Environmental Structure: Contributions of Family Routines and Classroom Organization to the Social and Academic Development of Low-Income Kindergarteners

by

Larissa Katlin Ferretti

A dissertation submitted to the Graduate Faculty of
Auburn University
in partial fulfillment of the
requirements for the Degree of
Doctor of Philosophy

Auburn, Alabama
August 2, 2014

Keywords: family routines, classroom organization, kindergarten, low-income,
home-school collaboration

Approved by

Kristen L. Bub, Chair, Assistant Professor of Human Development and Family Studies
Ellen Abell, Associate Professor of Human Development and Family Studies
Stephen A. Erath, Associate Professor of Human Development and Family Studies
Jacquelyn Mize, Professor Emerita of Human Development and Family Studies

Abstract

Prior research indicates that chaos, marked by high levels of noise, crowding, clutter, and lack of routine, at home and school is negatively associated with child outcomes. Low-income families more often struggle with chaos than do economically advantaged families. This dissertation explored the implications of reduced home and school chaos indexed by family routines and classroom organization, among former Head Start families with children in kindergarten.

The first study examined whether family routines (e.g., bedtime routine, family mealtime, etc.) mediate and/or moderate the relationship between income and children's social and academic outcomes in the fall of kindergarten. Using data from the National Head Start Public School Early Childhood Transition Demonstration Study (NTDS; $N = 5,157$), analyses revealed that family routines both mediate and moderate the association between income and children's outcomes but the pattern of findings differs depending on the outcome being examined. More specifically, family routines mediated the association between income and children's social skills such that low-income children in more advantaged families (i.e., higher monthly incomes) participated in more family routines, which in turn predicted better social skills. In contrast, family routines buffered children from the negative effects of low-income on academic achievement such that among more disadvantaged families (i.e., lower monthly incomes), children with higher levels of family routines exhibited better academic achievement than children from families with fewer routines. Findings suggest that family routines may be a

ii

promising tool for low-income families and implications for prevention and intervention are discussed.

The second study explored the role of family routines and classroom organization simultaneously in predicting children's social and academic outcomes at kindergarten. Specifically, accounting for the nesting of children within classrooms, I investigated whether classroom organization predicts low-income children's social and academic outcomes above and beyond family routines in the spring of kindergarten. In addition, I explored whether classroom organization alone, and classroom organization and family routines together, moderate the relationship between income and children's outcomes. Again using data from the NTDS ($N =$ 4,325), analyses revealed that classroom organization plays an important role in the development of low-income kindergarten children. More specifically, children in more organized classrooms exhibited better social skills and receptive vocabulary than their peers in less organized classrooms. Further, classroom organization moderated the association between income and parent reported social skills and receptive vocabulary. Finally, there was a trend for moderation by both classroom organization and family routines in the associations between income and parent and teacher reported social skills. These findings were no longer statistically significant when a range of child, family, and classroom characteristics were included in the models. Findings suggest that structure across contexts may be key for successful outcomes during the kindergarten year and should be investigated further. Implications for prevention and intervention both at home and school are discussed.

Acknowledgments

I would like to thank my committee members Dr. Ellen Abell, Dr. Stephen Erath, and Dr. Jacquelyn Mize for their thoughtful feedback and guidance throughout the dissertation process. I would also like to extend my sincerest gratitude to my chair, Dr. Kristen Bub, for her continued encouragement and dedication. To my family, especially my husband Brian, thank you for your love and understanding. You have each pushed me to be my best self, and for that I am forever grateful.

In Memory of Papa

Thank you for teaching me to be determined.

Table of Contents

List of Tables

List of Figures

I.   General Introduction

Over 22% of American children are growing up in poverty, which we know has

devastating effects on social, cognitive, academic, and physical development (e.g., Brooks-Gunn

& Duncan, 1997; Duncan & Brooks-Gunn, 2000). Poverty among children birth to age 6 can be

especially destructive because these years represent the period of greatest developmental

vulnerability (Duncan, Yeung, Brooks-Gunn, & Smith, 1998). The two most influential contexts

in which children learn and develop during this time are home and school. According to

Bronfenbrenner and Morris (1998), children's development is influenced by their interactions

within each context, as well as the connections between settings. These early connections, and

the positive development that follows, are key for later academic and life success (Chetty et al.,

2011; Duncan, Ziol-Guest, & Kalil, 2010). As such, researchers have continued to search for

ways to improve positive development among all young children and especially among low-

income children. Decreasing chaos at home and school by increasing family routines and

classroom organization may be an important tool for buffering children from the negative effects

of poverty.

Chaos at Home

The living environment of many low-income children can be characterized as chaotic –

defined as having high levels of noise, crowding, clutter, instability, and lack of routine (Evans,

Eckenrode, & Marcynyszyn, 2010). Although chaos is not equivalent to socioeconomic status

(SES) or income, and can be found across families of all socioeconomic levels (Evans, Maxwell,

& Hart, 1999), low-income families struggle with household chaos more often than do economically advantaged families (Evans, Gonnella, Marcynyszyn, Gentile, & Salpekar, 2005; Fiese & Winter, 2010; Martin, Razza, & Brooks-Gunn, 2011; Weisner, 2010). In fact, Evans and his colleagues (2010) claim that "poverty breeds chaos" (p. 235). On average, low-income children are more likely to live in crowded, noisy conditions (Children's Defense Fund, 1995; Evans & English, 2002; Evans et al., 2005; Evans, Lepore, Shejwal, & Palsane, 1998), change residencies frequently (Federman et al., 1996; Simpson & Fowler, 1994), and lack family routines (Fiese & Winter, 2010; Matheny, Wachs, Ludwig, & Phillips, 1995).

Environmental chaos is thought to function as one potential mechanism through which SES influences children's development (Evans et al., 2010; Hetzner, Johnson, & Brooks-Gunn, 2011; Wachs & Evans, 2010). Children living in chaotic home environments exhibit poorer social and academic outcomes (Deater-Deckard et al., 2009; Hardaway, Wilson, Shaw, & Dishion, 2012; Vernon-Feagans, Garrett-Peters, Willoughby, Mills-Koonce, & The Family Life Project Key Investigators, 2011). For example, children raised in chaotic home environments have more difficulty responding to social cues and are more likely to exhibit problem behaviors as reported by their parents and teachers (Dumas et al., 2005). In addition, disruptive family environments are negatively associated with a child's ability to self-regulate and manage his/her own behaviors and emotions and to attune to important information (Evans et al., 2005; Hardaway et al., 2012; Martin et al., 2011; Wachs & Evans, 2010). Disorganization within a home has been found to predict receptive and expressive language even after controlling for family poverty, maternal literacy and depression, child gender, and temperament (Vernon-Feagans et al., 2011). In fact, research indicates that children who live in households that score higher on a composite measure of chaos score lower on tests of cognition and achievement one

year later (Hart, Petrill, Deckard, & Thompson, 2007; Pike, Iervolino, Eley, Price, & Plomin, 2006).

