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Disrupting the impact of socio-contextual disadvantage on school readiness skill attainment
among preschool children: The role of Head Start attendance

A Dissertation

Submitted to the Graduate Faculty of the
University of New Orleans
in partial fulfillment of the
requirements for the degree of

Doctor of Philosophy
in
Applied Developmental Psychology

by

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B.S., University of Georgia, 2003
B.A., University of Georgia, 2003
M.S., University of New Orleans, 2006

May, 2010

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Dedication

To my parents,

Philip and Sandra Callahan,

your support, encouragement, and unconditional love
kept me going through the tough times and
continue to inspire me to be the
best “Kristin” I can be.
Thank you for always believing in me.
They say we can’t pick our parents,
but given the chance,
I’d chose you,
every time.

And also to
my brother,

Eric Callahan

your witty sense of humor always
keeps our family laughing and makes
me realize what is really important in life.
Thank you for not taking life too seriously.
It is your words “I’m proud of you babe”
that make the labor of this
accomplishment all worth it.
Having you as a brother is the
greatest gift I could have ever asked for.

Acknowledgements

This research was made possible by a grant from the National Institute of Mental Health. A special thanks to the children and mothers of Head Start for participating in this study and sharing a part of you with us. Additionally, I wish to thank the administration and staff of Head Start for their assistance. I am most grateful to the staff of the Mothers and Preschoolers Study, namely Nabila Ford Barrera and Nikole Dominique-Maikell, for your dedication to this work and families everywhere. Thank you both for your words of encouragement, thoughtfulness, and the many hours you spent interviewing, entering data, and managing study staff. Most of all thank you for listening; I could not have done any of this without you.

I especially want to thank Dr. Laura Scaramella, my major advisor for your countless hours of reading, editing, and encouraging me throughout this process. You graciously opened up your home and your heart to me after hurricane Katrina when I had nowhere else to go and I will be forever grateful. Thank you for pushing me, challenging me, and supporting me in this endeavor. I could not have done any of this or be who I am today without you.

I would also like to thank Dr. Paul Frick, Dr. Carl Weems, Dr. Robert Laird, and Dr. Melissa Barnett for always having insightful commentary on my work and helping me create the best dissertation possible. I thank each of you for your constant mentorship and guidance throughout my graduate school career. I am incredibly grateful for the clinical expertise of Dr. Amy Dickson, Dr. Jill Hayes, and Dr. Jodi Kamps that helped shape my career aspirations. Dr. Dickson, thank you for believing in me and giving me my first opportunity to work in Head Start. Dr. Hayes, thank you for your encouraging words and for always reminding me to just “get my ticket”. The dedication you put towards your work and to living life is truly inspiring. Dr. Kamps, thank you for all of the time you spent teaching and supervising me; I am so grateful for

the time I was able to work with you. Above all else, I want to thank each of you for your kindness and friendship.

I wish to thank my many friends and church family who have supported me in many different ways throughout this process. I will always appreciate all you have done, especially Matthew Lawrence Pierce for the dog walks, your willingness to listen, and the “exploring” drives out of New Orleans which I desperately needed, but hated at the time. Absolutely, you are a great friend. Thank you, Jenny Morgenweck for the long talks, the tears, and the hugs. I loved being on this journey with you. A huge thanks to Todd, Shelly, and Hannah Rose Doucet for your words of encouragement, supplemental income, and delicious dinners; your beautiful family has always made me feel at home. Thank you to the Mirabile family for the tasty fried fish and holiday dinners; and yes, I still plan on decorating your Christmas tree every year. To my dear Shawn Anglim and my wonderful church family, I am so grateful for the prayers, friendship, and love that supported me during this process. I am blessed beyond belief.

Finally, I would like to thank Bob Stefani, my best friend, my biggest cheerleader, the love of my life. Although you came into my life midway through this process, and were delivered in a package I did not expect, you have transformed my life. One woman should not be so lucky to have such a wonderful, thoughtful, compassionate, and handsome man to spend the rest of my life with, but I do. I am the lucky one. I understand just what a blessing you are in my life and I will be forever grateful to God for giving us to each other. I love you handsome.

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Abstract

Created in 1965, Head Start is the longest running national school readiness program in the United States. Head Start was developed to improve children's social and academic readiness for kindergarten and to reduce the academic achievement gap between impoverished and more affluent children. However, questions about the effectiveness of Head Start have troubled the program since its inception. Head Start children often experience considerably more socio-contextual risk, specifically in the form of more economic disadvantage, maternal psychological distress, and dangerous neighborhoods. The goal of the present study was to evaluate the extent to which attending Head Start buffers children from some of the harmful effects of socio-contextual risk on their acquisition of academic and social school readiness skills.

Socio-contextual risk factors were largely unrelated to the school readiness skills. Only mothers' reports of anxiety were significantly associated with slower rates of increase in children's PPVT scores, suggesting that mothers who are more anxious have children who are not developing receptive vocabulary scores as quickly as children whose mothers have fewer anxiety symptoms. Head Start did not buffer the impact of socio-contextual risk on children's attainment of school readiness skills.

A secondary goal of the present study was to validate mothers' reports of neighborhood danger with interviewer impressions of neighborhood safety and objective crime reports. Interviewer impressions correlated significantly with mothers' reports of neighborhood danger and official crime statistics. Interestingly, official crime statistics were not correlated with mothers' reports of neighborhood danger, but were correlated with interviewer impressions. Interviewers may provide a valuable objective perspective of characteristics of the neighborhood.

This sample was not intended to explore the effects of natural disasters on household structures, maternal psychopathology, or children's academic development. However, results clearly highlighted the need to empirically consider the specific challenges associated with low-income families after a natural disaster. Study implications and promising directions for future research are discussed.

Keywords: Head Start, preschool, school readiness, school attendance, economic disadvantage, maternal depression, maternal anxiety, neighborhood risk, social competence.

Introduction

Created in 1965, Head Start is the longest running national school readiness program in the United States. Head Start was developed to improve children's social and academic readiness for kindergarten and to reduce the academic achievement gap between impoverished and more affluent children. Head Start provides comprehensive education, health, nutrition, and parent involvement services at no cost to families. The only eligibility requirement to attend Head Start is poverty, that is, the total household income must fall below the poverty line. Characteristically, children who attend Head Start reside in impoverished homes and experience most of the socio-contextual risks associated with economic disadvantage (e.g., Ayoub, et al., 2009). For instance, children enrolled in Head Start not only experience economic poverty, they also are more likely to live in dangerous and violent neighborhoods and to have parents who are at greater risk for psychopathology, perhaps due to the high levels of economic hardship to which they are exposed (e.g., Scaramella, Sohr-Preston, Callahan, & Mirabile, 2008).

Questions about the effectiveness of Head Start have troubled the program since its inception (e.g. Besharov, 2005; Ludwig & Phillips, 2008; Olson, 2000; Vinovskis, 2005; Westinghouse, 1969). As many empirical studies have demonstrated immediate, short-term, and long-term benefits of attending Head Start (e.g., Barnett & Hustedt, 2005; Farran, 2000; Garces, Thomas, & Currie, 2000; Heckman, Jingjing, & Rubinstein, 2000; Karoly, et al., 1998; Ludwig & Phillips, 2008) as those finding that children who attended Head Start still enter kindergarten academically behind their more affluent peers and continue to fall behind their peers over time (e.g., Cople, Cline, & Smith, 1987; Currie & Thomas, 1995, 2000; Lazar & Darlington, 1982; Magnuson, Meyers, Ruhm, & Waldfogel, 2004). Several reasons may explain the lack of consistencies in findings regarding the efficacy of Head Start. First, affluent children often attend

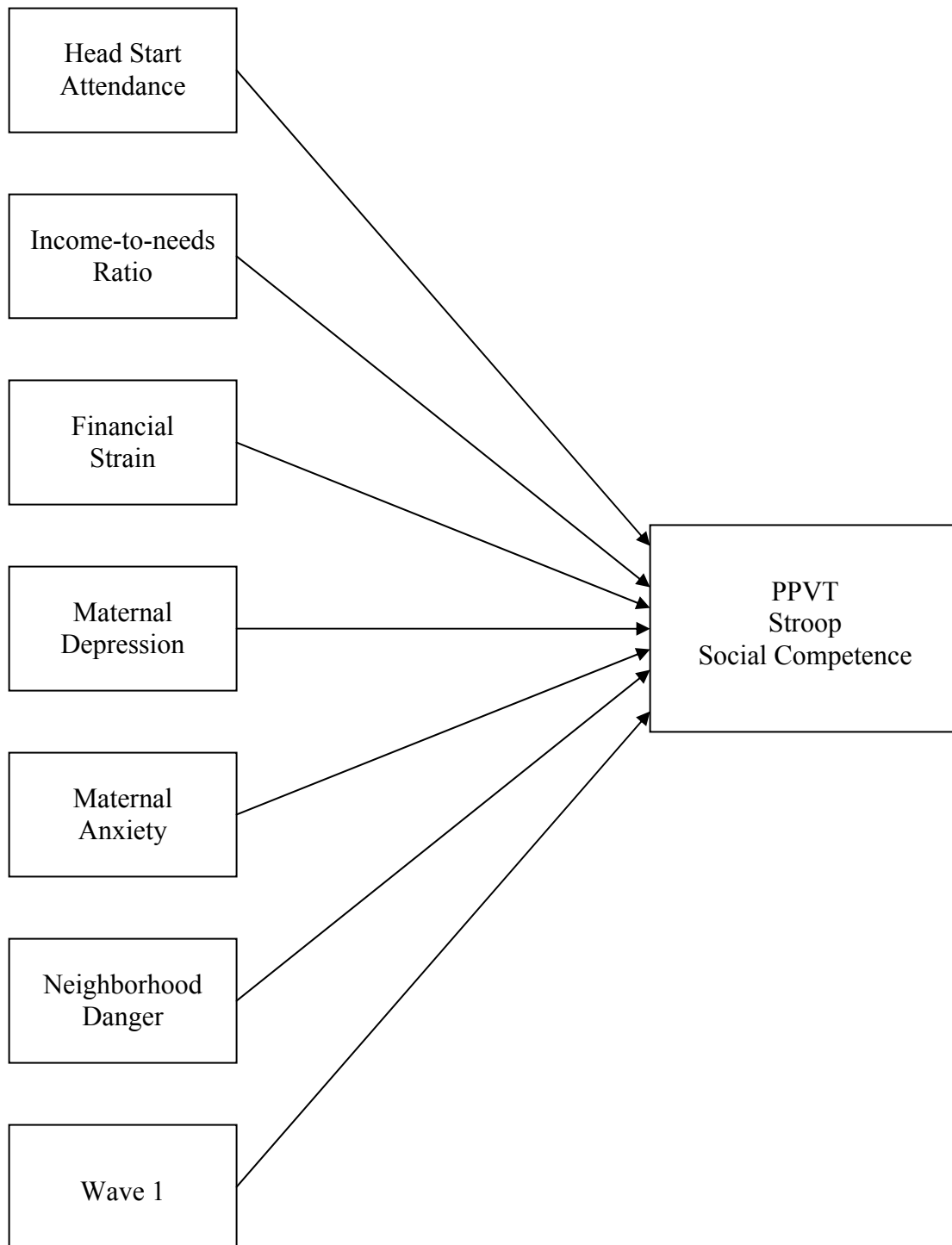
preschool programs that promote school readiness (Duncan & Magnuson, 2005) and have parents that work to prepare their children for school (Duncan et al., 2007). Thus, Head Start may not be able to bring children to the level of their more affluent peers who have the benefit of receiving school readiness training from both a preschool setting and the home environment.

Second, Head Start children often experience considerably more economic disadvantage than their more affluent peers. Economic hardship limits parents' opportunities to purchase enriching learning materials and experiences that enhance children's cognitive development (e.g., Conger & Donnellan, 2007). A lack of economic resources also may indirectly influence children's home learning environments through their effects on adult behavior. Economic hardship has repeatedly been associated with higher levels of psychological distress because of the stress associated with financial strain (e.g., Conger & Donnellan, 2007; McLeod & Kessler, 1990; McLoyd, 1990). Although frequently linked to increases in marital conflict and harsh parenting (e.g., Conger et al., 1992; Sobolewski & Amato, 2005), economic stress also may limit parents' ability to provide cognitively rich interactions with their children (Garrett, Ng'andu, & Ferron, 1994; Kessler, 1982; Kessler & Cleary, 1980; Takeuchi, Williams, & Adair, 1991). Additionally, more economically disadvantaged families may be more likely to live in dangerous neighborhoods, that subsequently place parents at greater risk for psychopathology due to the chronic levels of stress they endure (Scaramella, Sohr-Preston, Callahan, & Mirabile, 2008). Thus, characteristics associated with economic hardship may severely limit families' abilities to encourage school readiness, thereby increasing the importance of attending preschool programs like Head Start for children residing in economically disadvantaged homes.

The goal of the present study was to evaluate the extent to which attending Head Start buffers children from some of the harmful effects of exposure to socio-contextual risk on their

acquisition of school readiness skills. Figure 1 depicts the theoretical framework guiding the work. More socio-contextual risk, in the form of more economic deprivation, poorer maternal mental health, and more neighborhood danger and disadvantage, are expected to interfere with children's acquisition of school readiness skills and, specifically, to be associated with lower levels of social competence and less sophisticated cognitive abilities (see Figure 1). Unique to the present study, the number of days children attended Head Start is expected to moderate the impact of socio-contextual risk on children's acquisition of social and cognitive abilities. That is, attending Head Start for more days is expected to reduce the negative impact of socio-contextual risk on children's acquisition of school readiness skills (see Figure 1). In other words, children attending Head Start for the longest duration are expected to demonstrate more sophisticated social and cognitive skills.

Figure 1. *Theoretical model of the effects of socio-contextual risk on school readiness skill attainment.*



Note: Separate models for each of the dependent variables (PPVT, Stroop, mothers' report of social competence and observer ratings of social competence) were estimated.

