognitive growth fostering scores on the NCATS than parents with typically developing children (Pei-Jung, Morgan, Ai-Wen, Li-Chious, & Hua-Fang, 2014; Barnard, et al., 1987). Yet, the developmental and health status of the children were not assessed for this study therefore we don't know if these variables existed and might be related to attendance and change in parenting behaviors. The mother's sleep quality, intention of childbearing, and premature delivery were not assessed in this study though all of these variables were found to be associated with lower scores on responsive parenting domains (Treyvaud, Rogers, Mathews, & Allen, 2010). It is also possible that a number of confounding variables, such as different social work facilitators and varied number of weeks offered might mask the relationship between the number of hours attended and improved parenting. In a study conducted by Garvey, et al., (2006), attendance in parenting programs did not necessarily impact changes in parenting behaviors, but rather it was the level of parent engagement that was related to changes in parenting behaviors. Garvey et al. (2006) suggest that engagement was an important variable in the change in parenting behaviors and thus should be measured when conducting program evaluations of parenting programs. A parent engagement scale might offer a positive contribution to the evaluation of PUP in future implementations and should be added to the existing assessment tools used. As stated previously, the participants of the PUP were not asked to sign-out of the session when they left therefore we do not know if they received the full 2.5 hours of intervention when they attended the session. Therefore, I was able to document that they attended the session but not

how many hours of the intervention they actually received. The lack of association between the number of hours of intervention received and change in responsive parenting behaviors may be a reflection of the unclear number of hours' participants actually attended.

### **Strengths and Limitations**

The current study, as any study, has its strengths and limitations. The “gold standard” of intervention research is a randomized control trial (Shadish, Cook, & Campbell, 2002). The current evaluation of PUP has a quasi-experimental design but does not have a comparison or control group, thus there may be selection biases and the results should be interpreted with caution. The lack of randomized assignments (Shadish et al., 2002) might also increase the threat to internal and external validity due to possible sampling bias. In a quasi-experimental design, researchers need to strongly consider alternative explanations for outcome changes (Shadish, et al., 2002). As it is not possible to enumerate all the alternative explanations that impact outcomes, only those threats to validity that are most apparent in this study are discussed.

Internal validity can be jeopardized by events that occur between pre-test and post-test, often termed the threat of history. It is plausible that events, rather than the treatment intervention, could cause changes in responsive parenting behaviors. The Promise Heights community offers other services through the Head Start, Judy Center and/or Women, Infants and Children (WIC) thus it is possible that participants receiving these services will show a change in parenting behaviors regardless of participation in the PUP. All five cohorts were recruited through the same methods therefore all participants had the same likelihood of receiving additional services. The threat of history is ingrained in the design and ever present because one of the objectives for this study was to compare the outcomes of the PUP across

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cohorts and over time. Participants completed the parent-child interaction within 2-weeks of the PUP beginning therefore the assessments were not completed immediately preceding the participant beginning the PUP intervention. The time lag between data collection and beginning the program does create a risk that the parent may have experienced some other intervention between data collection and receiving the PUP intervention. A randomized control trial might help in reducing the threat of history as it controls for selection bias even if an “event” occurs during implementation.

Another concern for the PUP study specifically is the threat of maturation. The rapid growth and development in young children renders the threat of maturation especially high. Participants may experience a change in responsive parenting behaviors due to their child maturing. Parents with older children scored higher at pre-test on the *NCATS*, which might be reflective of potential maturation bias. Responsive parenting behaviors may increase based on the length of time a parent cares for the child. The longer care span and the maturation of the child between the beginning of the program and its completion may have resulted in increased responsivity regardless of participation in the program. The *NCATS* was developed to measure responsive parenting behaviors over time and therefore is calibrated to account for, or at least estimate, the difference that maturation may have on the measurement of responsive parenting behaviors over time thus controlling for the threat of maturation.

When participants are given the same test repeatedly there is a risk of testing effects which means that changes in scores may be as a result of exposure to the test and not the intervention (Shadish, et al., 2002). The *NCATS* is an observational tool thus, unlike factual tests, there is no information that the parent can “research” between times of data collection. Participants of the PUP completed the same assessments three times. Although parents were

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not told what strategies or interventions were being assessed, practice and sheer familiarity with the testing experience could also result in improved results. The threat of testing effects is typically more of a concern with measures that require factual recall or when the period between testing is short (Onwuegbuzie, 2003). The threat of testing bias can be decreased by allowing time between testing episodes. PUP participants' completed follow-up assessments three months following the completion of the program. The relatively lengthy time period between testing episodes might help to avert or at least minimize the testing bias.