A major reason chaos is harmful to children is that it interferes with proximal processes, specifically positive parent-child interactions, that support positive development (Evans et al., 2005; Shamama-tus-Sabah, Gilani, & Wachs, 2011). Composite measures of chaos have been linked to less responsive parenting (Corapci & Wachs, 2002; Matheny et al., 1995), lower parental warmth (Deater-Deckard et al., 2009; Dumas et al., 2005; Martin et al., 2011), and more hostile parent-child interactions (Coldwell, Pike, & Dunn, 2006). Furthermore, chaos is associated with caregivers who are less involved, less vocally stimulating, and are more likely to interfere with exploration (Corapci & Wachs, 2002; Petrill, Pike, Price, & Plomin, 2004). Parents in chaotic environments often struggle to discipline effectively (Dumas et al., 2005) and have more negative patterns of communication (Fiese, 2006). Corapci and Wachs (2002) also found that parents in more chaotic homes have lower parenting self-efficacy, which can lead to parents being uncomfortable with general parenting tasks (Weisner, 2010). Note, because these studies are correlational, they provide evidence of associations between chaos and parenting but they do not demonstrate that chaos causes poor parenting.

Although most research has defined chaos using a summary of multiple indicators, a handful of studies have looked at which specific aspects of chaos matter more for child outcomes. In 2008, Johnson and her colleagues conducted a factor analysis of the Confusion, Hubbub, and Order Scals (CHAOS; Matheny et al., 1995) and two factors emerged: (1) household quietness (i.e., "You can't hear yourself think in our home," "It's a real zoo in our home," and "The atmosphere in our house is calm") and (2) household order (i.e., "The children have a regular bedtime routine," "We are usually able to stay on top of things," and "There is

usually a television turned on somewhere in our home"). Household order, but not household quietness, was associated with kindergarteners' and first graders' expressive vocabulary, Woodcock Johnson Reading Mastery, and phonological awareness skills. In a follow-up study, Martin and her colleagues (2011) utilized five separate measures of environmental chaos (i.e., family instability, lack of routine, television generally on, crowding, and noise) to better understand the unique predictive power of each dimension of chaos on developmental indicators at age 5, controlling for the other dimensions. A lack of family routines at age 2 was associated with lower receptive vocabulary and delay of gratification scores at age 5, even after controlling for other indicators of chaos as well as other child and family demographic characteristics (Martin et al., 2011). Clearly, family routines play an important role in child outcomes. Establishing and preserving family routines is one resource that can be used to reduce chaos in children's lives, and potentially improve children's social, behavioral, and academic outcomes, especially those from low-income environments (Fiese & Winter, 2010; Martin et al., 2011). However, we still do not know *how* exactly family routines influence low-income children's lives. That is, do routines operate as a mechanism through which poverty influences child outcomes (i.e., as a mediator) or as a buffer against the negative effects of poverty (i.e., a moderator)?

Chaos at School

As children enter formal education settings, they begin to spend less time with their family and more time at school. A chaotic school or classroom environment inhibits engagement with the school setting and, in turn, detracts from student learning (Maxwell, 2010). Environmental chaos at school is defined in a similar way to chaos at home: high levels of noise, crowding, confusion, instability of school, changes in adult caregivers or friends, and low levels

of structure or regularity of routines (Maxwell, 2010). Indicators of a chaotic classroom include excessive noise, frequent interruptions, or running out of time for activities, all of which create a challenging climate for quality teacher-child interactions (Ponitz, Rimm-Kaufman, Brock, & Nathanson, 2009). Low-income children are more likely to attend schools with high levels of environmental chaos including noise exposure (Haines, Stansfeld, Head, & Job, 2002), overcrowding (National Center for Education Statistics, 2000), and high rates of teacher turnover (Lee & Croninger, 1994).

Children in schools with high levels of noise exhibit decreased visual attention skills (Hambrick-Dixon, 1988) and reading achievement (Haines, Stansfeld, Job, Berglund, & Head, 2001). In addition, elementary school children in crowded schools exhibit elevated aggression and conflict and diminished cooperation (Evans, 2006). Further, research indicates that when kindergarten classrooms are more crowded, children are more often off task (Evans, 2006), which ultimately affects academic achievement (Maxwell, 2003). Recently researchers have begun to utilize a revised version of the Matheny et al. (1995) CHAOS scale, used widely as a measure of chaos in the home, for classroom settings. More specifically, Wachs, Gurkas, and Kontos (2004) found that child-care chaos was positively associated with passive noncompliance and negatively associated with committed compliance (i.e., a child's wholehearted compliance with a request) among a sample of 86 preschool children. Similarly, in a study of 172 1st graders, Ponitz and her colleagues (2009) found that children in classrooms with less chaos showed greater literacy gains when compared to children in chaotic classrooms. In addition, boys (but not girls) in more chaotic classrooms showed smaller gains in mathematics. These findings indicate that classroom chaos is negatively associated with child outcomes; thus, classroom organization may be one tool that can be used to decrease chaos and increase positive

developmental outcomes for children in general and for low-income children in particular. Despite evidence linking chaos in the home or chaos in the classroom to negative developmental outcomes, no study, to my knowledge, has examined whether and how routines and organization in these two environments work together to produce children's kindergarten outcomes.

The Current Studies

The current studies expand upon existing literature by considering the independent and combined effects of home and school environmental structure on the social and academic outcomes of low-income children. More specifically, drawing on the Family Stress Model (Conger et al., 1992), The Ecological and Dynamic Model of Transition (Rimm-Kauffman & Pianta, 2000), and the Resilience Framework (Luthar, Cicchetti, & Becker, 2000; Masten, 2001), the first study examined whether family routines mediate and/or moderate the relationship between income and children's social and academic outcomes during the transition to kindergarten. Based on prior studies indicating environmental chaos (e.g., lack of routines) is a mechanism through which poverty influences child development, I expected that family routines would partially mediate the relationship between income and child outcomes. Further, I expected that the frequency of family routines would moderate the negative impact of poverty, such that low-income children in families with high levels of family routines would exhibit better social and academic outcomes than children in families with fewer routines. This hypothesis is supported by a handful of empirical studies indicating that family routines buffer at-risk children (e.g., children of chronic alcoholics, divorce, and those affected with HIV/AIDS) from negative outcomes (Bennett, Wolin, & Reiss, 1988; Guidubaldi, Cleminshaw, Perry, Natasi, & Lightel, 1986; Murphy, Marelich, Herbeck, & Payne, 2009).

The second study builds on the first by introducing classroom organization as a predictor of children's social and academic outcomes. More specifically, drawing on the Ecological Contexts Model (Bronfenbrenner & Morris, 1998), the Ecological and Dynamic Model of Transition (Rimm-Kauffman & Pianta, 2000), the Resilience Framework (Luthar et al., 2000; Masten, 2001), and Epstein's (2001) framework of school engagement, I examined whether classroom organization predicts low-income children's social and academic outcomes above and beyond family routines. I expected that classroom organization would have a positive effect on children's social and academic outcomes above and beyond family routines, such that children in more organized classrooms would be better adjusted. In addition, I explored whether classroom organization moderates the relationship between income and children's social and academic outcomes. I expected that classroom organization would buffer low-income children from the negative effects of poverty. Finally, I investigated whether low-income children with low levels of family routines but high levels of classroom organization fared better than low-income children with low levels of routines and low levels of classroom organization, and vice versa. I expected that classroom organization and family routines would serve as buffers for low-income children from families with few routines or in chaotic classrooms, respectively. This hypothesis is supported by the resilience framework which asserts that not all children who experience poverty exhibit low levels of positive social and academic development (Luthar et al., 2000; Masten, 2001). Rather, a positive factor in one context can protect a child from a negative factor in another context (Luthar et al., 2000).

To explore my research questions for both studies, I utilized a subsample of participants in the National Head Start Public School Early Childhood Transition Demonstration Study (NTDS), a 6-year longitudinal randomized intervention trial that followed the development of

former Head Start children and selected classmates from kindergarten through 3rd grade. Models were fit using structural equation modeling in *MPlus* and multi-level modeling in SPSS. Missing data were handled using Full Information Maximum Likelihood (*MPlus*) and multiple imputation (SPSS) procedures.