The next sections will describe the theoretical rationale and the empirical research guiding the work. First, school readiness skills and the importance of developing school readiness skills during the preschool period will be described. Second, evidence regarding the impact of socio-contextual disadvantage on children's social competence and cognitive development will be reviewed. Next, research evaluating the effectiveness of Head Start on preschool children's school readiness skill attainment will be evaluated. Finally, the importance of evaluating mental health and preschool availability in post-Katrina New Orleans will be discussed as well as the importance of considering multiple indicators of contextual risk on children's acquisition of school readiness skills.

Developmental Significance of Acquiring School Readiness Skills during Preschool

The preschool period, or from age 3 to age 5, is a period of rapid social and cognitive growth (Campbell, Pungello, Miller-Johnson, Burchinal, & Ramey, 2001). The knowledge and social skills that children acquire before the onset of formal education have been shown to directly influence children's later development and success in school (Fabes, Martin, Harnish, Anders, & Madden-Derdich, 2003). Preschool programs are typically designed to encourage and promote young children's growth of school readiness skills in an effort to prepare them for the social and academic demands associated with kindergarten and first grade. Although skills associated with school readiness vary widely across studies, common to all definitions of school readiness skills are social competence and basic cognitive skills, like language and executive functioning skills (e.g., Kagan, Moore, & Bredekamp, 1995; Ramey & Ramey, 2004; Trawick-Smith, 2002). Given the centrality of cognitive/language skills and social-emotional competency to definitions of school readiness, the present study focuses exclusively on these two domains of school readiness skills.

Both cognitive and socio-emotional skills are linked to subsequent academic achievement because they provide the foundation for classroom adaptation; children who possess good academic and social-emotional skills prior to entry into formal schooling demonstrate more positive adjustment to formal schooling (Cunha, Heckman, Lochner, & Masterov, 2006; Entwisle, Alexander, & Olson, 2005; Kagan, Moore, & Bredekamp, 1995; McClelland, Morrison, & Holmes, 2000; McWayne, Fantuzzo, & McDermott, 2004). In contrast, children whose knowledge and skills lag behind those of their classmates enter school far less prepared for formal schooling and their skill deficits negatively impact their ability to learn (McLoyd, 1998; Scarborough, 1989; Shonkoff & Marshall, 1990). If they are unable to catch up to their peers, children without school readiness skills are likely to continue to experience greater academic challenges throughout their school careers (Entwisle & Alexander, 1993; Hamre & Pianta, 2001; Jimerson, Egeland, & Teo, 1999; Muter, Hulme, Snowling, & Stevenson, 2004). The following section first discusses the importance of developing cognitive readiness skills, in the form of language and executive functioning skills, during the preschool years and then reviews the research regarding the importance of social competence skills.

Cognitive skill and language development includes verbal language and emergent literacy skills such as print awareness, story comprehension, vocabulary, and writing skills (Pullen & Justice, 2003). Language development during the preschool years influences every domain of school readiness because without the development of language and literacy, children are not able to understand instructional goals across academic domains (Strickland & Schickendanz, 2004; Tharp & Entz, 2003). Increases in vocabulary coincide with increases in the complexity of their syntactic structure. Structural changes in language skill represent a core feature of children's cognitive development (Nelson, 1996).

A growing body of research highlights the importance of acquiring basic literacy skills during the preschool years for later reading and writing skills (Lonigan, 2006; Snow, Burns, & Griffin, 1998). Children with relatively small vocabularies and with little familiarity with the functions and uses of printed word are at higher risk of literacy failure (Snow, Burns, & Griffin, 1998). However, children who start kindergarten with strong emergent literacy skills are at an advantage in terms of future social adjustment, learning to read into first grade (Anderson & Nagy, 1992; Lonigan, Burgess, & Anthony, 2000) and effective oral communication (Snow, 1990; Snow, Cancino, De Temple, & Schley, 1991). High quality preschools emphasize the development of essential school readiness skills. Children who experienced higher quality child care had more advanced language and cognitive skills during the first 5 years of life (Burchinal, Roberts, Nabor,s & Bryant, 1996; Burchinal et al. 2000).

In addition to language skills, cognitive development includes the development of executive functioning skills. Executive functioning refers to higher order, self-regulatory, cognitive processes that aid in the monitoring and control of thought and action (Miyake et al., 1999). Executive functioning skills include inhibitory control, planning, attentional flexibility, error correction and detection, and resistance to interference (Dempster, 1992; Welsh, Pennington, & Groisser, 1991; Zelazo, Carter, Reznick, & Frye, 1997). Of the executive functioning skills, inhibitory control plays a significant role in determining how various mental processes work together in the successful execution of a task (Dempster, 1992; Dennis, 1991). Inhibitory control undergoes rapid developmental change during the preschool years (Espy, 2004; Klenberg, Korkman, & Lahti-Nuutila, 2001) and as children grow older, they increasingly must use inhibitory control to suppress inappropriate behavior depending on the context (e.g., delaying gratification, following different rules at home or preschool). Executive functioning

abilities, in particular inhibitory control abilities, also affect children's development of social-emotional skills (Hughes, Dunn, & White, 1998; Kochanska, Coy, & Murray, 2001; Rothbart, Ahadi, & Hershey, 1994).

A number of studies have demonstrated that preschool programs can promote the acquisition of cognitive readiness skills. One of the most comprehensive studies to examine the impact of preschool education for promoting school readiness is the National Institute of Health (NICHD) Study of Early Child Care and Youth Development Study (SECCYD). The NICHD Early Child Care Study sampled 1,364 families across the country and concluded that the quality of children's preschool education significantly impacted children's social-emotional development, school readiness, and academic achievement (NICHD Early Child Care Research Network, 2001, 2002). The results of the NICHD SECCYD study indicated that children from more impoverished home environments also have fewer cognitively stimulating environmental opportunities that promote school readiness skills. Without preschool, impoverished children enter school substantially behind their peers (Brooks-Gunn & Duncan, 1997; Entwisle & Alexander, 1999). High quality preschool programs foster the promotion of important cognitive readiness skills particularly for the most disadvantaged children (Burchinal, Roberts, Hooper, & Zeisel, 2000; Caughy, DiPietro, & Strobino, 1994; Lamb, 1998; Loeb et al., 2004). Beginning daycare prior to children's first birthday has been found to be associated with higher reading and math scores for economically disadvantaged children but lower reading and math scores for more affluent children (Caughy, DiPietro & Strobino, 1994). Quite possibly, childcare provides more cognitive stimulation for less affluent children, but the quality of cognitive stimulation more affluent children receive at home is better than what they receive at daycare.

In addition to cognitive readiness skills, school readiness is enhanced by developing positive social-emotional skills during the preschool period. Social-emotional development has been defined as the capacity for children to form close and secure adult and peer relationships, to experience, regulate, and express emotions in socially and culturally appropriate ways, and to explore the environment (Center on the Social Emotional Foundations for Early Learning, 2008). The development of social and peer relationship skills during the first years of children's lives are considered important for several reasons. Positive social interactions have been related to general developmental progress, social competence, and academic success (Curl, Rowbury, & Baer, 1985; Hendrickson, Strain, Tremblay, & Shores, 1981; Ichinose & Clark, 1990; McClelland & Morrison, 2003; Strain & Odom, 1986). Adaptive social skills that develop early in life also have been related to adjustment in later years. Retrospective and longitudinal studies have shown correlations between childhood social deficits and adjustment difficulties, mental health problems, alcoholism, and a variety of interpersonal problems experienced as adolescents and adults (Hartup, 1978; Strayhorn & Strain, 1986). Research highlighting the various long-term effects of social deficits on later adjustment emphasizes the importance of developing positive social skills during the preschool period.

Preschoolers demonstrate drastic changes in the quality of their social interactions between ages 3-4 ½ (Goncu, 1993). For example, the social interactions of older preschoolers involve longer exchange sequences, turn-taking, as they begin to learn roles, rules, and themes of pretend play (Goncu, 1993; Rubin, Watson, & Jambor, 1978). Preschool children show increases in helping and sharing (Benenson, Markovits, Roy, & Denko, 2003; Eisenberg & Fabes, 1998) as a result of increasing social-cognitive abilities during this time period (Coie & Dodge, 1998), which forms the foundation for building future social competences (Goldstein, Kaczmarek, &

English, 2002). Building on earlier positive social skills, children begin to understand and appreciate others' thoughts and emotions in middle childhood (Selman & Schultz, 1990), as social competence continues to develop with age (Goldstein, Kaczmarek, & English, 2002). Children who fail to develop positive social skills are often rejected by their peers (Asher & Coie, 1990), are more likely to have lower quality friendships (Parker & Asher, 1993) and have feelings of loneliness and depression (Asher & Wheeler, 1985; Vosk, Forehand, Parker, & Rickard, 1982). Therefore it is important to understand how socio-contextual risk factors may interfere with children's ability to develop positive social skills during preschool.

Socio-contextual Risk Factors Interfere with Children's Acquisition of School Readiness Skills

While the early childhood period is a critical developmental period for developing school readiness skills, social contextual risk factors, such as economic deprivation, maternal depression, and neighborhood violence, may interfere with young children's acquisition of these skills. Children's cognitive and social competencies are negatively affected by living in impoverished socio-contextual environments (Duncan & Brooks-Gunn, 1997; Heckman, 2006; NICHD, 2005; Shonkoff & Phillips, 2000). Although socio-contextual risk factors do not operate independently, economic deprivation, maternal mental health and neighborhood danger and disadvantage have each been demonstrated to interfere with children's acquisition of school readiness skills (Brown & Harris, 1978; Reading & Reynolds, 2001). The following section reviews the current research regarding the impact of each socio-contextual risk factor on children's development of school readiness skills.

First, living in poverty has been found to place children at an increased risk for poorer cognitive development and academic failure (Duncan, Brooks-Gunn, & Klebanov, 1994). Preschool children living in poverty have been found to have significantly smaller vocabularies

(Hart & Risley, 1992, 1995), to develop language more slowly (Arriaga, Fenson, Cronan, & Pethick, 1998; Feldman et al., 2000; Hart & Risley, 1995) and have fewer language promoting experiences, such as fewer age appropriate books in the home and less communicative parents (Walker, Greenwood, Hart, & Carta, 1994) than their more affluent peers. Not surprisingly, preschool children from impoverished homes have lower average scores on measures of cognitive development, such as verbal ability, reading readiness, and problem solving than more affluent children (Brooks-Gunn, Britto, & Brady, 1999; Stipek & Ryan, 1997).

Thus, poverty status seems to be directly associated with cognitive skill development during the preschool years. However, the important question is whether modifying the quality of preschool to which low income children are exposed influences cognitive skill development. Initial evidence suggests that it does. For instance, experimental intervention programs have been implemented that provide wage supplements for work requirements to increase family income among low income families. Experimental studies and large literature reviews show that by increasing family income, children have improved cognitive and school outcomes (Huston, 2002; Knox, Miller, & Gennetian, 2000). Quite possibly, increasing family income had the effect of reducing parental economic stress and increasing the ability of parents to provide both human capital and financial investments in learning children's learning (e.g., Conger & Donnellan, 2007).

In addition to cognitive deficits, impoverished children are at greater risk for experiencing social-emotional adjustment problems. Although the link between poverty and children's social-emotional development is not as consistent as the link with cognitive attainment, there is substantial evidence that children from impoverished backgrounds more often manifest symptoms of maladaptive social functioning than children from more affluent

homes (Bolger, Patterson, Thompson, & Kupersmidt, 1995; Brooks-Gunn & Duncan, 1997; McLeod & Shanahan, 1993; Sameroff, Seifer, Zax, & Barocas, 1987; Takeuchi, Williams, & Adair, 1991). Epidemiological studies indicate that as many as 10-15% of preschool children exhibit moderate to clinically significant emotional and behavioral difficulties, with low income children being disproportionately represented (Lavigne, Gibbons, Christoffel, & Arend, 1996; Sinclair, Del'Homme, & Gonzalez, 1993). Preschool children from low income families have been found to develop fewer social-emotional skills than children from higher income families (Bagby, Rudd, & Woods, 2005) and to be more socially withdrawn (Weiss, Goebel, Page, Wilson, & Warda, 1999). Results from the Infant Health and Development Program showed that 40% of children born prematurely and who lived in chronic poverty had deficiencies in their social and adaptive skills (Bradley et al., 1994). Children from low income families also are most at risk for beginning school with fewer social skills than their more affluent peers (Paternite, Loney, & Langhorne, 1976; Szatmari, Boyle, & Offord, 1989).

Second, neighborhood disadvantage, in the form of crime and violence, has been found to place children at heightened risk for experiencing both academic failure and social-emotional problems. Many Head Start families live in dangerous neighborhoods and are at heightened risk for witnessing violence or being a victim of violence (e. g., Taylor, Zuckerman, Harik, & Groves, 1994). During a one year period, approximately one-third of all Head Start families report having witnessed violent or nonviolent crimes, with half reporting witnessing violence more than once (DHHS, ACYF, 2002). Aside from the physical safety risk, residing in violent or disadvantaged neighborhoods also impacts children's emerging cognitive competencies by affecting the quality of schools children attend and community resources (Ainsworth, 2002).

Given the difficulty of finding high quality teachers willing to work in violent communities, children residing in more dangerous neighborhoods are likely to be enrolled in lower quality schools, with higher child-staff ratios and less adult-child interaction (Hayes, Palmer, & Zaslow, 1990). Schools in more violent communities also tend to have inadequate financial and social resources to meet children's educational and social-emotional needs (U.S. Department of Education, 1996). In addition to impacting the quality of schools for children to attend, residing in disadvantaged neighborhoods with few affluent neighbors has been associated with lower IQ scores (Duncan, Brooks-Gunn, & Klebanov, 1994) and lower verbal ability scores, as measured by the Peabody Picture Vocabulary Test (PPVT; Kohen, Brooks-Gunn, Leventhal, & Hertzman, 2002). Consequently, children have fewer adults who may be able to provide educational assistance.