It is quite possible that there was a threat of instrumentation and researcher bias in this study. Researchers may improve their observation skills over time as they gain experience. All five cohorts had the same researcher code their pre/post and follow-up videos. This researcher was also a part of four of the five intervention cohorts. Her familiarity with the families and experience in coding the videos may introduce instrumentation bias to the study. The *NCATS* is used for research and clinical purposes. Interventionists use the *NCATS* as a clinical tool and therefore are familiar with the families and have expertise in observational skills. The *NCATS* is therefore a valid and reliable tool with these two variables of familiarity and experience. Approximately half of the *NCATS* videos were scored by a *NCATS* certified researcher who was blind to the intervention. The inter-rater reliability was high (ranging from .77-.80) suggesting that the primary coder for the PUP was convincing in her scoring of the *NCATS*. Double coding was used to address the issue of researcher bias and instrumentation. The Cronbach's alpha for this study on the *NCATS* was low indicating that the tool may be measuring a different construct than expected when being applied to this study. The low alpha could be a reflection of the tool being too long (as was cited in the Early Head Start study). Another explanation is that the

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population who was included in the PUP study was a high risk population including children from a community with high violence and high crime therefore the NCATS may not be appropriate to use with traumatized children and thus the alpha scores were very low.

Another threat to validity is the unreliability of treatment implementation. The PUP ranged in dosage from 6-10 weeks and the strategies used to build responsive parenting behaviors varying between cohorts. Treatment fidelity was not measured. The implementation of treatment can often be unreliable which leads to effects being underestimated and, leads to an increase in the risk of Type II errors (Shadish, et al., 2002). For the last three cohorts the PUP has been implemented in ten-week time-frames. There was no requirement regarding time of arrival and time that the participants left therefore I have no evidence that the caregiver received the full 2.5 hours of intervention every week they attended. Due to the PUP model being changed after each iteration to meet the needs of the community, the results of this study should be interpreted with caution. Based on the association between change in responsive parenting behaviors and participation in the PUP (for those who completed pre/post/and follow-up assessments) the results support further exploration with a more rigorous research design such as random assignment with control group.

A threat to external validity raises the question whether the relationship found in the study can extend to other variations in persons, settings, treatment and outcomes (Shadish, et al., 2002). The PUP may or may not work with populations from other communities. The Promise Heights initiative is one of only ten communities in the country who received a Promise Neighborhoods planning grant in 2012 and therefore has a set of unique characteristics that may not be found in other urban communities. It is unclear whether

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participants of the PUP would have shown a change in parenting behaviors if they had not been involved with other community programs (e.g. Judy Center, WIC, etc.). To test for external threats to validity, comparison groups in other urban settings need to be identified and the Parent University Program implemented with fidelity. A randomized control trial using varied communities would reduce the threat to external validity and increase the ability to generalize the outcomes.

There is a sample bias in this study. Only participants who completed all three time points of data collection were included in the analysis. By definition, the sample is different than those who did not complete all three time points of data collection thus the results may be biased. Future research should include all participants of the PUP and look at factors that predicted completion of the program.

Repeated Measures ANOVA requires independence of observation for participants. Individuals completed the assessments but they were part of a group. Therefore, while the observations were independent they took place within a group shared experience. The group experience makes the “independence” less valid for the purposes of this analysis.

A power sensitivity analysis was conducted using G\*Power 3.1.2 to determine the effect size related to specific sample sizes for a repeated measures analysis. A repeated measures analysis with two groups (peer facilitated and social worker facilitated) with an alpha of .05 and a sample size of 42 will have power of 0.80 to detect a moderate effect ( $d=0.48$ ). This means that there is an 80% chance of correctly identifying an effect with a moderate effect size. Cohen’s  $d$  calculates the difference in mean scores in standard deviations. A small sample size makes it difficult to achieve statistical significance when measuring effect size (Osteen & Bright, 2010). A review of the effect size range for the

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evidence-based models that informed the development of PUP showed a range of effect sizes from no effect size ( $d=0.00$ ) to large effect size ( $d= 0.64$ ) (Gross, 2009). The average effect size of the evidence-based models that informed the development of PUP was  $d=.34$  indicating a small to medium effect size. Partial eta square indicates the percent of variance in the dependent variable that can be attributed to the independent variable. The effect size in this study for significant variables ranged from .10 for the main effect of time to .19 for the interaction effect of time and child's age when type of facilitator was entered into the model. All of the effect sizes fall within the small to medium range for partial eta square (Cohen, 1992). The range of effect size found in this study show that while the effect is small it is important enough for further consideration. The small effect size also suggests that there may be other variables that are affecting the outcome that are substantive enough for further investigation.