II.	Paper 1 – Family routines and low-income children: Mediation or moderation?

Using data from the National Head Start Public School Early Childhood Transition Demonstration Study (NTDS), I investigated whether family routines (e.g., bedtime routine, family mealtime) mediate and/or moderate the relationship between income and children's social and academic outcomes in the fall of kindergarten. Analyses revealed that family routines both mediate and moderate the association between income and children's outcomes but the pattern of findings differs depending on the outcome being examined. More specifically, family routines mediated the association between income and children's social skills such that low-income children in more advantaged families (i.e., higher monthly incomes) participated in more family routines, which in turn predicted better social skills. In contrast, family routines buffered children from the negative effects of low-income on academic achievement such that among more disadvantaged (i.e., lower monthly incomes) families, children with higher levels of family routines exhibited better academic achievement than children from families with fewer routines. Findings suggest that family routines may be a promising tool for low-income families and implications for prevention and intervention are discussed.

Keywords: family routines, kindergarten transition, low-income, mechanisms

Family routines and low-income children: Mediation or moderation?

The United States has one of the highest rates of child poverty in the developed world (23%), with only Romania having a higher rate (25.5%; United Nations Children's Fund, 2012). This means that more than one in five children live below the poverty line ($22,113 for a family of four). More than two out of five children live at 200% of the poverty threshold ($44, 226; Annie E. Casey Foundation, 2012). From 2000 to 2010 there was a 30% increase in the number of children living in poverty and from 2009 to 2010 the number of poor children increased by roughly 1 million (Annie E. Casey Foundation, 2012). With high unemployment rates and a sustained economic crisis, these numbers are only expected to rise. Past research has found strong relationships between poverty and poor cognitive (Kishiyama, Boyce, Jimenez, Perry, & Knight, 2009), social (Duncan & Brooks-Gunn, 2000; Mistry, Biesanz, Taylor, Burchinal, & Cox, 2004), academic (Duncan, Brooks-Gunn, & Klebanov, 1994; Smith, Brooks-Gunn, & Kelbanov, 1997), and health (Brooks-Gunn & Duncan, 1997) outcomes for children. Low-income children are more likely to have lower IQs, suffer from depressive symptoms and peer-conflict, and be slower to gain language and literacy skills relative to their more advantaged peers (Kaiser & Delaney, 1996; Duncan et al., 1994). Furthermore, at school entry, low-income children are more likely to exhibit poor social skills and are already behind their more advantaged peers on school achievement indicators (Duncan et al., 1998). These achievement gaps only continue to widen as children get older (Stipek & Ryan, 1997). The detrimental effects of poverty on child outcomes are almost twice as large for children in persistent poverty compared to those in transient poverty (Duncan et al., 1994). Importantly, poverty among children birth to age 6 can be especially devastating because these years represent the period of greatest developmental vulnerability (Duncan et al., 1998). However, not all children in poverty exhibit negative social, academic, and health outcomes. Resilience research indicates that some

10

children are able to "defy the odds" or experience positive development within the context of significant adversity through the presence of protective factors or buffers (Luthar et al., 2000). Despite the well-established links between poverty and child outcomes, we know little about the mechanisms by which poverty affects children's development and what factors might buffer them from the negative effects of poverty.

One mechanism by which poverty is thought to influence development is through the home environment. Factors like the physical condition of the home, parental warmth, and the learning environment have all been shown to be important for a range of developmental outcomes (Evans et al., 2010; Hetzner et al., 2011). In fact, studies have demonstrated that the home environment (as measured by the Home Observation Measurement of the Environment) can account for as much as half of the difference in cognitive development between poor and non-poor preschoolers (Klebanov, Brooks-Gunn, McCarton, & McCormick, 1998). Family routines - activities that occur with predictability within the family - represent a relatively understudied aspect of the home environment that may help reduce environmental chaos and increase positive child development among vulnerable populations. Research has shown that the establishment and maintenance of consistent family routines is positively associated with young children's social, academic, and health outcomes (Churchill & Stoneman, 2004; Ferretti & Bub, in press; Fiese et al., 2002; Koblinsky, Kuvalanka, & Randolph, 2006; Muniz, Silver, & Stein, 2014). The structure that routines provide may be particularly important during the transition to kindergarten, a key developmental milestone that is often chaotic for both children and parents (Decaro & Worthman, 2011; Ferretti & Bub, 2013).

Despite evidence demonstrating the potential benefits of family routines for young children, we do not know *how* they affect children's development. That is, it is not clear whether

11

routines act as a mechanism by which low income affects child outcomes, whether routines buffer children against the negative effects of low income, or both. For example, children from low-income families who experience more family routines during early childhood, and especially across the transition to kindergarten, may have better developmental outcomes than do children from low-income families with fewer routines. Indeed, several studies have established family routines as a protective factor but all have focused on older populations of children and adolescents and very few have explored the benefits of routines for buffering young children from the negative effects of low income. Because the quality of the home environment appears to help explain the association between low income and child outcomes, interventions that focus on parenting behaviors may be especially beneficial for at-risk children.

Family Routines

Family routines have been defined as "observable, repetitive behaviors that involve two or more family members and occur with predictable regularity in the day-to-day and week-to-week life of the family" (Boyce, Jensen, James, & Peacock, 1983; Koblinksy et al., 2006, p. 555). For families with young children, these routines may include mealtimes, getting ready for school, doing homework or household chores, and bedtime (McLoyd, Toyokawa, & Kaplan, 2008). Establishing and maintaining consistent family routines has been shown to positively predict young children's social and academic outcomes (Ferretti & Bub, in press; Ferretti & Bub, 2013; Fiese et al., 2002; Koblinsky et al., 2006). Children in families who utilize routines have fewer emotional (Larson, 2008; Muniz et al., 2014) and behavioral problems (Churchill & Stoneman, 2004; McLoyd, et al., 2008), and are more cooperative and compliant (Ferretti & Bub, in press; Ferretti & Bub, 2013; Keltner, 1990). Furthermore, regular family routines are

associated with greater cognitive abilities including increased literacy skills (Fiese & Everhart, 2008) and an expanded vocabulary (Snow & Beals, 2006).

Recent research indicates that family routines may be particularly beneficial for children's school readiness during the kindergarten year (Ferretti & Bub, 2013). Kindergarten is often an especially challenging transition period, in part because children must adjust to increasing independence and responsibility (Li-Grining, Votruba-Drzal, Maldonado-Carreno, & Haas, 2010), there is a new emphasis on academic skills (Pianta & Kraft-Sayre, 2003; Rimm-Kaufman, Pianta, & Cox, 2000), kindergarten classes tend to have changes in class structure (e.g., increased class size and child-to-teacher ratio; Pianta & Kraft-Sayre, 2003), children are exposed to more diverse social circles (Ladd, Hearld, & Kochel, 2006; Love, Logue, Trudeau, & Thayer, 1992), and a new day-to-day routine is established (Eckert et al., 2008; Rimm-Kaufman & Pianta, 2000). Failure to successfully navigate the transition to kindergarten can have damaging effects on a child's long-term academic outcomes (Rimm-Kaufman & Pianta, 2000; Pelletier & Brent, 2002). Given the prevalence of difficulties during this period, specifically among low-income children, understanding how we can better support the development of school readiness as children enter kindergarten is critical. The Ecological and Dynamic Model of Transition would suggest that considering interactions between the child and broader contextual factors including the family environment, is key to improving school readiness during the transition to kindergarten (Rimm-Kauffman & Pianta, 2000).