Exposure to community violence also has been linked to a number of socio-emotional and adjustment problems (Farver, Xu, Eppe, Fernandez, & Schwartz, 2005; Harden & Koblinsky, 1999), reduced social competence (Brooks-Gunn, Duncan, Klebanov, & Sealand, 1993; Chase-Lansdale & Gordon, 1996; Farver et al., 2005; Linares et al., 2005) and lower levels of self-control and cooperation (Oravec, Koblinsky, & Randolph, 2008). Quite possibly children's social competence is affected by parents' lack of informal social support that is often found in dangerous neighborhoods (McLoyd, 1990). More specifically, parents' who lack social support from neighborhood residents may feel isolated and apprehensive of neighborhood surroundings (Ceballo & McLoyd, 2002). Exposure to community violence has been linked to a number of socio-emotional and adjustment problems (e.g., Farver et al., 2005; Harden & Koblinsky, 1999). Indirect exposure, such as witnessing violent acts that often occur in dangerous neighborhoods, can have harmful effects on young children's emotional and

behavioral development (e.g., Harden & Koblinsky, 1999). In one study, inner-city Head Start children who witnessed or heard about violent neighborhood events exhibited more emotional distress and social aggression than did peers with less violence exposure (Farver et al., 2005).

Finally, maternal depression and anxiety also tend to co-occur with neighborhood violence and poverty, and have been found to substantially undermine children's acquisition of school readiness skills during the preschool period. Quite possibly, living in poverty increases maternal stress by having exposure to negative life events, job loss, chronic strains, poor housing, dangerous neighborhoods, and conflict with partners, which may result in the development of impairing depressive symptoms (Linver, Brooks-Gunn, & Kohen, 2002; Mistry, Vandewater, Huston, & McLoyd, 2002; Stockdale et al., 2007).

Importantly, mothers' influence on children's achievement in school appears to be most effective during the preschool years (Hess, Holloway, Dickson & Price, 1984). Children of chronically depressed mothers exhibit lasting deficits in their own capacity to engage in symbolic play that allows children to think abstractly and develop more complex and varied cognitive and language competencies (Piaget, 1952; Tingley, 1994). Preschool-aged children of depressed mothers have been shown to have deficits in both cognitive and language abilities (Hooper, Burchinal, Roberts, Zeisel, & Neebe, 1998; Mistry, Biesanz, Taylor, Burchinal, & Cox, 2004). Specifically, maternal depression has been linked to lower IQ scores (Sameroff, Seifer, Barocas, Zax, & Greenspan, 1987) and poor receptive and expressive language among 4-year old preschool students (NICHD ECCRN, 1999). Additionally, children of depressed mothers enter school with less understanding of language and reading (Bigatti, Cronan, & Anaya, 2001; Reissland, Shepherd, & Herrera, 2003) and with lower verbal, perceptual, and quantitative abilities (Coghill, Caplan, Alexandra, Robson, & Kumar, 1982). Therefore, upon school entry,

children of depressed mothers start behind their peers academically and have a greater risk of falling further behind their same-aged classmates in important cognitive and language skills.

In addition, maternal depression seems to interfere with children's acquisition of social-emotional competence during preschool (Anderson & Hammen, 1993; Leiferman, 2002; Mistry, Biesanz, Taylor, Burchinal, & Cox, 2004). Maternal depression seems to interfere with children's acquisition of school readiness skills for a number of reasons. Depressed mothers of preschool-aged children spend less time with their children in educationally stimulating activities (Goldsmith & Rogoff, 1997) and depressed mothers seem to initiate and terminate their children's attention to objects rather than encouraging sustained attention, or encourage attentional patterns that are essential to academic achievement (Breznitz & Friedman, 1988). In addition, depressed mothers have been shown to be more hostile and irritable when interacting with their children (Downey & Coyne, 1990) and depressed mothers' own negative affect may interfere with children's development of affect regulation (Downey & Coyne, 1990; Zahn-Waxler, Cummings, McKnew, & Radke-Yarrow, 1984) and empathetic responses to emotions (Radke-Yarrow & Zahn-Waxler, 1990). In other words, depressed mothers own internal state may impair their capacity to be emotionally available to their children.

Although less studied than maternal depression, the effects of maternal anxiety on children's school readiness skills suggest that children of anxious mothers are at increased risk for emotional problems and inattention (O'Connor, Heron, Golding, Beveridge, & Glover, 2002). Although depression and anxiety share overlap in symptoms, such as anxious feelings and negative thoughts, and are highly comorbid (Breslau, Schultz, & Peterson, 1995; Kessler, Chiu, Demler, Merikangas, & Walters, 2005), the associations between depressive or anxious symptoms and children's school readiness skills are distinct. Maternal anxiety may interfere

with children's acquisition of school readiness skills by creating an emotionally unstable, unpredictable, and unresponsive environment (Whaley et al., 1999; Woodruff-Borden et al., 2002). Anxious parents may be less sensitive in interactions with their children (Zelkowitz, Papageorgiou, Bardin, & Wang, 2008) by rejecting their ideas and children's attempts to interact with them (Grüner, Muris, & Merckelbach, 1999). Not surprisingly high levels of maternal anxiety have been associated with lowered intellectual functioning among two- (Brouwers, van Baar, & Pop, 2001) and four-year old children (Sameroff, et al., 1987).

According to Rapee's (2001) model of anxiety development, children with anxious parents are likely to exhibit high levels of arousal and emotionality themselves. Rapee (2001) suggests that anxious parents of children are more likely to become over involved with their children in an effort to reduce their own distress and prevent their children's distress. This maladaptive pattern of parental over involvement, however, may reinforce children's vulnerability to anxiety by increasing children's perception of threat. This then reduces children's perceived control over the threat and ultimately increases children's avoidance of the threat. This reciprocal relationship may not only promote the development and maintenance of anxiety disorders in children, but also interferes with the development of social-emotional competence. For example, anxious parents may be more likely to encourage their children to avoid situations that may cause distress because they also actively avoid stress provoking situations. Anxious parents may seek to shield children from stressful experiences in order to reduce their own anxiety. By doing so, parents may keep their children from learning how to engage with others in the world around them. Children may then be less likely to interact with children and adults in academic settings in order to develop the social skills needed to correctly and affectively communicate with others.

To summarize, academic and social-emotional competencies acquired during the preschool years form the foundation for future competencies (National Research Council, 2000). Young children exposed to social-contextual risk factors are at greater risk for not developing these foundational competencies, placing them at increased risk not only for academic failure, but also for developing more maladaptive social and emotional behaviors (Ashman, Dawson, & Panagiotides, 2008; Hoglund & Leadbeater, 2004; Sameroff & Fiese, 2000). Children who experienced more risk factors during early childhood, such as maternal depression, family poverty, stressful life events, and disorganized home structure had significantly lowered cognitive and language outcomes at 1 year of age (Hooper, Burchinal, Roberts, Zeisel, & Neebe, 1998) and 5 years of age (Burchinal, Roberts, Hooper, & Zeisel, 2000). Importantly, the quality of early educational experiences to which children have been exposed may lessen the impact of these contextual risks by enhancing school readiness skills (Kolker, Osborne, & Schnurer, 2004).

The Effectiveness of Head Start in Enhancing School Readiness Skills

Head Start was originally designed to improve children's academic readiness for school by emphasizing early literacy and math skills. Although a secondary goal, Head Start also has been committed to promoting children's social competence. As defined by Head Start, social competence means "the child's everyday effectiveness in dealing with his or her present environment and later responsibilities in school and life" (U.S. Department of Health and Human Services {DHHS} Administration on Children, Youth and Families {ACYF} *Head Start Performance Standards*, 2008). Historically, Head Start has demonstrated mixed success in accomplishing these goals and the following section provides a historical overview of studies evaluating the effectiveness of Head Start in preparing children for the cognitive and social challenges associated with school entry.

Early school readiness skills have been identified as critical for subsequent academic achievement because they provide the foundation for positive classroom adaptation (Cunha, Heckman, Lochner, & Masterov, 2006; Entwisle, Alexander, & Olson, 2005). Head Start was established to close the academic achievement gap between children at high and low socio-economic risk by enhancing children's development of school readiness skills. Evaluations of the effectiveness of Head Start began upon its inception. The Westinghouse Learning Corporation completed the first major evaluation of Head Start in 1969 and found that children who attended Head Start maintained cognitive and language gains into the first grade, but these gains appeared to "fade out" by the second or third grade. Academic gains were particularly noteworthy among African American children and for children attending Head Start in central cities and in the Southeast.

After the Westinghouse study, investigators began evaluating components of the Head Start program across the country. Numerous studies have been conducted evaluating the efficacy of components of Head Start using a wide array of research designs, sample sizes, and outcome measures used. Two important meta-analyses have been conducted that synthesize these findings (i.e., Hubbell, 1983; McKey, 1985). In 1983 Hubbell conducted a meta-analysis of 70 Head Start studies conducted before 1970 and found that children attending Head Start made significant gains on intelligence measures over the course of one year. Children enrolled in Head Start almost always performed significantly better on intelligence tests than non-Head Start children of similar socioeconomic status. However, slightly less than half of the studies reviewed found that Head Start children maintained superiority on achievement tests when compared to children not attending Head Start (Hubbell, 1983). Of those studies finding that Head Start children continued to outperform their disadvantaged peers, these performance gains were maintained into

elementary school (Hubbell, 1983). In direct contrast to the stated goals of Head Start, Head Start children's intelligence and achievement test scores still remained well below the national middle-class test norms for their ages (Hubbell, 1983).

The "Head Start Synthesis Project" conducted in 1985 reviewed over 210 research studies evaluating the effectiveness of Head Start programs from 1966 to 1982. In addition to cognitive gains, the Head Start Synthesis Project also considered children's social-emotional development. Results of this extensive meta-analysis found that Head Start children demonstrated significant, immediate gains in cognitive and socio-emotional test scores (McKey, et al., 1985). When tested at the end of the program year, Head Start children showed sizeable gains in global cognitive abilities, intelligence, school readiness, and achievement. However, the initial advantage Head Start children had over their control group counterparts quickly diminished on measures of global cognitive functioning, intelligence, school readiness, and achievement. By third grade, little difference between Head Start children and control children on measures of cognitive functioning emerged. However, a small subset of the reviewed studies found that former Head Start children were more likely to be promoted to the next grade and less likely to be assigned to special education than control children. In regards to social-emotional development, Head Start positively affected children's achievement motivation upon the program's conclusion (McKey et al., 1985). Similar to the "fade out" effect regarding cognitive gains, any meaningful differences between Head Start children's achievement motivation and social behavior and control children were nonexistent by third grade (McKey, 1985).

More recent studies continue to demonstrate findings consistent with these meta-analyses. Specifically, Head Start graduates have been found to begin kindergarten with more enhanced academic skills than comparison children who did not attend (Datta, 1997; Head Start

Impact Study, 2010; Isaacs & Roessel, 2008). The long term impact of Head Start remains controversial. Children's initial gains have been found to fade by first grade (Head Start Impact Study, 2010), third grade, (Copple, Cline, & Smith, 1987) and eighth grade (Lee & Loeb, 1995). In contrast with the findings of these meta analyses, more recent studies have demonstrated that children who graduated from Head Start sustain cognitive gains and are less likely to repeat a grade (Barnett, 1995; Copple, Cline, & Smith, 1987; Currie & Thomas, 1993), less likely to need special education (Barnett, 1995; Hubbell, 1983; Mann et al., 1976; Monroe & McDonald 1981; Norris, 1989), and more likely to graduate from high school than children who do not attend Head Start (Barnett, 1995).

Perhaps the most significant evaluation of Head Start to date is the Head Start Impact Study (HSIS) initiated in 2002 by the U.S. Department of Health and Human Services. The Head Start Impact Study was conducted with a nationally representative sample of 84 grantee/delegate agencies and included nearly 5,000 newly entering, eligible 3- and 4-year-old children randomly assigned to either: (1) a Head Start group that had access to Head Start program services or (2) a control group that did not have access to Head Start, but could enroll in other early childhood programs or non-Head Start services selected by their parents. Data collection began in fall 2002 and continued through 2006, following children from program enrollment through the spring of their 1st grade year. Two cohorts of newly entering 3- and 4-year-old children were recruited and followed. Importantly, the HSIS considered whether the impact of Head Start on children's acquisition of school readiness skills was affected by the age of entry into Head Start.

Results are just emerging from the HSIS, but initial findings demonstrate small to moderate positive effects of attending Head Start for both 3- and 4-year old children on a number of different school readiness domains. Regarding cognitive development, after attending Head

Start for one year, the 4-year-old group demonstrated positive gains in vocabulary (as measured by the PPVT), letter-word identification, spelling, color identification, letter naming, and parent-reported emergent literacy (HSIS, 2010). By the end of first grade, children who had attended Head Start for two years performed significantly better on the Woodcock-Johnson III test of oral comprehension than control group children and children who attended Head Start for one year performed significantly better on the PPVT than control group children. However, Head Start attendance had no effect on children's math or pre-writing skills regardless of children's age entering Head Start (HSIS, 2010). In addition, among children who were enrolled in Head Start for two years, greater cognitive gains were found for children of parents with no depressive symptoms than for children of parents with mild to severe depressive symptoms and for children from households with more economic risk (HSIS, 2010).

Taken together, evaluation studies suggest that attending Head Start has immediate cognitive effects upon graduation from Head Start, but the impact of Head Start attendance on academic performance over time remains inconsistent. Interestingly, the average impact of attending Head Start on children's cognitive and social skills during the first two years after graduating Head Start was greater among studies conducted after 1970 than before 1970 (Zigler & Muenchow, 1992). Quite possibly, program changes made to Head Start during the 1970's, like making Head Start a full year program, standardizing staff educational requirements and training, and implementing Head Start Program Performance Standards (2008), extend the benefits of attending Head Start slightly beyond kindergarten.

Even though the social and emotional development of children are important goals of Head Start, far fewer studies have evaluated the effectiveness of Head Start in promoting social and emotional development (Yoshikawa & Zigler, 2000). Early evaluations of Head Start

attributed the lack of study on social and emotional adjustment to the lack of valid and reliable socio-emotional development measures (Hertz, 1977; Zigler, 1973). These early Head Start evaluation studies measured social and emotional development using assessments of task orientation, self esteem, and achievement motivation (McKey et al., 1985). McKey's (1985) meta-analysis found that Head Start children scored higher on some measures of task orientation than controls but not on measures of self esteem and achievement motivation (McKey et al., 1985).