A strength of this study is that implementation and research occurred in a “real-world” setting. Michelson, Davenport, Dretzke, Barlow, and Day (2013) cited practitioners' feelings that evidence based interventions do not take “real-world” conditions into account and therefore the interventions are not applicable to their work. The “real-world” conditions in this study included clients having multiple risk factors and issues with attendance. The development and implementation of the PUP happened in a community facing multiple challenges such as poverty, crime and unemployment. The developers of the PUP made changes to the curriculum using feedback from the community and thus it was more likely to reflect the “real-life” experiences and expectations of the community rather than those of the researchers. Attendance was not a requirement for completion of the program but rather if a parent completed the assessments then they were considered to have graduated from the

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program. The participants were compensated for completing the assessments but not for attending the sessions therefore there were participants who completed all three time points of data collection but did not attend any sessions ( $n=3$ ).

Peer facilitators were chosen from the community and the PUP was implemented in an already existing community setting - the church. Participants came voluntarily and were not required to attend by an external agency such as child protective services. The “real world” environmental factors listed above could definitely create challenges in program evaluations but they reflected what community-based parenting programs face on a regular basis.

### **Conclusion**

The PUP is associated with improvements in responsive parenting behaviors that are both statistically and clinically significant. The change in responsive parenting behaviors was not associated with the type of facilitator indicating that further exploration of type of facilitator and change in parenting behaviors is warranted. Due to the lack of association between change in responsive parenting behaviors and number of hours attended, a measure to assess parent engagement should be added to assess if parent engagement is associated with change. Fidelity monitoring should be implemented. The results of this study suggest a viable way forward that can inform future community-based parenting programs..

## **Appendix A**

### **Glossary of terms**

#### **Facilitator**

The person responsible for: (a) ensuring preparations are made prior to the beginning of the program, (b) introducing families, reviewing rules, and beginning transition songs, (c) asking parents to give suggestions for songs to sing, (d) reviewing parent engagement and attunement concepts, (e) explaining transition routine for parents separating from their children at time of parent group, (f) leading the post-session wrap-up with all the PUP staff and peer leaders.

#### **The Parent University Program Graduation**

A ceremony held during the tenth session of the PUP that all parents who completed the pre-tests were invited to attend and given a graduation certificate without specific attendance requirement.

#### **Peer Leaders**

Graduates from the PUP who were invited to subsequent iterations in leadership roles. This term includes the Peer Program Coordinator, Peer Program Assistant Coordinator and Parent Mentor.

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### **Parent Mentor**

A PUP graduate who has been invited back to attend future iterations of PUP. The Parent Mentor brings their child to the sessions to model singing, reading, and playing to the other parents. The Parent Mentor also provides childcare.

### **Peer Program Assistant Coordinator**

A graduate of the PUP who is responsible for recruitment, addressing challenging behaviors of parents, supporting parent/child interaction, and linking parents to community resources as needed. The Peer Program Assistant Coordinator also provides childcare during the parent group.

### **Peer Program Coordinator**

A graduate of the PUP who is responsible for recruitment, supporting parent/child interactions, facilitating the morning sessions, addressing challenging behaviors of parents, and linking parents to community resources as needed.

### **Social Worker Program Coordinators**

A master's level social worker who is responsible for recruitment, facilitating the morning sessions, supporting parent/child interaction, addressing challenging behaviors of parents, and linking parents to community resources as needed.

### **Social Work interns**

Master's level social worker intern, who supports parent/child interaction, provides childcare during the parent group and links parents to community resources as needed.

### **Social Work staff**

Master's level social workers who assist with addressing challenging behaviors of parents, supporting parent/child interactions, and provides childcare during the parent group.



## **Appendix B**

### **Job descriptions for the PUP**

**Peer leaders.** To become a parent leader, the person must have (a) graduated from PUP, (b) live in the Promise Heights community, (c) have a positive attitude and interactions with peers, (d) have an outgoing personality and (e) show responsive parenting skills with their children. Peer leaders are selected after graduation based on the recommendations of the program coordinators (Peer or Social Worker) and other PUP staff. No specific measure was used to determine which parents would be leaders. This is a direction for future research. There are three types of peer leaders: (a) Peer Program Coordinator, (b) Assistant Peer Program Coordinator, and (c) Parent Mentor. They must show dedication to the program (through attendance and participation) as well as utilize responsive parenting behaviors taught in the PUP.