Family Routines as a Mechanism of Development

Researchers interested in poverty and child development have examined a variety of potential explanations for how and why poverty influences children's development. Clearly a lack of resources in the household is one explanation. For example, children in low-income

13

families tend to have fewer books and other educational resources, which is associated with lower scores on standard tests of cognitive development (Guo & Harris, 2000). In line with the family stress model, which asserts that children experience hardship not directly, but through the response of their parents (Conger et al., 1992), another potential mechanism is the structure and organization of the home environment. The living environment of many low-income children can be described as chaotic. Environmental chaos, characterized by high levels of noise, crowding, clutter, and lack of routine, has been shown to function as a mechanism through which SES influences children's development (Coldwell et al., 2006; Evans et al., 2010; Evans et al., 2005; Hart et al., 2007; Hetzner et al., 2011; Wachs & Evans, 2010). Although chaos is not equivalent to income or SES, and can be found across families of all socioeconomic levels (Evans et al., 1999), research indicates that low-income families struggle with household chaos more often than do economically advantaged families (Caspi, Taylor, Moffitt, & Plomin, 2000; Evans, 2004; Evans et al., 2005; Fiese & Winter, 2010; Martin et al., 2011). Similar to findings connecting poverty and child outcomes, research indicates that children living in chaotic homes exhibit poorer social, self-regulatory, cognitive, and achievement outcomes (Deater-Deckard et al., 2009; Hardaway et al., 2012; Vernon-Feagans et al., 2011). The absence of family routines is one of the most salient indicators of environmental chaos; thus, establishing and preserving family routines may be a critical resource that can be used to reduce chaos in children's lives, especially those from low-income environments, and potentially improve their social and academic outcomes (Fiese & Winter, 2010; Martin et al., 2011). However, few studies have examined family routines alone as a potential mechanism through which low income affects child development and thus it remains unclear whether this is an appropriate intervention strategy.

14

Family Routines as a Moderator

In addition to serving as a mechanism that might explain how low income affects young children's development, the resilience framework suggests family routines may also be a protective factor, modifying responses to low income so that at-risk families can overcome adversity (Masten, 2001). Several studies have established family routines as a protective factor. For example, work by Bennett and her colleagues (1988) suggests regular routines, specifically family mealtimes, protect 6 to 18 year-old children of chronic alcoholics from developing problematic drinking habits. Among families affected by maternal HIV/AIDS, adolescents in families with more frequent routines show lower rates of aggressive behavior, anxiety/worry, depressive symptoms, conduct disorder behaviors, and binge drinking over time from age 10 to age 20 (Murphy et al., 2009). In addition, Lanza and Taylor (2010) found family routines moderate relations between school disengagement and delinquent behaviors, such that adolescents who experience higher levels of school disengagement and lower levels of family routines report higher levels of delinquent behaviors than do adolescents experiencing high levels of school disengagement and high levels of family routines. Research also indicates routines buffer children with asthma from feelings of anxiety (Fiese & Wamboldt, 2000; Markson & Fiese, 2000) and moderate the relation between child impulsivity and oppositional defiant disorder (ODD) symptoms, such that children with higher levels of teacher-reported hyperactivity/impulsivity and lower levels of family routines exhibit higher levels of teacher-rated ODD-symptoms (Lanza & Drabick, 2011). Regular bedtimes have also been found to buffer the negative effects of divorce among school-aged children. In a study by Guidubaldi and his colleagues (1986), boys of divorced parents with a regular bedtime exhibited numerous positive outcomes, including higher academic achievement scores and better physical health.

Girls also benefited such that girls in divorced families with bedtime routines were rated as happier and having more close friends and they were also more likely to perceive their relationship with their parent as happy.

Despite evidence demonstrating that routines may act as a moderator, only two studies have examined these moderating effects for low income and to our knowledge, no study has done so during the kindergarten year. Loukas and Prelow (2004) examined family routines as a possible protective factor among 521 low-income Latino youth ranging in age from 10 to 14 years. The authors found that Latina adolescents with high levels of cumulative risk (i.e., single parent family, maternal distress, perceived financial strain, neighborhood problems) exposed to more consistent family routines exhibited fewer externalizing behavior problems. More recently, Budescu and Taylor (2013) explored family routines as a possible protective factor among 115 low-income urban African-American adolescents and their mothers. Results indicated that family routines moderated the relation between financial resources and adolescent outcomes such that adolescents living in households with lower levels of perceived financial resources but with high levels of family routines exhibited lower levels of problem behaviors and higher academic engagement and achievement levels compared to adolescents with few financial resources and low levels of family routines. These findings suggest that family routines may be a protective factor for low-income Latina and urban African-American adolescents, but we do not know whether routines may also benefit young low-income children from diverse racial/ethnic backgrounds and communities.

Present Study

The number of young children living in poor or low-income homes continues to increase, but with protective factors within their homes, schools, and communities many of these children

16

overcome adversity and exhibit positive outcomes. Despite evidence indicating that family routines have social, cognitive, and health benefits for young children (Anderson & Whitaker, 2010; Ferretti & Bub, in press; Fiese & Everhart, 2008), we know little about *how* routines may impact young children's outcomes. That is, it is unclear whether family routines (or lack thereof) are a mechanism through which low income influences child outcomes, whether family routines buffer the negative effects of low income on child outcomes during the kindergarten year, or some combination of both. To address these gaps in our knowledge, I explore the following research questions: (1) Do family routines mediate the association between low income and children's social and academic outcomes? and (2) Do family routines moderate the relationship between low income and children's social and academic outcomes? I expected that family routines would partially mediate the relationship between low income and children's social and academic outcomes. Further, I expected that low-income children in families with high levels of family routines would exhibit better social and academic outcomes than would children in comparable families with fewer routines.

Method

Sample

Data for the current study were collected as part of the NTDS, a 6-year longitudinal randomized intervention trial that followed the development of former Head Start children and selected classmates from kindergarten through 3rd grade. The NTDS was conducted between 1992 and 1998 and followed two cohorts of over 10,000 children in more than 450 public schools at 31 locations. The schools cover every major geographic area of the United States (30 different states and the Navajo Nation), including rural and urban districts, and are ethnically diverse. The U.S. Congress legislated and funded the study to test whether providing

17

comprehensive Head Start-like services to children and families from kindergarten through 3rd grade would help maintain former Head Start children's positive academic, social, and health outcomes while also improving long-term outcomes (Ramey et al., 2001). Services included developmentally appropriate curricula, health, nutrition, and social services, as well as parent involvement activities. Elementary schools that agreed to participate in the study were randomly assigned to either a transition demonstration group (offering Head Start services) or a comparison group (offering no "official" Head Start services). It is important to note, however, that in many of the comparison schools, comprehensive educational, social, and health services were offered through other initiatives.

Of the 10,392 children assessed in the fall of kindergarten, 5,157 were former Head Start participants and had complete data on the outcomes of interest (i.e., social skills, receptive vocabulary, mathematics, and reading). These children comprised my analytic sample. Participants were diverse with respect to gender (48% male) and ethnicity (32% African American (AA), 10% Hispanic, and 48% European American (EA)). Thirty percent of the adult respondents had not completed high school and on average, there were 2.85 children in the home. The average income of the current sample was $801 to $1000 a month and all participants were formerly in Head Start, suggesting a relatively disadvantaged sample. Thus, from this point forward, families are referred to as more (lower monthly income) or less (higher monthly income) disadvantaged. Those who were not formerly Head Start participants or without complete data were more highly educated ($M = 4.75$ among non-participants and $M = 4.57$ among participants), had higher incomes ($M = 5.54$ among non-participants and $M = 4.78$ among participants), and had children who exhibited slightly higher receptive vocabulary ($M = 86.04$

among non-participants and $M = 85.11$ among participants) and social skills ($M = 91.70$ among non-participants and $M = 90.28$ among participants).