Recent studies suggest that children attending Head Start seem to demonstrate gains in social and emotional skills upon Head Start graduation and into elementary school years (Barnett, 1995; Royce, Darlington, & Murray, 1983). For instance, when compared to matched controls who did not attend Head Start, Head Start children demonstrate higher emotional engagement with their parents and more sustained attention with play objects (Love et al., 2005). Similarly, the HSIS (2005) found that Head Start children showed educationally meaningful increases in social behavior, achievement motivation, and self-esteem at the end of the academic year. As compared to wait-list families, Head Start children have been found to demonstrate significantly more adaptive social and emotional functioning behaviors at the end of the academic year (Abbott-Shim, Lambert, & McCarty, 2003). Interestingly, differences in patterns of social-emotional development seem to emerge depending on length of Head Start enrollment and socio-contextual risk. For instance, additional exploratory analyses of the HSIS found patterns of favorable impacts through first grade for social-emotional domains for children enrolled for one year who had lower cognitive skills and children of parents with mild depressive symptoms. For children enrolled for two years, favorable impacts in social-emotional areas were

found for children of parents with no depressive symptoms and children from higher risk households (HSIS, 2010).

Despite the positive outcomes of these studies, other evaluations have found no differences between the Head Start and non-Head Start children on measures of social-emotional skills (Roberts, 1984; Weimer & Guajardo, 2005). The HSIS (2005) concluded that on measures of social behavior, children's gains persisted for two years after Head Start, but the effects seemed to fade by the third year. Surprisingly, by third grade, Head Start children scored slightly lower on measures of social behavior than children in control the group who did not attend Head Start (HSIS, 2005). In addition, Head Start children have been found to be more aggressive and more attention seeking during enrollment in Head Start than a control group of children who were eligible for Head Start, but did not attend (Abt Associates, 1978; Hubbell, 1983).

The Importance of Head Start Attendance

Quite possibly, discrepancies in the effectiveness of attending Head Start for promoting both the cognitive and social-emotional components of school readiness varies depending on the length of time children have attended Head Start. Children who attend Head Start for a longer period of time should demonstrate significantly more gains in cognitive and social-emotional readiness skills than children who attended for fewer days. Although very little research has actually examined the number of days enrolled in Head Start on cognitive and social-emotional indicators of school readiness, studies have demonstrated that attending child care or a Head Start-like program improves both cognitive and social-emotional readiness (Campbell & Ramey, 1995; Reynolds, 1995; Schweinhart, Barnes, & Weikart, 1993).

Regarding cognitive readiness, initial work with the California sub-sample of the Early Childhood Longitudinal Study indicates that among children enrolled in Head Start or a

preschool program similar to Head Start at age 3, attending these preschool programs for 2 years was associated with a significant boost to children's early reading and math skills as compared to children who only attended such preschool programs for 1 year or less (Bridges, Fuller, Rumberger, & Tran, 2004). Clements, Reynolds, and Hickey (2004) echo this finding; among children attending Chicago Child-Parent Centers, children with 2 years of preschool attendance (beginning at age 3) benefited more academically at school entry than children with only 1 year of attendance. These studies suggest a positive association between the duration of attending Head Start (or Head Start equivalent programs) and the level of cognitive school readiness.

Regarding social-emotional development, results of the Early Child Care Study indicates that children who spent more time in a child care centers like Head Start had higher parental ratings of emotion well-being, leadership, popularity, attractiveness, and assertiveness and lower ratings of aggression than children who spent fewer hours in child care (NICHD Early Child Care Research Network, 2000). In addition, spending more time in a full-time child care center was positively related to children's persistence during activities, more independence, fewer anxiety problems, and fewer problems during the transition from preschool to formal schooling for low to middle income families (Andersson, 1989). Similarly, children from high income families who spent more time in high quality daycare showed more physical affection during peer interactions, were more often assigned to the gifted program, and received higher math grades (Field, 1991). Thus, being enrolled in high quality child care for a longer period of time seems to enhance children's cognitive and social-emotional school readiness skills. Quite possibly, Head Start functions as an intervention of sorts and the effectiveness of Head Start, like other intervention programs, is influenced by the degree of participation by program participants (e.g., Gomby, Culross, & Behrman, 1999; Wagner & Clayton, 1999). Therefore, the

effectiveness of Head Start in reducing the impact of contextual risk factors on children's cognitive and social-emotional readiness may be influenced by the actual number of days children attended Head Start.

Evaluating the Effects of Maternal Mental Health in Post-Katrina New Orleans

Hurricane Katrina was a large and intense hurricane that struck a portion of the United States coastline along the northern Gulf of Mexico that is particularly vulnerable to storm surge. The destruction of Hurricane Katrina led to loss of life and property damage of immense proportions. Thousands of homes and businesses throughout entire neighborhoods in the New Orleans metropolitan area were destroyed, primarily by levee breaches that resulted in massive flooding (Knabb, Rhome, & Brown, 2005). The scope of human suffering inflicted by Hurricane Katrina has been greater than that of any hurricane to strike this country in several generations and the long-term recovery process has left many New Orleans residents still struggling to cope with the mental and emotional consequences of the hurricane four years later. Hurricane Katrina not only abolished entire neighborhoods, it disrupted, if not completely altered, important relationships with friends, relatives, and social networks (Picou & Hudson, 2009; Knabb, Rhome, & Brown, 2005).

The health care system in New Orleans was devastated. More than four years after the storm, many hospitals that were destroyed have not reopened and the largest public hospital where many Head Start families received health care, especially emergency health care, still remains closed. Neighborhood health clinics have not reopened, and tragically, mental health services are almost non-existent (P. Elloie, personal communication, January 16, 2007). In a recent survey of Louisiana residents, 39 percent of hurricane exposed residents reported that Hurricane Katrina had an effect on their mental health while 53 percent said that they thought the

storm had affected the mental health of people living in their neighborhood or community (Louisiana Survey, 2008). In 2007, LSU Health Sciences Center found that nearly 20 percent of the entire New Orleans population was suffering from mental illness (Hudson, 2009). Suicide rates and the number of people with mental health problems have doubled (Hudson, 2009). Currently, New Orleans has fewer than half of the inpatient beds for the mentally ill that it had before 2005 with the New Orleans city jail holding the largest number of psychiatric beds in the area.

Economically disadvantaged families living in post-Katrina New Orleans are experiencing difficulties accessing the mental health care they need. Thus, New Orleans provides a particularly stringent evaluation of the ability of Head Start attendance to attenuate the effects of contextual risks, like poverty, mental health, and neighborhood violence, on children's school readiness. Families with Head Start eligible children represent the extreme end of the distribution in terms of income, mental health risk, and exposure to neighborhood violence. If Head Start attendance proves to safeguard young children against the effects these contextual risks in such an extreme environment, Head Start may be viewed as a protective intervention against such socio-contextual risk factors like Head Start was first developed to do (Zigler, 1998; Zigler & Styfco, 1994).

Variability of Neighborhood Risk

Although Head Start exclusively serves low-income children and families, children enrolled in Head Start in the greater New Orleans represent considerable heterogeneity in terms of neighborhood danger. Prior to Hurricane Katrina, all neighborhoods that contained Head Start centers also had some of the highest levels of neighborhood violence in the region (Osofsky, 1995; Osofsky, Wewers, Hann, & Fick, 1993). In the years after Hurricane Katrina, some

neighborhoods have recovered less quickly than others. Consequently, some children are residing in desolate areas characterized by a large number of uninhabited, dilapidated houses and low population density (e.g., New Orleans East neighborhoods). In these areas, children are still attending Head Start in temporary structures. In contrast, other neighborhoods experienced a rapid repopulation, slow rates of home repair, and rapid increases in violent crime rates (e.g., Algiers, Central City neighborhoods) and children are attending schools in more disrepair than prior to Hurricane Katrina. As compared to other studies evaluating the effectiveness in Head Start, considerably more heterogeneity exists across the neighborhoods in which Head Start children currently reside providing more variability in neighborhood violence, or rather a measure of neighborhood danger.

Questions remain, though, regarding the best way in which to measure neighborhood danger. A variety of methods have been used to measure neighborhood danger. For example, observers have been trained to provide objective ratings of neighborhood danger by rating the extent to which criminal elements are present in the neighborhood (e.g. graffiti) and assess how safe streets in the neighborhood are to walk for children and adults during the day and night hours (Trentacosta, Hyde, Shaw, & Cheong, 2009). Frequently, parents provide their own reports of neighborhood risk (Wilson et al., 2009). Ratings of neighborhood violence from local police departments also have been used to accompany subjective reports of violence from neighborhood residents (e.g., Curry, Latkin, & Davey-Rothwell, 2008; Tonorezos, Breyse, Matsui, McCormick, & Curtin-Bronan, 2008). Finally, U.S. Census tract data have been used to construct distinct neighborhood clusters and then official crime statistics are collected within those clusters (e.g., Sampson, Raudenbush, & Earls, 1997).

In evaluating neighborhood danger in post-Katrina New Orleans, only interviewer impressions, parent report ratings, and official police statistics provide viable sources of information regarding neighborhood danger. U.S. Census tract data collected in 2000 may no longer be a valid method for collecting neighborhood data because the characteristics of neighborhoods in 2009 may not be similar to the 2000 characteristics.

In the present investigation, neighborhood danger was measured using mothers' reports, interviewer impressions of danger and safety, and, for those participants residing in Orleans Parish, crime statistics from Orleans Parish Police Department. Studies predominantly rely on self reports of neighborhood danger, but this study sought to incorporate information from three independent sources, so crime statistics will be used to validate mothers' reports and interviewer impressions.

Preschool Availability in New Orleans

Before Hurricane Katrina, New Orleans capacity to meet the preschool needs of children was limited. Louisiana's early childhood education system for poor families continues to be plagued with weaknesses that could pose serious risks to young children (National Child Care Information Center, 2005). Few preschool options for poor families exist in Louisiana. As of January 2009, only 45 percent of child care centers had returned to the New Orleans area (The New Orleans Index, 2009). The Head Start programs currently serve about 60 percent of eligible 3- and 4-year-olds in Louisiana. In addition, the percentage of children residing in poverty in New Orleans is more than double the national average; nationally, 17 percent of children reside in poverty, compared to New Orleans where an estimated 38 percent of children are living in poverty (National Center for Children in Poverty, 2005). Disturbingly, of poor children living in Louisiana, 13 percent are living in extreme poverty, compared with 7 percent nationally

(National Center for Children in Poverty, 2005). Louisiana has the second highest extreme poverty rate in the nation (National Center for Children in Poverty, 2005).

In other parts of the United States, competition between early childhood programs has risen, causing an under-enrollment in some Head Start programs (Carr, 2005). Some parents choose not to use Head Start, choosing instead to spend more money on child care or to rely on relatives for care (Besharov, Morrow, & Fengyan Shi, 2006). This is not the case in the greater New Orleans area. Given the limited early education resources available to young children in the region, poor families have few options other than Head Start for preschool. Children who do not attend Head Start are not likely to attend other preschool programs. The need to evaluate and pinpoint the current needs of poor, young children in New Orleans has never been greater.

Study Hypotheses

The current study considers the role of Head Start attendance in reducing the impact of socio-contextual risk on children's school readiness skill attainment during the preschool period (see Figure 1). The length of time enrolled in Head Start is expected to moderate the association between socio-contextual risk and children's attainment of school readiness skills. Thus, the goals of the proposed research are three-fold.

1. Exposure to social-contextual risk, namely a low income-to-needs ratio, high levels of financial strain, elevated levels of maternal health problems, and high levels of neighborhood danger, are expected to be negatively associated with children's attainment of school readiness skills during the preschool period (Figure 1).

2. Children who attended Head Start for the longest duration are expected to have significantly more sophisticated school readiness skills than children who attended Head Start for a short duration or not at all.

3. The duration of Head Start attendance is hypothesized to moderate the association between socio-contextual risk exposure and the attainment of school readiness skills so that more Head Start attendance is related to a decrease in the effects of socio-contextual risk and an increase in school readiness skills.

Methods

Procedures

Participating families included 167 mothers, their Head Start eligible child, and a target child who was 2 years old at the time of the first assessment. Families were recruited during Head Start registration and parent orientation meetings in Orleans and Jefferson Parishes. Families were eligible to participate if they had a child who was the target age for Head Start (sibling) and a younger child (target) who would turn 2 years of age during the duration of the study. Recruitment began in June, 2006 and was completed in December, 2008. Since eligibility did not require the sibling to actually be enrolled in Head Start at the time of the initial assessment, a number of siblings either never enrolled in Head Start ($n = 11$) or had already left Head Start ($n = 7$) at the time of the first assessment. In total, 149 siblings were included in the present study because they were enrolled in Head Start for some duration between assessment waves 1 and 2. Comparisons between the total number of participating families ($n = 167$) and the families included in the present study did not emerge ($n = 149$) for any of the study constructs.

Family triads participated in three annual assessments within 4 weeks of the target child's second (wave 1), third (wave 2), and fourth (wave 3) birthdays. Only data collected from mothers and older siblings are used in the present report. Some data from all three assessment waves were used in the present study. Waves 1 and 2 data collections have been complete. To date, 167 families have completed wave 1, 153 families completed wave 2 (92% retention), and 88 families have completed the final assessment. Wave 3 data collection is still underway. Of the 149 children who had Head Start attendance records at wave 1, only twelve children did not complete a wave 2 interview (92% retention). No significant differences in wave 1 scores

emerged when comparing the 12 families who did not participate in wave 2 with the 137 families who did.

All participating families completed assessments in their homes. Each assessment lasted 2-3 hours. All procedures and questionnaires were approved by the University of New Orleans Institutional Review Board (#02apr05). Mothers only provided written consent at wave 1, but provided verbal consent at wave 2 and wave 3. An interviewer, a camera person, and a babysitter traveled to the family's home for each assessment. Upon arrival to the home, the interviewer reviewed the informed consent with mothers. Next, families completed a set of interactional tasks that were videotaped. Interactional tasks involved a combination of mothers, older siblings, and target children. This first portion of the assessment lasted approximately 1 to 1.5 hours. The observational tasks are not used in the present report.