#### **Peer Program Coordinator:**

- (a) Recruit new participants from community. The Peer Program Coordinator recruits through formal methods such as presenting at parent breakfasts through Head Start as well as informal methods such as word of mouth referrals.
- (b) Reach out to participants weekly either in person (if they see them in the community), through phone, or text message to remind them of weekly PUP sessions.
- (c) Facilitate the morning sessions (PUP classes)
  - (a) Leads introduction and check-in process
  - (b) Instructs parents on helping their children transition from breakfast to circle time

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(c) Encourages parents to choose songs for the music portion of the morning.

Instruct parents, prior to book and play time, that they should follow their child's lead, enjoy the interaction, and describe what their child is doing.

(d) Instructs parents to take children to bathroom/change diapers, say goodbye and go to parent group.

(e) Introduces the speaker and is an active participant in the group discussions

### **Assistant Peer Program Coordinator**

(a) Assists with recruitment primarily through informal methods such as word of mouth and recruiting parents when seeing them in the community.

(b) Assists with reminder calls to parents for weekly sessions.

(c) Welcomes participants as they arrive for the morning session.

(d) Encourages parents to transition to next phase of morning through coaching and modeling how to help the child transition.

(e) Coaches and models how to follow the child's lead, enjoy the interaction and describe what the child is doing during the singing, reading and play portion of the morning session.

(f) Oversees childcare portion of morning by supervising and engaging the children during the parent group.

### **Parent Mentors**

(a) Assists with recruitment through informal methods such as word of mouth and inviting parents to attend when seeing them in the community.

(b) Welcomes parents as they enter the morning sessions.

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(c) Brings their child to the PUP session and acting as role models to other parents on how to follow their child's lead, enjoy the interaction, and describe their child's play.

(d) Provides childcare and supervision during the parent group.

**Guest speakers.** Guest speakers are chosen from agencies serving the identified community. Speakers are asked to present on topics selected by social workers and Peer Leaders who provide information to parents as well as empower them as advocates and caretakers for their children. Speakers are also asked to provide contact information so that parents can access resources from their agency if needed in the future. The community library has sent staff to train parents on effective reading with their children. The health care clinic based in Promise Heights has presented on the importance of immunizations, well-child visits, and appropriate usage of emergency rooms. Lead advocacy groups have presented on harm reduction techniques, legal rights as they pertain to housing and medical complications related to lead poisoning. Organizations that focus on asthma prevention educated parents on how to prevent an asthma attack and the importance of consistent medical care. Early childhood mental health providers present on teaching strategies to use with young children, attachment, and the importance of play with young children. Early developmental service providers present to parents on typical and atypical development as well as on how to navigate the system to make referrals for developmental assessments. Not all of these topics were covered during all five cohorts. Topics were chosen based on availability of speakers, except for training on responsive parenting skills specifically. All five cohorts received training by guest speakers and PUP staff on attachment, development and teaching new skills to young children.

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**Social Worker Program Coordinator.** The Social Worker Program Coordinator was a social worker located in the community school and was responsible for recruitment (this role decreased when the Peer Program Coordinator was hired), coordinating logistics such as purchasing materials and reaching out to community, selecting and scheduling guest speakers. The Social Work Program Coordinator also supervised the social work student interns.

**Social Work interns.** The social work interns were responsible for conducting at least one home visit per family during the 10-week program. During the initial meeting, the social work interns reviewed the needs expressed by parents on the Parent Support Questionnaire during baseline data collection. The intern and the parent then developed a service plan to work on together during the PUP.

**Social Work staff.** Social work staff from the University of Maryland, School of Social Work were responsible for inviting guest speakers, assisting with recruitment, completing data collection, and supporting the Peer Program Coordinator in the implementation of the PUP. University staff also provided supervision of first year social work interns.

**Facilitator.** The PUP was facilitated by a social worker for cohorts 1, 2, and 3. The peer coordinator facilitated cohort 4 and 5. The facilitator:

- (a) Welcomes participants as they arrive for the morning session.
- (b) Facilitates introductions of families.
- (c) Reviews rules for the program.
- (d) Begins the transition song to let parents and children know it is time to move to parent-child interaction.

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- (e) Asks parents what songs they want to sing to begin parent-child interaction
- (f) Leads singing
- (g) Cues transition to reading time
- (h) Gives directions to parents re: reading time with child
- (i) Supports parent-child interactions through praise, coaching, and/or modeling.
- (j) Cues parents to transition to play time with child
- (k) Supports parent-child interaction through praise, coaching, and/or modeling.
- (l) Cues parents to prepare children for separation
- (m) Meets with parents for parent group and introduces guest speakers

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