Procedure

Data were collected via family interviews, direct child assessments, teacher interviews, principal reports, direct observations of classrooms, and review of school records. Family interviews, conducted predominantly with mothers, occurred in the respondent's home and direct child assessments were conducted at the school sites by a trained researcher. Data from family interviews and direct child assessments in the fall of kindergarten were utilized in the current study.

Measures

Outcome Variables

Social skills. Parent ratings on the Social Skills Rating System (SSRS) (Gresham & Elliott, 1990) were used to reflect children's social skills in the fall of kindergarten. Parents were asked to rate how often each of a series of behaviors that influence the child's development of social competence and adaptive functioning occurred (0 = *never*; 1 = *sometimes*; and 2 = *very often*). Sample items include "makes friends easily," and "controls temper in conflict situations with peers." A standard total composite score with a mean of 100 and a standard deviation of 15 was used with higher scores indicating greater perceived social competence. The SSRS was normed on a diverse sample of more than 4,000 children and demonstrates high levels of internal consistency (Gresham & Elliott, 1990). The measure also has moderate concurrent and predictive validity. For example, it is correlated with other measures of social skills including the Social Behavior Assessment and Child Behavior Checklist (Gresham & Elliott, 1990).

Academic achievement. Academic achievement was represented by a single latent construct comprised of two direct assessments in the fall of kindergarten: The Peabody Picture Vocabulary Test-Revised (PPVT-R) (Dunn & Dunn, 1997) and the Woodcock-Johnson Psycho-Educational Battery-Revised (WJ-R) (McGrew, Werder, & Woodcock, 1991). The PPVT-R is a widely used, reliable and valid measure of receptive vocabulary (the size and range of words that a child understands). The PPVT-R consists of 130 items in which an interviewer says a word (such as "hand," "feather," and "arrow") and asks the child to choose "the best picture of it." Words become progressively more difficult, and the interviewer stops when the child makes six consecutive errors (i.e., a "ceiling" is reached). The PPVT-R correlates moderately well with scholastic aptitude and verbal intelligence measures (Dunn & Dunn, 1981) and has been found to be a good predictor of school performance among low-income children (McLoyd, 1998). The PPVT-R was standardized nationally on a representative sample of 5,028 participants. Internal consistency ranged from .61 to .88 and the median test re-test reliability was approximately .78 (Ramey et al., 2001). A standard total composite score with a mean of 100 and a standard deviation of 15 was used.

Broad reading and mathematics scores from the widely used WJ-R were also used as a measure of academic achievement. The reading and mathematics tests consist of two subtests each: Letter-Word Identification and Passage Comprehension and Calculation and Applied Problems, respectively. Letter-Word Identification assesses a child's ability to match a pictorial representation of a word with an actual picture of the object. In the Passage Comprehension test children are asked to read a short passage and identify a missing key word. Calculation and Applied problems measure children's skill in performing addition, subtraction, multiplication,

20

and division. Standard scores for these tests have a mean of 100 and a standard deviation of 15. The WJ-R has high reliability and validity (McGrew et al., 1991).

Primary Predictor

Household income. Monthly household income, collected in the fall of kindergarten, was represented by a continuous variable (1 = $1 - $200/month, 2 = $201 – $400/month, 3 = $401 – $600/month, 4 = $601 – $800/month, 5 = $801 - $1000/month, 6 = $1001 - $1500, 7 = $1501 - $2000/month, 8 = $2001 – $3000/month, 9 = $3001 - $4000/month, 10 = $4001 - $5000/month, 11 = $5001 - $6000/month, 12 = $6001 or more per month).

Mediator/Moderator

Family routines. Parent responses to 28 items on the Family Routines Inventory (Boyce et al., 1983) were used to reflect family routines in the fall of kindergarten. Parents were asked to rate how often each week activities such as eating dinner together as a family, children going to sleep at a regular time, and working parents coming home at a regular time occurred (0 = *almost never* to 3 = *almost every day*). A standard total composite score was created by summing all 28 items (α = .73). Higher scores reflect more family routines. The FRI has adequate reliability and validity (Jensen, James, Boyce, & Hartnett, 1983). This measure has been related to success of former Head Start children in elementary school (Keltner, 1990) and is thought to reflect one aspect of family organization.

Control Variables

Family and child characteristics. Parental reports of child sex and race/ethnicity were collected at study entry. Child sex was represented by a dichotomous variable (Male = 0). Race/ethnicity was represented by four dichotomous variables: European American, African American, Hispanic, and Other. Respondent education was represented by a continuous variable

(1 = Grades 1-4, 2 = Grades 5-8, 3 = Grades 9-12, 4 = High school graduate, 5 = GED, 6 = some

college, no degree, 7 = associate degree, 8 = bachelor's degree, 9 = professional degree, 10 =

doctorate). Total number of children in the home was represented by a continuous variable.

Cohort was included as a control to account for differences in the timing of the data collection.

Program participation was also included to account for possible effects of the intervention. When

income was included in the model, I also included the Basic Needs subscale of the Family

Resources Scale (FRS; Dunst & Leet, 1987) to control for subjective poverty ($\alpha = .71$). Using a

5-point scale (1 = *not at all adequate* and 5 = *always adequate*), parents rated how adequate they

felt their resources are in several financial categories including income, food, housing, and health

care. The Basic Needs subscale was created by taking the mean of 9 items (food for two meals a

day, house or apartment, enough clothes for your family, heat for your house or apartment,

indoor plumbing/water, medical care for your family, furniture for your home or apartment,

telephone or access to a phone, and dental care for your family); higher scores indicate higher

levels of perceived financial resources.

<div align="center">

Analysis Plan

</div>

Preliminary analyses. I began by obtaining means and standard deviations and

examining bivariate correlations between all outcome and predictor variables. To test whether

the hypothesized academic achievement indicators (i.e., PPVT and Woodcock Johnson Reading

and Math scores) adequately reflect this construct, I fit a measurement model using *MPlus*.

Model fit was examined using goodness of fit statistics such as chi-square, comparative fit index

(CFI), and Root Mean Square Error of Approximation (RMSEA).

Predictive analyses. To address my first research question of whether family routines

mediate the relationship between income and children's social and academic outcomes, I utilized

mediation hypothesis testing as recommended by Baron and Kenny (1986). To examine the direct effects of income on family routines, I first regressed family routines on monthly income (Model 1). Next, to determine the direct effects of family routines on social skills and academic achievement, I regressed each child outcome on family routines. To examine the direct effects of income on social skills and academic achievement, I regressed each child outcome on income. Finally, to test whether family routines mediate the relationship between income and child outcomes, I included all possible pathways in a single model. When the path coefficients from income to the outcome variable declined or became non-significant, partial or full mediation was indicated. For models that met all of the necessary criteria for mediation (i.e., direct effects from income to family routines; direct effects from family routines to child outcomes; and a decline in the direct effect from income to child outcomes), I calculated a Sobel's Z-score to determine whether the mediation was statistically significant. Total indirect effects were also estimated in *MPlus*.