Then, interviewers completed a series of questionnaires with mothers regarding their feelings, experiences, and children's behavior. Because mothers' reading competence varied tremendously, interviewers offered and attempted to read all questions to mothers. Most mothers elected to complete the questionnaire on their own. At the wave 1 assessment older siblings only completed the Peabody Picture Vocabulary Test (PPVT). At wave 2, all three members of the triad completed the PPVT. At wave 3, all three members of the triad completed a Stroop test. Mothers completed the Stroop assessment on a laptop computer, while children completed a picture version. Upon completion of the interview, the interviewer, cameraperson, and babysitter completed impressions of mothers, older siblings, and target children's' mental health and social competence as well as characteristics of the neighborhood in which families resided.

Given the focus of the present study in examining whether the number of days children attended Head Start moderated the impact of contextual risk factors on children's school

readiness, older siblings' attendance records were collected from each Head Start center. Attendance records were collected retroactively for all siblings during January – February, 2010. In Orleans Parish Head Start centers, Mr. James Evans, the Deputy Director of Total Community Action supervised the collection of attendance records of MAPS families from 12 centers. Ms. Danielle Peters, the Social Service Coordinator for Jefferson Parish Head Start centers supervised the collection of attendance records in 4 centers in Jefferson Parish. Centers varied tremendously in their record keeping and 116 of the 149 records were collected. Orleans Parish was asked to retrieve attendance records for 64 of their Head Start students. Of these 64 student records, Orleans Parish was unable to locate the records of 6 students due to record misplacement and 3 were lost in a fire at one of the Head Start centers. In Jefferson Parish, only 2 of the 63 student records were irretrievable due to misplacement. Of the 127 records originally requested, a total 116 of Head Start attendance records were actually received and were used in this evaluation. Children with attendance records ($n = 116$) did not significantly differ from children with 0 days of attendance ($n = 33$) on any study construct. Since families from both Orleans and Jefferson Parishes were included, means of all study constructs were compared across these two groups. Only two significant differences emerged, mothers who resided in Orleans Parish reported having more income and more depression symptoms than mothers living in Jefferson Parish.

Lastly, for the 64 families residing in Orleans Parish, objective neighborhood level crime data was obtained for 63 of these families from the City of New Orleans Police Department's crime maps website (<http://www.cityofno.com/>). However, only 53 families had both Orleans Parish crime data and other measures of Head Start attendance, so crime map analyses include a sample of 53 crime reports. One family's crime data was not obtained because the street address

was unable to be located on the crime map website. First, home addresses of participants residing in Orleans Parish were entered into the crime map database. The website then created a map showing all crimes committed within one mile of the family's address. Crime statistics were then gathered for the one month prior to each family's wave one interview date. Crime statistics were not gathered for families residing in Jefferson Parish because mapped crime data is recorded and distributed by census tract and mapped crime data was only available for 2008 and 2009. Census tracts can be over 6 miles in diameter and were thought not to be the best measure of actual neighborhood crime levels for this study.

Sample

A total of 149 family triads participated. At the first year of assessment, mothers averaged 25 years of age; Head Start enrolled children averaged 3.6 years (52% female) and toddler-aged children averaged 1.7 years (55% female). Families were African American (88%), White (4.8%), or other (6%). Average per capita income was \$5,249. Additionally, Head Start uses poverty guidelines to determine eligibility for enrollment. Mothers' reported family incomes in this sample that were well below the eligibility guidelines set by Head Start (Table 1). Approximately two-thirds of the mothers had graduated from high school (64.5%) and a few had either one or two years of education post-high school (20.8%). Most mothers reported not being married (68.3%) and almost half of mothers reported working full time (48.5%) and some reported working part time (17.4%), or not at all (29.9%).

Table 1. Comparison of 2009 Head Start poverty guidelines and Mothers' and Preschoolers Study family income based on family size.

Number of persons in family	Head Start Poverty Guideline \$	MAPS Income \$
3	\$18,310	\$15,373
4	\$22,050	\$15,732
5	\$25,790	\$16,818
6	\$29,530	\$17,413
7	\$33,270	\$17,847
8	\$37,010	\$16,300

Residential overcrowding is one characteristic of poor families residing in post-Katrina New Orleans (e.g., Scaramella, Sohr-Preston, Callahan, & Mirabile, 2008). In general, mothers in this study had two adults living with them (49.7%) with some mothers reporting living with three adults (10.8%), and some even having four (6%) or five (.6%) adults living in the home. Consequently, children lived in equally crowded homes. Since having two children was a requirement for participation, the majority of participating mothers reported having two (40.7%) or three (26.9%) children, and the total number of children ranged from 2 to 10.

Although not included in the present analyses, mothers' receptive vocabulary scores were highly variable. Mothers' PPVT scores were 1 standard deviation below the mean and average standardized PPVT fell in the tenth percentile ($M = 80.80$, range = 47-113) for adult samples. Mothers' standardized PPVT scores were lower than their Head Start children (16th percentile at wave 1, $M = 84.63$, $SD = 13.04$; 21st percentile at wave 2, $M = 87.63$, $SD = 13.20$).

Measures

Study constructs were measured from a variety of sources. Although relying primarily on mothers' self-reports, interviewer impressions, standardized assessments, and official police records supplemented the self-report questionnaires. The following sections provide specific details regarding how measures were constructed.

Socio-contextual risk. Economic deprivation, mothers' mental health, and neighborhood danger were measured using mothers' self reports at wave 1. Attempts to validate mothers' reported neighborhood danger were used with data collected from the interviewing staff and police records at wave 1.

Economic deprivation. Family economic deprivation was measured using an income-to-needs ratio and mothers' reports of financial strain. First, the income-to-needs ratio was computed by dividing the total family income by the poverty threshold for the appropriate family size. Income-to-needs ratios less than 1.0 indicate that the family falls below the federal poverty line for the amount of income relative to the number of family members that income supports. The average income-to-needs ratio was 1.06 (range = 0.3 – 3.47; *SD* = .70). The advantage of the income-to-needs ratio is that it is a continuous measure that adjusts the overall income level to account for the number of family members that income supports.

Mothers also answered three questions regarding the amount and magnitude of financial strain they had experienced over the past year (see Appendix A). Items were rated on a 5-point Likert scale. Questions included: "Compared to 1 year ago, would you say that your standard of living today is?" (1 = a lot worse; 5 = a lot better); "During the past year, how hard has it been to pay you bills?" (1 = very hard to 5 = not at all hard); and "During the past year, how much money do you usually end up with each month?" (1 = a lot left over, to 5 = not enough to make ends meet). All scores were recoded so that high scores indicated more financial strains. Items

demonstrated modest internal consistency using Cronbach's alpha coefficient ($\alpha = .66$). Scores were created by computing the averaged of the three items ($M = 3.31, SD = .95$).

The next step was to create a composite score reflecting economic deprivation. First, the income-to-needs ratio was correlated with the financial strain score. While these scores were significantly correlated, the strength of the correlation was modest ($r = -.17; p < .05$). The significant negative correlation indicates as the income-to-needs increases, financial strain decreases. The low correlation coefficient suggests that each measure taps into independent dimensions of economic deprivation. Consequently, both scores were retained and each indicator of economic deprivation was evaluated separately within each model.

Maternal mental health. Both maternal depression and anxiety were considered as indicators of mothers' mental health. Elevated levels of depression and anxiety have frequently been reported in post-Katrina New Orleans (Kessler, Galea, Jones, & Parker, 2006; Wang et al., 2008) and the independent effects of each were evaluated. With regard to maternal depression, depressive symptoms were measured using the Beck Depression Inventory-II (BDI-II; see Appendix B). This 21-item measure is routinely used to identify depressive symptoms in community samples (Beck, Steer, & Brown, 1996). The BDI has been shown to have good internal consistency ($\alpha = .91$) in the general population (Beck, Steer, Ball, & Ranieri, 1996). The BDI also has been shown to have high internal consistency ($\alpha = .90$) and criterion validity in low income African American populations (Grothe, et al., 2005).

Mothers were asked to choose one of four statements that range from positive to depressed feelings about life in the past week. For example, mothers were asked to choose among the following statements regarding their feelings of sadness in the last week: 1) I do not feel sad, 2) I feel sad, 3) I am sad all the time and I can't snap out of it, 4) I am so sad or unhappy

that I can't stand it. Following the request of the IRB, the question measuring suicidal thoughts was removed from the BDI. Thus, an overall depression score was created by first computing the mean of the 20 items and then multiplying the number by 21 in order to rescale the 20 items to the 21 scale ($M = 9.04$, $SD = 8.99$). In this sample, 64.4% of mothers reported experiencing minimal amounts of depression, 19.9% reported mild depression symptoms, 10.3% reported moderate levels of depression, and 5.5% reported severe depression symptoms. Consistent with previous studies, the measure demonstrated good internal consistency as measured with Cronbach's alpha coefficient ($\alpha = .88$).

Mothers' anxiety symptoms were measured using the Beck Anxiety Inventory (BAI; Beck & Steer, 1990; see Appendix C). This 21-item measure is often used to identify anxiety symptoms in both community and clinical samples (Beck, Epstein, Brown, & Steer, 1988). The BAI has been shown to have good internal consistency ($\alpha = .92$) in clinical and general populations (Beck, Epstein, Brown, & Steer, 1988; Osman, Barrios, Aukes, Osman, & Markway, 1993) and recently has been shown to have good internal consistency in African American populations (Chapman, Williams, Mast, Woodruff-Borden, 2009). In addition, the BAI correlates moderately with the Hamilton Anxiety Rating Scale (Beck et al., 1988) and the State-Trait Anxiety Inventory (STAI), with no difference between correlations with Trait and State scales (Creamer et al., 1995). Mothers rated how often each symptom had bothered them during the past week on a 4-point Likert scale (0 = not at all; 1 = a little bit; 2 = some; and 3 = a lot). Sample items included: "Numbness or tingling?", "Unable to relax?", and "Nervous?" Items were summed to create the maternal anxiety score ($M = 7.49$, $SD = 9.21$). In this sample, 65.5% of mothers reported experiencing minimal amounts of anxiety, 18.2% reported mild anxiety symptoms, 10.1% reported moderate levels of anxiety, and 6.1% reported severe anxiety

symptoms. Cronbach alpha coefficients indicated that the measure had high internal consistency ($\alpha = .90$).

Although mothers' anxiety and depression scores were positively and statistically significantly correlated ($r = .47, p < .01$), these scores were not combined because the effects of depression and anxiety on school readiness skills seem to be different.

Neighborhood danger. Mothers' reports were used to measure neighborhood danger. Mothers reported on their perceived levels of danger in their neighborhoods, how safe they perceive their neighborhood to be, and the amount of support they received from their neighbors using the Me & My Neighborhood Questionnaire (MMNQ; Ingoldsby & Shaw, 2002; see Appendix D). Dangerous neighborhoods were conceptualized as those in which families are exposed to a variety of dangerous events, mothers perceive the neighborhood as unsafe, and mothers perceive little support from neighbors. Shaw and colleagues developed the measure for low-income, high risk populations and have reported good internal consistencies using Cronbach's alpha coefficient ($\alpha = .81$; Vanderbilt-Adriance, Shaw, Dishion, Gardner, & Wilson, 2010).

The questionnaire contains three components. First, mothers complete 17 items regarding the frequency with which a variety of dangerous events have occurred in their neighborhood during the past year. Events were rated on a 4-point scale (0 = never, 1 = once, 2 = a few times, and 3 = a lot). Sample events include: "During the past year, how often did you see or hear about a shooting near your home?", "During the past year, how often did you see people dealing drugs near your home?", and "During the past year, how often did you know someone in your neighborhood get arrested or sent to jail?" Since less severe events (e.g., neighbors arguing loudly) may occur more frequently than more severe events (e.g., a family member was stabbed

or shot), all items were recoded to create an index of the variety of dangerous events to which families were exposed. This index reduces the likelihood that families with frequently occurring and less severe events are equated with families who experienced several dangerous, yet less frequent, events. Consequently, if mothers reported that an event occurred at least once, the item was recoded as '1'. If an event never occurred, the event was coded '0'. Events were summed to create an index of neighborhood danger ($M = 6.2, SD = 4.7$). Higher scores reflect exposure to a greater variety of dangerous events during the past year.

Next, mothers completed six items regarding how safe they perceived their neighborhood to be for adults and children (Appendix E). Responses were rated on a 4-point scale (1 = strongly agree, 2 = agree, 3 = disagree, and 4 = strongly disagree). Sample questions include: "My neighborhood is safe for adults to walk along during the afternoon.", "My neighborhood is safe for children to walk alone during the evening.", and "My neighborhood is safe for children to play outside when an adult is watching." Items were coded so that high scores reflect less neighborhood safety. Responses on the six items were internally consistent ($\alpha = .86$) and items were averaged to create an overall measure of mothers' report of neighborhood safety ($M = 2.9, SD = .71$)

Finally, mothers completed five items regarding their perceptions of how much support they received from their neighborhood. Items were rated on a 7-point Likert scale (1 = not at all true, 7 = very true). Sample items included: "The friendships and connections I have with people in my neighborhood mean a lot to me", "The neighborhood I live in is a big part of who I am", and "Living in my neighborhood gives me a feeling of belonging" (see Appendix F). Scores were recoded such that higher scores indicate *less* neighborhood support and cohesion. Responses on the five items were averaged to create an overall low support score ($\alpha = .85$). The

average neighborhood support score was 3.6 ($SD = 1.8$), indicating that most mothers perceived relatively low levels of neighborhood support.

Before creating an overall measure of neighborhood danger, scores on each dimension of danger were correlated. Correlations were statistically significant and ranged from .27 to .51. Individual indicators were standardized and averaged ($M = 0$, $SD = 1.60$) to create an overall measure of neighborhood danger.