To address my second research question of whether family routines moderate the relationship between income and child outcomes, I added an interaction term between income and family routines to a model with the direct effects between income and child outcomes and family routines and child outcomes. When an interaction was identified, I illustrated the magnitude and direction of those moderated associations by plotting the slopes for prototypical children with low (1 *SD* below the mean) and high (1 *SD* above the mean) family routines. On each outcome, I controlled for a common set of demographic and family variables (i.e., child sex and race/ethnicity, respondent education, number of children in the home, perceived financial resources, cohort, and program participation). Descriptive statistics and correlations were obtained using SPSS 21 and predictive analyses were conducted using *MPlus* version 5. Missing

data on the key predictors was handled using Full Information Maximum Likelihood procedures (Muthén & Muthén, 2007). I considered model fit to be good if I obtain a non-significant chi-square. Chi-square is sensitive to sample size so I also considered model fit to be good if I obtained a CFI that is between .90 and 1 and a RMSEA that is close to zero (<.06) with a non-significant *p*-value.

Results

Preliminary Analyses

Descriptive statistics. Sample means and standard deviations for the outcome, key predictor, and control variables are presented in Table 1. Intercorrelations among family routines, income, and child outcomes are presented in Table 2. Children displayed moderate social and academic outcomes, although there was considerable variability around the mean. Monthly household income ranged from $1 - $200 per month to $5001 - $6000 per month with an average monthly income of $801 - $1000 per month, suggesting a relatively disadvantaged sample. Parents reported participating in family routines 3-5 days per week. On average, more disadvantaged families participated in fewer routines when compared to less disadvantaged families, and children in more disadvantaged families scored lower on measures of social skills and academic achievement when compared to their peers in families with higher monthly incomes. In addition, children in families with more family routines, on average, exhibited better social and academic outcomes.

Measurement model. Three observed variables were used to create a latent construct representing academic achievement: receptive vocabulary, math scores, and reading scores. The factor loading for receptive vocabulary was fixed to one to provide the scaling unit. Math and reading significantly loaded on the factor with standardized factor loadings of .25 ($p < .001$) and

24

.42 ($p < .001$), respectively. As is commonly the case with measurement models consisting of a limited number of variables, the model was fully saturated (CFI = 1; RMSEA = 0). Thus, a single latent construct representing academic achievement was retained for all subsequent analyses.

Do family routines mediate the association between income and children's social and academic outcomes? To investigate whether the associations between income and children's social and academic outcomes were mediated by family routines, I first fit a set of direct effects models to verify that all criteria for mediation were met (i.e., direct effects from income to family routines; direct effects from family routines to child outcomes; and direct effects from income to child outcomes). Income was a positive and statistically significant predictor of family routines such that less disadvantaged families participated in more routines than more disadvantaged families ($\beta = .16$, $p < .001$). Next, I examined the direct pathways from income to children's social skills and academic achievement independently. Not surprisingly, income significantly predicted both social skills and academic achievement such that children in more disadvantaged families exhibited fewer social skills ($\beta = .06$, $p < .001$) and lower academic achievement ($\beta = .07$, $p < .001$) compared to children in less disadvantaged families. Finally, I examined the direct pathways from family routines to children's social skills and academic achievement independently. Family routines significantly predicted both social skills and academic achievement such that children in families with more routines exhibited greater social skills ($\beta = .34$, $p < .001$) and academic achievement ($\beta = .12$, $p < .001$) compared to children in families with fewer routines.

Because all of the preliminary criteria for mediation were met, I fit two final models (herein referred to as the full model): one that contained all direct pathways of interest (i.e.,

direct effects from income to family routines; direct effects from family routines to child

outcomes; and direct effects from income to child outcomes as well as all controls) for social

skills and one for academic achievement. In the full model, the pathway from income to

children's social skills became non-significant, suggesting the possibility of full mediation (see

Figure 1). A calculation of the Sobel's Z-statistic supported this possibility. That is, family

routines significantly mediated the association between income and children's social skills in the

fall of kindergarten ($Z = 11.83$, $p < .001$). I also tested for indirect effects and results suggest that

the indirect pathway from income through family routines to social skills was statistically

significant (Indirect effect $= .453$, $p < .001$). The pathway from income to the latent construct

representing academic achievement declined slightly but remained statistically significant (i.e.,

lower monthly income predicted lower academic achievement), suggesting that family routines

may partially, but not fully, mediate this association. Because the decline from income to

academic achievement was small (.07 to .06), a Sobel's Z-statistic was not calculated. As with

social skills, I also tested for indirect effects and results suggest that the indirect pathway from

income through family routines to academic achievement was statistically significant (Indirect

effect $= .084$, $p < .001$). That is, higher income was associated with higher family routines,

which in turn predicted better academic achievement. Finally, as Simmons and colleagues (2011)

suggest, I also fit uncontrolled models to illustrate whether and to what extent the results are

reliant on the covariates. The pattern of findings for the uncontrolled models was the same as

that for the controlled models.

**Do family routines moderate the relationship between income and children's social

and academic outcomes?** Parameter estimates and goodness of fit statistics for both the

uncontrolled (i.e., just income, family routines, and either social skills or academic achievement)

and controlled (i.e., income, family routines, child outcomes, and child sex and race/ethnicity, respondent education, number of children in the home, perceived financial resources, cohort, and program participation) models investigating the moderated effects of income on child outcomes by family routines are presented in Table 3. Models 1 and 2 reflect the uncontrolled and controlled effects for social skills, respectively, and Models 3 and 4 reflect the uncontrolled and controlled effects for academic achievement, respectively. To test for moderation, I added to a model that included the direct effects of income on each child outcome (i.e., social skills or academic achievement) and family routines on each child outcome, an interaction term between income and family routines. Although family routines did not moderate the association between income and social skills in either the uncontrolled (see Model 1) or controlled (see Model 2) model, it did moderate the association between income and academic achievement in the uncontrolled model (see Model 3). Among more disadvantaged families (i.e., lower monthly incomes) children with high levels of family routines exhibited better academic achievement, scoring approximately 3 points higher than children with low levels of family routines (see Figure 2). The gap in academic achievement widened among less disadvantaged families (i.e., higher monthly incomes). Children in less disadvantaged families with high levels of family routines scored approximately 7 points higher than children in less disadvantaged families with fewer family routines on measures of academic achievement. Overall, children in families with more family routines exhibited better academic achievement than children in families with fewer family routines, regardless of income. In addition, the relatively flat slope of the line representing low levels of family routines compared to the relatively steep slope of the line representing high levels of family routines supports the hypothesis that routines benefit children's learning. This pattern of findings did not hold when controls were added to the model. That is, when controlling

27

for child sex and race/ethnicity, respondent education, number of children in the home, perceived financial resources, cohort, and program participation, family routines did not moderate the association between income and social skills or income and academic achievement, suggesting there may be a variety of environmental factors that are related to both family routines and child outcomes that could explain the relationship between low income and poor child outcomes.

Discussion

Findings from this study indicate that family routines both mediate and moderate the association between income and low-income children's outcomes but the pattern of findings differs depending on the outcome being examined. More specifically, family routines mediate the association between income and children's social skills such that low-income children in more advantaged families (i.e., higher monthly incomes) tend to experience more family routines, which in turn predict better social skills. I found no evidence of mediation for academic achievement. In contrast, family routines buffered children from the negative effects of low income on academic achievement such that among more disadvantaged (i.e., lower monthly incomes) families, children with higher levels of family routines exhibited better academic achievement than children from families with fewer routines. Although past research has suggested that family routines may act as a mechanism through which family processes or environmental experiences influence child and adolescent outcomes, or buffer children experiencing adversity from negative outcomes, to my knowledge this is the first study to empirically test *how* family routines alone are related to young low-income children's outcomes.