Validating mothers' report of neighborhood danger. Two additional measures were used to validate mother reports of neighborhood danger. First, an impression score of neighborhood safety and danger were correlated with mothers' reports. Impression scores were based on interviewer, camera person, and babysitter perceptions of neighborhood safety and danger. Immediately following an interview, the interviewer, camera person, and babysitter completed 7 items regarding neighborhood safety and danger. Items were rated on a 4-point Likert scale (1 = very true; 2 = somewhat true; 3 = hardly true; 4 = not true). Some items were recoded so that higher values indicated more neighborhood danger. Sample impression items included: "There were obvious signs of delinquent activities in the neighborhood", "The neighborhood appeared to be safe", and "This is a safe neighborhood for someone to walk alone in the evening" (see Appendix G). Items were summed within reporter (alpha coefficient range: .79 to .83). Correlations across the three reporters were statistically significant (range: .31 to .55; $p < .001$). An overall impression score was created by averaging the interviewer, babysitter, and camera person impressions into one overall impression of neighborhood danger score ($M = 2.58$; $SD = .69$).

Second, crime statistics were collected for 53 families from the City of New Orleans Police Department reported crimes included: murder, robbery, theft, assault, burglary, auto theft.

Crime statistics were tallied for the one month prior to each family's first assessment. A measure of crime was created by summing the total number of crimes which occurred during the past month. On average, just over 12 criminal events occurred in the neighborhoods, however, considerable variability around the mean was reported ($M = 12.10$, $SD = 7.39$).

School readiness skills. Children's school readiness skills were conceptualized to include both academic competency and social competency. In regards to academic competency, language may be the most important foundation for which to build subsequent school readiness skills (Fiorentino & Howe, 2004).

Academic readiness skills. Two domains of academic readiness were evaluated, children's receptive vocabulary and executive functioning. Children's receptive vocabulary was measured using the Peabody Picture Vocabulary Test (PPVT-III; Dunn & Dunn, 1997). The PPVT is routinely used to evaluate children's language development and cognitive ability in preschool children (Hart & Risley, 1995; Wasik & Bond, 2001; Wellman, Phillips, Dunphy-Lelii, & LaLonde, 2004) and has been demonstrated to be valid among African-American children (Washington & Craig, 1999). The PPVT also is highly correlated with intelligence tests such as the Wechsler Intelligence Scale for Children (Williams & Wang, 1997). Administering the test involves presenting children with four line drawings and asking children to select which line drawing represents the word spoken by the examiner. Each set of drawings is progressively more difficult than the previous one. Standardized scores were used that are adjusted for children age and converted into normative scores as defined in the PPVT-III standardized manual (Dunn & Dunn, 1997). PPVT scores at wave 1 averaged 84.63 ($SD = 13.04$) and averaged 87.63 ($SD = 13.20$) at wave 2.

Executive functioning. At wave 3, the interviewer engaged children in a conversation about day and night. Specifically, the sun comes up in the day and the moon and stars come out in the night. When discussing “day” the interviewer presented a white card with a yellow sun drawing on it and when discussing “night” the interviewer presented a black card with a white moon and stars on it. Standard procedures indicate that the interviewer instruct children to say “night” for the sun card and “day” for the moon/stars card. After a brief warm-up, there were 20 test trials with each card presented in a fixed, pseudorandom order. There were no breaks or rule reminders. Interviewers recorded correct answers.

In the present study, children did not have the basic understanding of “day” and “night” and did not associate “sun” with “day” and “moon” with “night”. Thus, instructions were modified to first teach children that the sun comes out in the day and the moon and stars come out at night. After children successfully associated sun with day and moon with night, the interviewer resumed the standard training script.

On average, children correctly identified 10.49 of the 20 cards ($SD = 6.92$). This task was only administered at wave 3 when children were 5.54 years of age on average. On average, children responded correctly on 52% of the Stroop items. Correct response rates in other same-age samples respond correctly to approximately 77% of the test items (Gerstadt, Hong, & Diamond, 1994) and 78% in Head Start populations (Rhoades, Greenberg, & Domitrovich, 2009). Since wave 3 data collection is ongoing, only 88 children had Stroop data that could be used in the present analysis.

Social competence. Both mother reports and interviewer impressions were used to measure children’s social competence. First, mothers completed a 10-item social competence subscale from the Social Competence and Behavior Evaluation Scale (SCBE; LaFreniere &

Dumas, 1996; see Appendix H). This subscale measures social behavior in children (e.g., socially integrated, tolerant, cooperative) and has demonstrated acceptable internal consistencies (ranging from $\alpha = .80$ to $\alpha = .92$), high inter-rater ($r = .83$ to $.87$), and test-retest reliability ($r = .82$; Kotler & McMahon, 2002). Sample items include “comforts or assists another child in difficulty,” and “works easily in a group.” Although the SCBE requires parents to rate items on a 6 point scale, in order to simplify the measures for mothers, items were rated on a 3-point Likert scale (0 = never occurs, 1 = sometimes occurs, 2 = always occurs). Cronbach alpha coefficients indicated that mothers’ ratings were internally consistent ($\alpha = .79$). Mothers’ reported similar levels of social competence at both wave 1 ($M = 1.38$, $SD = 0.37$) and wave 2 ($M = 1.43$, $SD = 0.37$).

In addition to mothers’ ratings, interviewer, camera person, and babysitter impressions were used to measure social competence. At wave 1 and 2, observers completed eight items that measured children’s social behaviors such as children’s ability to follow instructions and resistance to authority. Sample items include “behaved in an impulsive or out of control fashion,” “was friendly or social with the interviewer,” and “the sibling understood task instructions.” Items were rated on a four-point Likert scale (1 = very true, 2 = somewhat true, 3 = hardly true, 4 = not true). Items were reversed scored, so higher values indicated more socially appropriate behaviors (see Appendix I). At wave 1, internal reliabilities ranged from .86 to .90 and the three observer’s ratings were combined to create one measure of social competence ($M = 3.47$, $SD = .51$). Social competence scores were highly correlated across reporters ($r = .54 - .61$, $p < .01$). Interviewer ratings for social competence for wave 2 were created in the same way and showed similar levels of social competence ($M = 3.73$, $SD = .35$). At wave 2, internal reliabilities

ranged from .79 to .89 and the three observer's ratings of social competence were significantly correlated across reporters ($r = .12 - .28, p < .01$).

Head Start attendance. Attendance records were obtained for 149 Head Start students between Jefferson and Orleans Parish. Some children attended other preschools ($n = 22$) and if no information was available regarding preschool attendance, they were excluded from the analyses. Overall, children who attended Head Start attended an average of 78.96 days ($SD = 63.96$).

Results

Data Analytic Plan

Before testing study hypotheses, analyses were conducted to attempt to validate the neighborhood danger construct. Three procedures were used to validate mothers' reports. First, two confirmatory factor analyses (CFA) were used to estimate the extent to which each indicator loaded onto latent constructs of both mothers' report and interviewer ratings of neighborhood crime. Factor loadings that are similar in magnitude and of .60 or higher indicate strong convergence across the three indicators (Kline, 2005). Second, latent factors of mothers' report of crime were correlated with observer reports of crime and official police reports (Orleans Parish families only). Results of the confirmatory factor analyses will directly inform the neighborhood danger variable in the analyses. The final analytic step before evaluating study hypotheses was to compute bivariate correlations among all study constructs to ensure that study constructs were correlated as expected.

Hypothesis testing involved two steps. First, multiple regression equations were computed estimating the main effects of the moderator, Head Start attendance, and the socio-contextual variables (i.e., income-to-needs ratio, financial strain, maternal depression, maternal anxiety, and neighborhood violence) for each of the four dependent variables, receptive vocabulary, executive functioning, social competence reported by mothers, and interviewer impressions of social competence. Next, for each socio-contextual variable, an interaction term was created to evaluate the effect of Head Start attendance on school readiness skill attainment. Interaction terms were created by multiplying each socio-contextual variable by the Head Start attendance variable. Each term was centered and entered into the equation independently from other interaction terms to assess unique effects Head Start may have in buffering each socio-

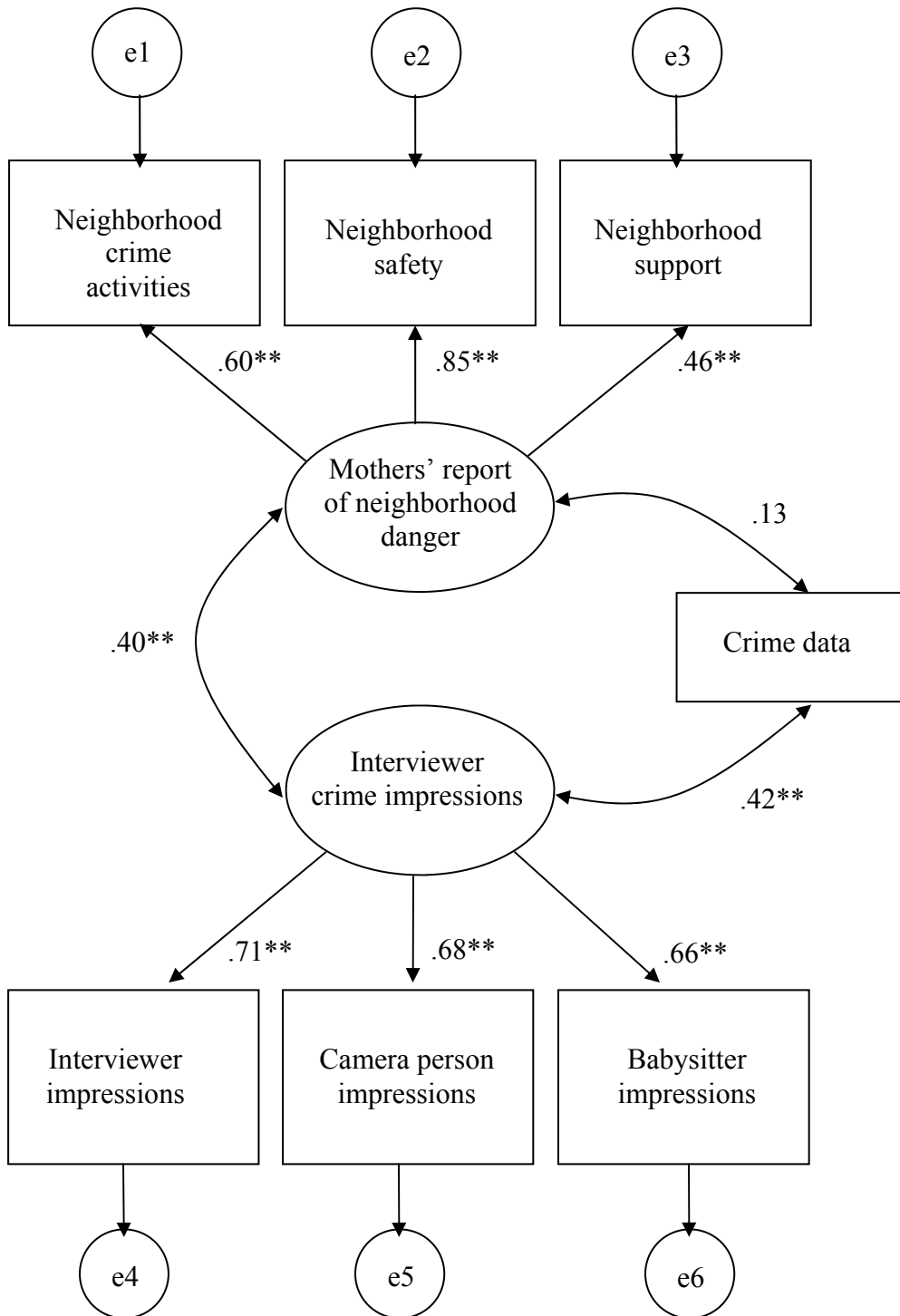
contextual risk factor as it relates to each school readiness skill. Regression analyses were estimated using AMOS 5.0 (Arbuckle, 2003) with full information maximum likelihood estimation (FIML). This estimation type has been found to produce unbiased estimates particularly when data are missing at random as in the present study (Arbuckle, 1996). For each school readiness skill, five structural equation models were evaluated by entering each interaction term into the model.

Validating mothers' reports of neighborhood danger. In order to validate mothers' reports of neighborhood danger, mothers' reports were correlated with interviewer impressions and official crime statistics (only Orleans Parish families). A confirmatory factor model was estimated for mothers' reports of crime using reports of dangerous events in the neighborhood, perceived neighborhood safety, and felt neighborhood support. In order to estimate the model, the regression weight for one of the factors was fixed to 1 (i.e., dangerous events) and the two remaining paths were free. Each of the factor loadings was statistically significant and the factor loadings were: .60 for dangerous events, .85 for neighborhood safety, and .46 for neighborhood support. Since the model was fully saturated, no fit indices could be evaluated.

Next, a confirmatory factor model was estimated regarding interviewer impressions of neighborhood safety. Three interviewer impressions (interviewer, camera person, and babysitter) were used as indicators of a single latent construct, impressions of neighborhood safety. Like the mother factor model, one of the path coefficients was fixed to 1 and the others were free to vary. Each of the factor loadings was statistically significant and similar in magnitude (interviewer = .71, camera person = .68, and babysitter = .66), indicating that each impression made a similar contribution to the latent factor.

In order to evaluate the extent to which mother reports, interviewer impressions, and crime statistics were correlated, a measurement model was estimated (see Figure 2) in which the latent constructs of mothers' reports of neighborhood danger, interviewers' impressions of neighborhood safety, and total number of crimes committed (Orleans Parish only) were correlated. Approximately 100 families were missing official crime statistics, so full information maximum likelihood estimation was used to estimate the model using AMOS 5.0. As shown in Figure 2, mothers' reports of neighborhood danger was significantly correlated with interviewer impressions of neighborhood safety ($r = .40, p < .001$). Neither mothers' reports of danger nor interviewers' impressions of safety were significantly correlated with the official reports of total crimes, probably because of the large number of missing cases. The model depicted in Figure 2 was re-estimated using only data from the 53 families with official crime data. Although this model violates common expectations for the number of participants for the number of paths estimated (typically ranging from 5 – 10 participants for each path estimated), by restricting the model to only those with complete data, interviewers' impressions were significantly correlated with both mothers' reports ($r = .40, p < .001$) and official crime totals ($r = .42, p < .001$).