Poverty, Family Routines, and Child Outcomes

As expected, there was a significant main effect of income on both social skills and academic achievement, such that higher income was related to better social skills and higher

28

academic achievement, even after controlling for parent perceptions of financial resources as well as general child and family characteristics. This finding is consistent with a large body of previous research linking poverty with negative child and adolescent development (Duncan et al., 1994; Mistry et al., 2004; Smith et al., 1997). In addition, income also predicted family routines, such that less disadvantaged families reported more family routines than more disadvantaged families. Prior research indicates that low-income families struggle with household chaos more often than do economically advantaged families (Evans et al., 2005; Fiese & Winter, 2010) and a lack of family routines is the most salient indicator of environmental chaos (Johnson et al., 2008; Martin et al., 2011). Therefore, more disadvantaged families may have a more difficult time establishing and maintaining family routines, as suggested by the current finding.

Also consistent with prior research, I found a direct effect of family routines on low-income children's outcomes (Ferretti & Bub, in press; Keltner, 1990; Koblinsky et al., 2006). More specifically, the frequency of family routines, as measured by the Family Routines Inventory (Boyce et al., 1983), was positively related to social skills and academic achievement. During the transition to kindergarten, children have many more opportunities to interact with peers in social situations, and they must learn to interact with a more diverse group of friends (Ladd et al., 2006). The structure that family routines provide may offer a means for children to organize their own environments. In turn, these children are better able to self-regulate (Evans et al., 2005) and manage their behaviors independently. Further, family routines support positive parent-child relationships (Woods & Goldstein, 2003), a key context in which natural learning opportunities arise within the home. Routines themselves also provide a setting for learning as indexed by the association between regular mealtimes and higher vocabulary (Snow & Beals,

2006) and reading routines and emergent literacy, respectively (Evans & Shaw, 2008; Senechal & LeFevre, 2001). In addition, increased social skills (Muniz et al., 2014) may also be associated with the link between family routines and academic outcomes in that children who are better able to self-regulate can attune to important information and have more opportunities to engage in learning activities (Howse, Lange, Farran, & Boyles, 2003). These findings among a low-income sample highlight the contribution of household organization, in spite of financial adversity. Further, the utilization of a well-established family routines measure is significantly underrepresented in the literature and gives more confidence to the link between family routines and positive child outcomes among young low-income children.

Family Routines as a Mediator

Findings from this study provided some support for my first hypothesis that family routines at least partially mediate the association between income and child outcomes among young low-income children. More specifically, family routines fully mediated the pathway from income to children's social skills but not to their academic achievement. The social skills finding is consistent with prior research that indicates environmental chaos, characterized by high levels of noise, crowding, clutter, instability, and lack of routine, functions as a mechanism though which SES influences children's and adolescents' social development (Coldwell et al., 2006; Evans et al., 2005; Evans et al., 2010; Fiese & Winter, 2010). For example, Evans and his colleagues (2005) found household chaos mediated the link from income-to-needs to self-regulatory behavior, learned helplessness, and psychological distress among rural low-income adolescents. The fact that family routines alone mediated the association between income and children's social development further supports research by Martin et al. (2011) who found that among all of the indicators of environmental chaos, the television being on and family routines

30

were the strongest predictors of children's outcomes. The current study adds to the small but growing body of research demonstrating the power of family routines as a mechanism of development. Findings from this study also align with the family stress model, which asserts that children experience hardship not directly but through the response of their parents (Conger et al., 1992). That is, low-income children's social skills appear to be greatly influenced by whether or not their parents are able to establish and maintain family routines despite adversity rather than directly by the lack of money the family experiences. This is evidenced by the fact that when family routines are included in the model, the link between income and children's social skills becomes non-significant. The finding highlights that practitioners may be able to positively influence low-income children's social skills by adjusting familial processes, a factor perhaps easier and less costly to change than a family's income.

Interestingly, family routines did not mediate the association between income and academic achievement. One possible explanation for this pattern of findings, in alignment with the Social Learning Theory (Bandura, 1971), is that through family routines parents are modeling positive social skills, such as helping with household tasks, easily changing from one activity to another, and controlling one's temper; their children observe these positive behaviors and then enact them. Because social behaviors are often more visible than academic behaviors, and likely occur more frequently in the presence of family routines, children in families with routines may demonstrate more positive social behaviors rather than higher academic achievement. It is also possible that because academic achievement relies more heavily on tangible factors such as the availability of books, computers, and educational toys or games as well as tangible attributes (e.g., time together), the direct effects of income on academic achievement are more evident. Indeed, past research has established that the effects of income

31

are strongest on children's achievement-related outcomes as compared to their social or health-related outcomes (Brooks-Gunn & Duncan, 1997; Duncan et al., 1998). It may be that to model academic behaviors that predict achievement, parents need additional resources such as books, computers, or other educational manipulatives. In this way, a lack of income may more directly influence children's academic achievement in a way that family routines alone cannot fully mediate. There was, however, an indirect effect from income through family routines to academic achievement indicating that family routines is likely just one of many family and environmental processes that serve as a mechanism by which poverty influences child development.

Finally, the developmental period of the current study may also help explain the findings. As previously mentioned, during the transition to kindergarten, children have many more opportunities to interact with peers in social situations and there are new focused expectations for behavior (Pianta & Kraft-Sayre, 2003; Rimm-Kaufman & Pianta, 2000). Children must also begin to learn to manage their behaviors independently given that there is often less family involvement and decreased teacher presence due to increased class sizes (Eckert et al., 2008; Rimm-Kaufman & Pianta 2000). In turn, to prepare children for these new expectations, early education teachers spend significant time creating structure for children's social development at the start of the school year (Cameron, Connor, & Morrison, 2005). As such, there may be more salient changes occurring in the social development of children at this time. In addition, the time teachers are spending on rules and routines in the classroom may make routines at home more beneficial. Future research should consider the role of family routines and classroom organization simultaneously in order to understand possible relationships between structure across contexts.

Family Routines as a Moderator

Findings from this study also offered some support for my second hypothesis that family routines would moderate the relationship between income and children's outcomes such that low-income children in families with high levels of family routines would exhibit better social and academic outcomes than children in comparable families with fewer routines. Family routines moderated the association between income and academic achievement, but not social skills, such that among more disadvantaged families (i.e., higher monthly income), children with high levels of family routines exhibited better academic achievement than disadvantaged families with fewer routines. This effect is in the uncontrolled, not controlled model, which suggests that some of the variance explained in the outcome may be due to an overlap in family routines and family controls (i.e., collinearity). Understanding which family and child factors predict routines is an important next step for specifying a more appropriate model.

In alignment with the Resilience Framework (Luthar et al., 2000; Masten, 2001), family routines buffer low-income children's academic achievement. Maintaining a sense of predictability may offset some of the chaos associated with low-income households. As previously mentioned, family routines support positive parent-child relationships (Woods & Goldstein, 2003), a key context in which natural learning opportunities arise within the home. In addition, it is likely positive academic outcomes are associated with the link between family routines and positive social behaviors. Children exhibiting more positive behaviors, for example, are viewed more positively by teachers, and in turn have more opportunities for learning (Ladd, Birch, & Buhs, 1999). In addition, children in families with more routines are better able to self-regulate and attune to important information (Ferretti & Bub, in press; Howse et al., 2003; von Suchodoletz, Trommsdorff, Heikamp, Wieber, & Gollwitzer, 2009). Self-regulation, in turn, is

associated with more positive behavior and higher academic achievement (Howse et al., 2003; von Suchodoletz et al., 2009). Although the difference between more disadvantaged children with low and high levels of routines is only a 3-point gap, research suggests that early gaps in academic achievement widen over time (Stipek & Ryan, 1997). Success in the kindergarten year is pivotal to later academic and life success so efforts to close even the smallest of gaps in the early years are critical (Chetty et al., 2011; Duncan et al., 2010; Pelletier & Brent, 2002).