Figure 2. *Confirmatory factor analysis validating mothers' reports of neighborhood crime.*



However, mothers' reports of neighborhood danger remained unrelated to official crime totals.

Given the statistically significant correlation between mothers' reports and interviewers' impressions, both sources of information were used to create the overall neighborhood danger score. All indicators were then standardized and averaged to create a single indicator of neighborhood danger ($M = 0$; $SD = 2.07$).

Correlational Analyses. Next, correlations among the economic deprivation, mothers' mental health, neighborhood danger, Head Start attendance and school readiness indicators were computed to examine the extent to which the constructs were related in expected ways. Table 2 summarizes these results. First, in examining the magnitude of the associations among the socio-contextual risk contexts, considerable variability emerged. That is, the income-to-needs ratio was negatively correlated with financial strain ($r = -.17$; see Table 2), indicating that more income-to-needs was associated with less financial strain. While this correlation was statistically significant, the magnitude of the association was rather weak. Income-to-needs was not statistically significantly correlated with any of the other socio-contextual risk factors, with the exception of the trend towards statistical significance for anxiety. In contrast, financial strain was significantly correlated with both maternal depression and anxiety (see Table 2). That is, more family financial strain was associated with more depressed mood and anxiety symptoms for mothers. Perhaps the stronger associations between financial strain and other socio-contextual variables than income-to-needs indicate that actual income functions quite independently from perceptions of financial strain. Current research suggests that income and financial strain should not be combined, but are in fact distinct and separate indicators of economic stress and strain (Conger, Conger, Elder, Lorenz, Simons, & Whitbeck, 1992). As expected, maternal depression was

positively and significantly correlated with maternal anxiety and mothers' reports of neighborhood danger (see Table 2). Maternal anxiety also was positively and significantly correlated with neighborhood danger (see Table 2).

Table 2. *Correlations among study constructs.*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Head Start attendance	1.00													
2. Income-to-needs	.11	1.00												
3. Financial strain	.03	-.17*	1.00											
4. Mothers' depression	.07	-.07	.56**	1.00										
5. Mothers' anxiety	-.04	-.14+	.33**	.47**	1.00									
6. Neighborhood danger	-.12	.00	.05	.17*	.16*	1.00								
7. PPVT Time 1	-.03	.10	-.06	-.06	-.04	-.04	1.00							
8. PPVT Time 2	.03	.06	-.14+	-.07	-.18*	-.07	.63**	1.00						
9. Mothers' SC report 1	.12	.09	-.10	-.08	-.04	.10	.04	.07	1.00					
10. Mothers' SC report 2	-.03	.07	.00	.00	.03	.06	.16+	.12	.45**	1.00				
11. Observations SC 1	-.06	-.10	-.07	-.16*	-.02	-.18*	.19*	.18*	.19*	.02	1.00			
12. Observations SC 2	.01	.00	-.16+	-.23*	-.15+	-.16+	.16+	.22*	.12	.06	.54**	1.00		
13. Stroop	-.20	.15	-.11	-.12	-.11	.04	.20+	.11	-.03	.12	-.06	.13	1.00	
14. Violent crime	.18	-.12	.06	-.16	.11	.18	.04	-.15	.14	-.06	-.08	-.05	.05	1.00

Note: + $p < .10$, * $p < .05$, ** $p < .001$.

Next, correlations among the socio-contextual risk factors and the school readiness skills were examined. The vast majority of the correlations were not statistically significant. Financial strain was only marginally correlated with wave 2 PPVT scores ($r = -.14$) and wave 2 observations of social competency ($r = -.16$), suggesting that more financial strain is associated with somewhat poorer language and social skill development. Mothers' ratings of maternal depression were significantly negatively correlated with wave 1 ($r = -.16$) and wave 2 ($r = -.23$) impressions of children's social competence, but not mothers' own self reported social competence. Similarly, maternal anxiety was marginally significantly associated with impressions of social competence at wave 2 (see Table 2), but not with impressions at wave 1 or with mothers' own reports of children's social competence. Maternal anxiety was significantly and negatively correlated with PPVT scores at wave 2 only. Finally, as shown in Table 2, neighborhood danger was significantly and negatively correlated with impressions of social competence at wave 1 ($r = -.18$), although a trend towards statistical significance emerged at wave 2. In addition, neighborhood danger was unrelated to any other indicator of social competence. Head Start days of attendance was not significantly correlated with any study construct. Descriptive statistics for study variables are located in Table 3.

Table 3. *Descriptive statistics for study variables.*

	Mean	SD	Range
1. Head Start attendance	78.96	63.96	1-192
2. Income-to-needs	1.06	.70	0.3-3.47
3. Financial strain	3.31	.95	1-5
4. Mothers' depression	9.04	8.99	0-39.90
5. Mothers' anxiety	7.49	9.21	0-43
6. Neighborhood danger	.00	2.07	-4.59-3.65
7. PPVT Time 1	84.63	13.04	40-116
8. PPVT Time 2	87.63	13.20	54-122
9. Mothers' SC report 1	1.38	.37	.3-2
10. Mothers' SC report 2	1.43	.37	.3-2
11. Observations SC 1	3.47	.51	2.17-4
12. Observations SC 2	3.73	.35	2.42-4
13. Stroop	10.49	6.9	0-20
14. Violent crime	12.10	7.39	0-37

Hypothesis testing: Evaluation of the main effects of socio-contextual risk on school readiness skill attainment. Using AMOS 5.0 with full information maximum likelihood estimation (FIML), the main effects of Head Start attendance and the socio-contextual risk factors were estimated separately for each of the four school readiness constructs. In the models evaluating change in school readiness skill, the school readiness skill measured at wave 1 was statistically controlled. All independent variables were correlated and paths from the independent variables to the dependent variable were estimated, resulting in a fully saturated model. Consequently, each model resulted in a non-significant chi-square and model fit indices could not be evaluated. Importantly, models also were estimated controlling for children's age and sex; in none of the models were age or sex statistically significant and these controls were not included in the final model. Results of the estimates of the main effects are summarized in Table 4, Panel A.

Table 4. *Main and interaction effects of socio-contextual risk on school readiness skill attainment.*

Panel A				
	PPVT <i>n</i> =149	Stroop <i>n</i> =88	Social Competence Mother report <i>n</i> =149	Social Competence Observed <i>n</i> =149
Main Effects	β	β	β	β
Head Start Attendance	.07	-.14	-.09	.07
Income-to-needs ratio	-.03	.17	.01	.11
Financial Strain	-.06	.19	.00	.01
Maternal Depression	.05	-.17	.04	-.17+
Maternal Anxiety	-.17*	-.03	.02	-.06
Neighborhood Danger	.00	-.01	-.01	-.04
Controlled Variables				
Wave 1 PPVT	.57**			
Wave 1 Social Competence: Mother report			.45**	
Wave 1 Social Competence: Observed				.53**
Overall R ²	.35	.07	.20	.39
Panel B				
Interaction Effects				
Head Start Attendance x Income-to-needs	-.12	.23	-.11	.11
Head Start Attendance x Financial Strain	.14	.23	-.02	.29
Head Start Attendance x Maternal Depression	-.05	.07	-.14	.06
Head Start Attendance x Maternal Anxiety	-.14	.05	.05	.05
Head Start Attendance x Neighborhood Danger	-.14	-.07	-.17+	-.14

Note: + $p < .10$, * $p < .05$, ** $p < .001$.

Regarding change in children's receptive vocabulary scores, the model explained 35 percent of the variance associated with children's receptive vocabulary (see Table 4, panel A). After controlling for receptive vocabulary scores at wave 1 ($\beta = .57; p < .001$), only maternal anxiety was significantly associated with change in receptive vocabulary from wave 1 to wave 2 ($\beta = -.17, p < .05$), indicating that higher levels of maternal anxiety at wave 1 produced slower rates of increase PPVT scores from wave 1 to wave 2. No other significant path coefficients emerged from this model.

Next, the model was estimated considering the impact of the socio-contextual risk factors on children's executive functioning at wave 3 using the Stroop task. Since the Stroop was only collected at wave 3, this analysis does not evaluate change in executive functioning. No statistically significant path coefficients emerged.

Two models were estimated for social competence, one using mothers' ratings and another using the interviewer impressions. Regarding mothers' reports of social competence, none of the estimated path coefficients were statistically significant, indicating that none of the socio-contextual risk factors predicted change in children's social competence at wave 2. Next, the social contextual risk factors were used to predict change in interviewer impressions of children's social competence. Only one marginally statistically significant path coefficient emerged for maternal depression (see Table 4, Panel A), indicating that mothers' reports of depressive symptoms at wave 1 were associated with slower rates of increase in impressions of social competence from wave 1 to wave 2.

Hypothesized interactional effects of Head Start attendance and socio-contextual risk on school readiness skill attainment. The final set of models considered the moderational role of Head Start attendance on each of the social contextual risk factors (see Table 4, Panel B). The purpose of this analysis was to evaluate whether the interaction term was statistically significant after considering the main effects of socio-contextual risk. None of the models produced any

notable change in the magnitude of the main effect coefficients. As summarized in Table 4, panel B, a total of 20 additional path models were estimated, one for each interaction term. Of the 20 models estimated only one marginally significant interaction term emerged. Given the number of interaction terms estimated, the possibility that this marginally significant interaction was due to chance could not be ruled out and the interaction term was not interpreted.

Discussion

Head Start was developed to provide disadvantaged children with a boost in school readiness skills prior to school entry and to offer children some protection from the harmful effects of socio-contextual risks, like economic deprivation, poor maternal mental health, and neighborhood danger, on children's acquisition of school readiness skills. While evaluation studies have demonstrated mixed results regarding the effectiveness of Head Start in improving children's readiness for school, evaluation studies have largely ignored any dosage effects. Quite possibly, the effectiveness of Head Start as an intervention depends on the actual number of days children attended Head Start. Instead, studies have considered the age in which children enrolled in Head Start on their acquisition of school readiness skills (e.g., HSIS, 2010; Zill et al., 2003). The primary limitation with this approach is that children may be enrolled in Head Start but their attendance may be sporadic. Indeed, low income families often experience a number of challenges that interferes with their abilities to actually send children to school (e.g., Heymann, 2000; Reed & Sautter, 1990). In order for preventative interventions to be effective, receiving the appropriate dosage of the intervention is critical (e.g., Campbell & Ramey, 1994; Reynolds, 1995).

The primary goal of the present study was to consider whether the number of days in which children actually attended Head Start attenuated the impact of socio-contextual risks on children's acquisition of school readiness skills in both the cognitive and social domain. The impact of socio- contextual risks on children's adjustment was expected to diminish as the dosage of Head Start increased. Results did not confirm expectations. First, with the exception of maternal anxiety, socio-cultural risk factors were largely unrelated to indicators of children's cognitive and social school readiness. Second, no moderating effect of Head Start attendance emerged. The lack of moderation is not surprising since socio-contextual risk factors were not associated with school readiness skills. These findings do raise questions as to why socio-

contextual risk was not associated with indicators of children's school readiness; reasons for the lack of empirical support will be discussed in the subsequent sections.

A secondary goal of the present study was to validate mothers' reports of neighborhood danger. Empirical studies examining neighborhood effects on children's adjustment often rely on mothers' reports of neighborhood crime, safety and perceived social support (Sheidow, Gorman-Smith, Tolan, & Henry, 2001; Wilson, Hurtt, Shaw, Dishion, & Gardner, 2009). In the present study, both impression ratings obtained from interviewing teams and for the subset of families residing in Orleans Parish, official police crime reports were used to validate mothers' reports. The following sections will discuss study results from the theoretical model, limitations associated with the study, and promising directions for future empirical research.

Direct effects of socio-contextual risk factors on children's acquisition of school readiness skills

Quite surprisingly, the socio-contextual risk factors were largely unrelated to the school readiness indicators. Only mothers' reports of anxiety were significantly associated with slower rates of increase in children's PPVT scores, suggesting that mothers who are more anxious have children who are not developing receptive vocabulary scores as quickly as children whose mothers have fewer anxiety symptoms. Two possible reasons may explain the negative association between anxiety symptoms and change in receptive vocabulary. First, anxious mothers have been found to talk with their children less and be more critical of their children when they do talk with them (Ginsburg, Ialongo, Grover, & Cord, 2006). Criticism may have the unfortunate consequence of limiting conversations rather than encouraging them. Second, anxious mothers may avoid social situations that may promote language growth (Dubi, Rapee, Emerton, & Schniering, 2008, Rapee, 2001). That is, anxious mothers have been found to avoid anxiety provoking situations, but in doing so, such mothers also may negatively affect the language development of their preschool children. In both situations, children of anxious mothers

may not be receiving the engaging social exchanges that foster important language development skills and vocabulary.

One trend towards statistical significance also emerged regarding maternal depression and impressions of social competence. Mothers who reported more depressive symptoms had children who demonstrated less increase in social competence from wave 1 to wave 2. Children of depressed mothers may not be receiving the positive and consistent social reciprocities children need to experience in order to learn how to effectively interact with other children and adults (Goodman, Adamson, Riniti, & Cole, 1994; Goodman & Gotlib, 1999; Hammen, 1991).

Perhaps the biggest question which remains is why socio-contextual risk factors were unrelated to children's school readiness skills. Several possibilities exist. First, mothers may have little effect on children's school readiness skills. Mothers who are overwhelmed with caregiving demands and economic strain may have little energy to devote to interacting with their children. An abundance of research suggests that this is a likely conclusion. Second, mothers influence may be shared among multiple caregivers. Other adults and older siblings residing in the home may play much more active roles in caregiving and socializing school readiness skills. While the vast majority of participating mothers were not married, most mothers reported other adults living in the home, suggesting that a large number of children interact with other adult caregivers and siblings on a regular basis. Not including other family members may miss important socializing influences.

Third, and perhaps most concerning, mothers' may be ill-prepared to socialize school readiness skills in their children and rely heavily on Head Start teachers to teach and promote school readiness skills. On average, mothers' own receptive vocabulary scores were in the mildly impaired range, were lower than their Head Start children, and fell in the tenth percentile for adult samples. Receptive vocabulary is only one indicator of cognitive functioning, but it does reflect an ability to understand language (Mcloughlin & Gullo, 1984; Morrow, 2003). Mothers'

own language deficits may make them poor educational resources for children even during the early childhood years.

Finally, the possibility exists that the level of risk is substantially greater in the present sample than in other Head Start populations. The environmental conditions associated with poverty, such as residential overcrowding, unstable household structures, and neighborhood danger have been intensified in post-Katrina New Orleans. The average household size in New Orleans increased after Hurricane Katrina and this increase in household size has been linked to poorer mental health two years later (Abramson, Stehling-Ariza, Garfield, & Redlener, 2008). Moreover, immediately after Hurricane Katrina Kessler and colleagues (2006) reported that the rates of mental illness doubled among all residents; however, poor families may be less able to receive treatment because of the continued shortage of mental health care facilities and providers. The mental health care system is unable to keep up with the mental health care need in a post-Katrina New Orleans. Many mental health facilities in New Orleans have closed, with no plans to reopen or offer more services to meet the mental health needs of the population (Beiser, 2007; Picou & Hudson, 2009; Smith, 2009).

Two related possibilities exist to explain the lack of association between socio-contextual risk and children's school readiness skills. First, little variability in the levels of socio-contextual risk exist. Seventy-five percent of the participants in this study had income-to-needs ratios of 1.5 or less indicating that the vast majority of participants had incomes that were insufficient to meet their economic needs. Moreover, the average household incomes for families fell well below the established poverty guidelines used for determining Head Start eligibility. In general, mothers reported very low levels of income, high levels of financial strain, elevated levels of mental health problems, and residing in very dangerous neighborhoods. Consequently, the sample may be too homogenous in terms of socio-contextual risk to be able to discriminate children's school readiness abilities. Second, and alternatively, the mechanisms by which socio-contextual risk

influences families may be much different in circumstances of severe risk. One possibility is that under circumstances of severe socio-contextual risk, the stress associated with the risk is overwhelming to mothers and leaves little time or energy to invest in social interactions with their children (e.g., Conger & Donnellan, 2007). Or, under circumstances of extreme deprivation, mothers' goals may be different and mothers may be more focused on survival in terms of meeting their children's physical and safety needs rather than their cognitive and social development.

Theoretically, the amount of time children spent at Head Start was expected to attenuate the impact of socio-contextual risk factors on children's school readiness skills. Given the lack of statistically significant associations between socio-contextual risk and school readiness skills, there was little for Head Start attendance to influence.

Validating neighborhood danger. In addition to measuring mothers' reports of their impressions of neighborhood danger, safety, and support, the interviewing team completing the home assessment independently completed impressions of the level of safety and danger in neighborhoods in which families resided. Official police records of crimes committed in the neighborhoods were collected for the subset of participants who were residing in Orleans Parish. Both the impressions of neighborhood danger and official police records of crimes committed in the neighborhood were used to validate mothers' perceptions.

Interestingly, only interviewer impressions and not official crime statistics were correlated with mothers' reports of neighborhood danger. One possible explanation for the lack of correlation with mothers' own reports is the very small sample with available crime data. Although the crime statistics did not correlate significantly with mother ratings, the large amount of missing data was problematic. Interestingly, mothers and interviewers were from very different socio-economic backgrounds and yet still shared similar perspectives regarding the level of neighborhood danger. One important contribution of this study is that interviewers may

provide a valuable objective perspective of characteristics of the neighborhood. Interviewers received no training in how to rate neighborhoods but only reported on their impressions of safety and danger. Importantly, interviewer impressions were significantly correlated with mothers' own ratings of neighborhood danger and crime reports.

Study Limitations

This study was not without limitations. First, the Head Start attendance construct did not measure the total number of days children attended Head Start, but rather how many days children attended school between their specific data collection time points. This procedure was used to provide more confidence that any change in children's school readiness skill from wave 1 to wave 2 was actually related to Head Start attendance during that period. Unfortunately, children's first assessment could have occurred before children entered Head Start, while Head Start was in session, or after they graduated from Head Start. Depending upon when interviews occurred, children could have attended just a few days prior to the data collection date or could have attended for an entire year. A better procedure would be to evaluate children's school readiness skills prior to beginning Head Start and immediately upon completion of a Head Start school year. Despite the limitations associated with the attendance construct, future studies may want to consider the actual days of Head Start attendance rather than the number of years children have been enrolled in Head Start.

Second, objective crime data was only available for participants residing in Orleans Parish (53 out of 149), so power was drastically reduced for using crime data to validating mothers' neighborhood danger reports. One concern with crime statistics in Orleans Parish is that crime events are underreported and misreported. New Orleans police officers have been accused of downgrading crimes of rape and aggravated assaults to aggravated burglary in order to keep crime numbers down (Van McCrary, 1998). Using total crime events circumvents this problem, as long as all crimes are reported. However, New Orleans police department online crime maps

have been criticized for being inaccurate and out of date because crime reports are compiled by hand from newspaper accounts of crime that takes weeks or months to appear on the NOPD crime map (Schutzberg, 2009). For instance, after comparing the New Orleans Police Department crime map data to the official crime statistics they submit to the FBI, investigators found that the NOPD drastically underreported the number of assaults, armed robberies, and homicides on the crime map in 2008 (Webster, 2009). Thus the accuracy of the crime data reported in these analyses from the New Orleans Police Department is unknown.

Third, mothers' extremely low receptive vocabulary scores indicates that mothers' may have experienced difficult understanding assessment questions and answer choices. Although questionnaires were written in fifth grade language, the language of some standardized measures (i.e. BDI, BAI) could not be changed without compromising the integrity of the measure. Despite the fact that interviewers attempted to read questionnaires to mothers, most mothers resisted this practice and completed them independently. Given their low receptive vocabulary scores, questions regarding the accuracy of their reports remain.

Next, children in the present study had difficulty understanding the Stroop task. First, this task assumed that children would have a basic understanding that sun comes out during the day and the moon comes out during the night. However, children did not have the basic understanding of "day" and "night" and did not associate a picture of "sun" with "day" and "moon" with "night". Thus, instructions were modified to first teach children that the sun comes out in the day and the moon and stars come out at night. Children were given three chances to correctly associate "day" with "sun" and "night" with "moon". If children were unable to associate the two, the task was terminated. If children successfully associated sun with day and moon with night, the interviewer resumed the standard training script. The function of the Stroop task is to measure how well children can inhibit dominant responses. However, children had

difficulty understanding the primary association which made measuring inhibitory responses not a valid indicator of inhibitory control.

Finally, given the lack of direct effects of economic deprivation, maternal mental health, and neighborhood danger on children's school readiness skills, the model tested may be misspecified. Quite possibly the effects of socio-contextual risks are indirect through parenting. (e.g., Family Stress Model, Conger et al., 1992). Future research should examine the indirect effect of parenting on children's acquisition of school readiness skills because socio-contextual risk may undermine parenting, parenting which directly influences children school readiness skill.

Future directions

This study provided many promising directions for future empirical research. First, this sample was not intended to explore the effects of natural disasters on household structures, maternal psychopathology, or children's academic development. However, results clearly highlighted the need to empirically consider the specific challenges associated with low-income families after a natural disaster. Exploring diverse household structures and the role of secondary caregivers in children's development may provide clearer insight as to how children develop in such contexts. Second, study results indicated a main effect of mother's anxiety symptoms on children's receptive vocabulary. To date, little research has empirically evaluated the direct effects of maternal anxiety on children's academic achievement. Future studies should examine the role of mother's anxiety on children's academic achievement in impoverished populations in order to tailor Head Start services and interventions to the mental health care needs of the population. A relatively understudied topic in the Head Start literature, maternal anxiety could prove to be another access point for early interventions in order to place children on positive academic trajectories. Lastly, encouraging results emerged for a multi-reporter model of

neighborhood danger. Future investigations should consider including interviewer impressions to supplement mothers' ratings of neighborhood danger.

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Human Subjects Approval Form

**University Committee for the Protection
of Human Subjects in Research**

University of New Orleans

Campus Correspondence

Principal Investigator: Laura Scaramella

Date: August 17, 2009

Protocol Title: A test of the early childhood coercion model

IRB#: 02apr05

Your request for a one year extension has been approved.

Please remember that approval is only valid for one year from the approval date (i.e., expires 8/17/10). Any changes to the procedures or protocols must be reviewed and approved by the IRB prior to implementation.

If an adverse, unforeseen event occurs (e.g., physical, social, or emotional harm), you are required to inform the IRB as soon as possible after the event.

Best of luck with your project!
Sincerely,

Robert D. Laird, Ph.D., Chair
Committee for the Protection of Human Subjects in Research

Appendix A

Financial Strain

Compared to 1 year ago, would you say that your standard of living today is:

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A lot worse	A little worse	The same	A little better	A lot better

During the past year, how hard has it been to pay your bills?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Very hard	Pretty hard	Sort of hard	A little hard	Not at all hard

During the past year, how much money do you usually end up with each month?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A lot left over	Some money left over	Just enough to make ends meet	Not enough to make ends meet

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Appendix D

Me and My Neighborhood Questionnaire

Sometimes stressful or scary things happen in neighborhoods. Think about all the things that have happened during the past year.

During the PAST YEAR, how often did:	Never	Once	A few times	A lot
a. Someone in your neighborhood get robbed or mugged.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
b. You hear neighbors complaining about crime in your neighborhood.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
c. You carry a knife or gun for protection.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
d. You got robbed or mugged in your neighborhood.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
e. You see or hear about a shooting near your home.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
f. You get stopped and questioned by the police.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
g. Someone in your neighborhood got stabbed or shot.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
h. Your neighbors carry a gun or knife for protection.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
i. You see strangers drunk or high near your home.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
j. A gang fight occurs near your home.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
k. People in your neighborhood complain about being harassed by the police.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
l. You see cars speeding or driving dangerously on your street.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
m. You see people dealing drugs near your home.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
n. Someone in your neighborhood got attacked or beaten.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
o. You hear adults arguing loudly on your street.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
p. Someone threaten to hurt a member of your family.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
q. Someone in your neighborhood got arrested or sent to jail.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4

Appendix E

Mothers' report of neighborhood safety

Now, think about how true each statement is about the safety of the neighborhood where you live.

NOW:	Strongly Agree	Agree	Disagree	Strongly Disagree
46. My neighborhood is safe for adults to walk alone during the afternoon.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
47. My neighborhood is safe for adults to walk alone during the evening.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
48. My neighborhood is safe for <u>children</u> to walk alone during the afternoon.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
49. My neighborhood is safe for <u>children</u> to walk alone during the evening.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
50. My neighborhood is safe for children to play outside when an adult is watching.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
51. My neighborhood is safe for children to play outside without an adult watching them.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4

Appendix F

Mothers' report of neighborhood support

Mark the box that shows how true each statement is for you. If a statement is true, then mark a box with a 6 or 7. If it is only sort of true, then mark a box with a 3, 4, or 5.

The friendships and connections I have with people in my neighborhood mean a lot to me.

<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
not at all true			sort of true			very true

The neighborhood I live in is a big part of who I am.

<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
not at all true			sort of true			very true

I feel loyal to the people in my neighborhood.

<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
not at all true			sort of true			very true

I think of myself as the same as people who live in my neighborhood.

<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
not at all true			sort of true			very true

Living in my neighborhood gives me a feeling of belonging.

<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
not at all true			sort of true			very true

Appendix G

Impressions of neighborhood danger

<u>About the home & neighborhood:</u>	Very True	Somewhat True	Hardly True	Not True	No Basis (N/A)
I like the neighborhood where the respondent lives.	1	2	3	4	9
The neighborhood appeared to be safe.	1	2	3	4	9
The neighbors seem to take pride in the outward appearance of their homes.	1	2	3	4	9
There were obvious signs of delinquent activities in the neighborhood (i.e., graffiti, gang symbols, vandalized property, etc.).	1	2	3	4	9
This is a safe neighborhood for elementary school age kids to play on the sidewalk unattended.	1	2	3	4	9
This is a safe neighborhood for someone to walk alone in the evening.	1	2	3	4	9
This is a safe neighborhood for someone to walk alone in the daytime.	1	2	3	4	9

Appendix H

Social Competence Scale: SCBE

Please think about your child's behavior. Then mark how often the following statement happens: Never Occurs, Sometimes Occurs, or Always Occurs.

	Never Occurs	Sometimes Occurs	Always Occurs
1. Accepts compromise	1	2	3
2. Always on the go	1	2	3
3. Comforts or assists other children in need	1	2	3
4. Considers other children's points of view	1	2	3
5. Cooperates with others	1	2	3
6. Is careful with toys	1	2	3
7. Quickly shifts from one activity to another	1	2	3
8. Takes pleasure in own accomplishments	1	2	3
9. Looks out for younger children	1	2	3
10. Works easily with other children	1	2	3

Appendix I

Impressions of social competence

The sibling	Very true	Somewhat true	Hardly true	Not true
1. Was likeable	1	2	3	4
2. Was anxious, nervous or fearful	1	2	3	4
3. Behaved in an impulsive or out of control fashion	1	2	3	4
4. Was resistant to parent(s) (e.g., whine, refuse, ignore)	1	2	3	4
5. Had temper tantrums (i.e., with extreme anger, did any of the following: scream, yell, fall down flailing arms and legs, throw objects, stamp feet, hit objects or others)	1	2	3	4
6. During the overall interview situation, the sibling seemed to have fun	1	2	3	4
7. Was friendly or sociable with the interviewer	1	2	3	4
8. The sibling understood task instructions	1	2	3	4

Vita

Kristin Callahan was born in Atlanta, Georgia and graduated from University of Georgia in May of 2003 with a B.S. in Psychology, an A.B. in Sociology, and an A.B. in Criminal Justice. She also received her M.S. in Applied Developmental Psychology from the University of New Orleans in August of 2006. As a research assistant to Dr. Laura Scaramella, Kristin is currently studying how contextual factors influence the development of children's school readiness skills and psychopathologies.