Contrary to expectation, however, children from less disadvantaged backgrounds appeared to benefit more from family routines than did children from more disadvantaged backgrounds. Recall, however, that this is a low-income sample, so even the less disadvantaged families are only earning between $1,501 and $2000 per month. With this in mind, the findings suggest an additive model; routines are beneficial for low-income children regardless of monthly income but are more beneficial for low-income children in less disadvantaged families. These findings differ from those of Loukas and Prelow (2004) and Budescu and Taylor (2013) who found that family routines mattered most for adolescents with higher cumulative risk and higher perspective financial strain, respectively. It is possible that developmental period may play a role in in the current findings, such that young low-income families, particularly around the kindergarten transition, may not have as well developed routines as families with children later in development who are not experiencing a critical transition. In addition, young families in extreme poverty may have numerous other stressors that make taking advantage of the supports associated with family routines more difficult than young families who are not in extreme poverty. Interestingly, family routines did not moderate the relationship between income and children's social skills. As previously mentioned, the effect of income on academic achievement is slightly stronger making moderation between more and less disadvantaged low-income

children more likely. This may be due in part to the tangible resources utilized in academic learning (e.g., books, computers, art supplies) that are highly dependent on income.

Taken together, results from this study indicate that researchers exploring family routines solely as a mediator or solely as a moderator may be missing information, and key relationships, valuable to prevention development. The mechanisms by which family routines influence children appear to differ by outcome. This is similar to findings indicating that the mechanisms by which poverty influences child development are often not consistent across outcomes. For example, cognitive stimulation is more strongly tied to academic outcomes rather than social outcomes (Farrah, Noble, & Hurt, 2006). The story is complex but simplifying it may ignore critical relationships. Therefore, multiple outcomes and pathways should be considered in an effort to fully understand the relationships between family routines and child development for young low-income children, and others.

Limitations and Future Directions

Although the results from the current study contribute to our knowledge about *how* family routines influence the development of young low-income children, several limitations must be noted. First, only parent report of children's social skills was available in the fall of kindergarten. Because parents also reported on family routines, this may result in reporter bias such that parents who report more family routines may also report more favorably on their child's social skills. This possibility is somewhat reduced by the modest correlation between routines and social skills ($r = .34$). Nevertheless, it is a concern. Ideally, additional reporters (e.g., teachers) and direct observation of children's social skills (e.g., Q-sort) would be included. Second, the findings are correlational and causal relations cannot be explored. It is likely that children's social skills, for example, contribute to the presence of family routines. In two recent

focus group studies conducted by Quick and colleagues (2011) and Koulouglioti and colleagues (2011) exploring the barriers to family mealtime and general routines, respectively, parents reported the leading barrier to family routines was a difficult child; however, research has yet to examine this relationship quantitatively. Longitudinal research is needed to determine the causal direction of these relationships. Similarly, future research should explore the child, family, and neighborhood characteristics that predict the establishment and maintenance of family routines. For example non-standard work hours (Lowe, Weisner, Geis, & Huston, 2005), poor mental health (Britto, Fuligni, & Brooks-Gunn, 2002), and marital relationship quality (Spagnola & Fiese, 2007) may contribute to whether low-income families in particular are able to maintain routines. Exploring the factors that influence family routines will help inform prevention and intervention efforts so that practitioners can create tools to help parents overcome barriers to routine maintenance.

Finally, the participants in the current study were former Head Start families; however families were not chosen at random and the sample is not nationally representative of former Head Start children as a whole, thus these results may not be as generalizable. Although all participants were former Head Start families (and thus were required to meet Head Start income brackets), it is possible that financial circumstances changed for some of the families and I did not exclude families based on monthly income. Nevertheless, the average income was quite low and thus I expect I would see a similar pattern of findings among other low-income samples.

Implications

Despite the limitations, the current findings have important implications for prevention and intervention work. Over 16 million American children live in poverty (U.S. Census, 2011).

Children in poverty are more likely to live in chaotic homes with high levels of noise, crowding, and clutter (Evans et al., 2005). In turn, these children enter school exhibiting social and academic skills well below their more advantaged peers (Duncan et al., 1998). Over time these gaps only continue to grow (Stipek & Ryan, 1997). However, not all low-income children experience negative outcomes, and not all low-income parents lack the ability to maintain an organized household and create predictable family routines. As the current results indicate, low-income families are able to establish and maintain family routines despite the adversity associated with poverty and that these family routines make a difference in children's development.

Family routines may offer a simple yet effective tool to assist low-income families with young children during the kindergarten year. Relative to other parenting skills (e.g., discipline) and styles (e.g., warmth), family routines are tangible behaviors that many parents can initiate and maintain with minimal assistance. Strategies for developing routines can be presented in concrete steps which may allow for them to be acquired more easily. In addition, routines fit into a family's daily life without creating extensive additional tasks for parents or children. Many families already follow some form of daily routine and minimal tweaks can help parents expand and improve routines, as well as adjust routines as children develop. Many other families may not realize the benefits a simple daily routine can provide and may be motivated to establish and maintain routines by this knowledge. Still others may live in extremely chaotic environments, where maintaining an organized setting may be particularly difficult. Practitioners should work to provide these parents with additional aids to overcome barriers. School districts may consider offering workshops discussing the benefits of family routines and strategies to overcome barriers, particularly for families experiencing the transition to kindergarten. Creating

37

opportunities for parents to discuss organization strategies with each other, as well as the child's teacher, may provide assistance in establishment and maintenance of routines.

As children begin formal schooling, more of their time will be spent away from their families, so it is important to establish a home-school collaboration even before the transition formally begins. Routines may be a tool that can be utilized both at home and school to align contexts and create more continuity for children during what is often a turbulent time. In addition, once established, daily routines are a "vehicle" in which other interventions can be embedded (e.g., kindergarten transition programs), in turn reducing future burden of change and creating a context in which families can truly benefit from protective factors.

Table 1

Descriptive Statistics for All Study Variables

Variable	Full Sample Mean/% (SD)	More Disadvantaged Mean/% (SD)	Less Disadvantaged Mean/% (SD)
Outcomes			
Social Skills	90.28 (14.87)	89.69 (14.99)	92.40 (14.83)
Receptive Vocabulary	85.11 (15.50)	83.26 (14.64)	89.30 (15.96)
Reading Score	92.07 (12.04)	91.25 (11.80)	93.96 (12.37)
Mathematics Score	84.88 (15.38)	83.20 (14.47)	87.82 (15.11)
Predictor			
Monthly Household Income	4.78 (2.09)	2.38 (.68)	7.74 (.94)
Mediator/Moderator			
Family Routines	54.29 (9.86)	52.08 (9.42)	57.01 (9.43)
Controls			
Male	48%	49%	47%
European-American	48%	41%	59%
African-American	32%	43%	22%
Hispanic	9%	7%	8%
Respondent Education Level	4.57 (1.57)	4.27 (1.41)	5.20 (1.68)
Total Number of Children in the Home	2.85 (1.41)	2.66 (1.35)	2.88 (1.36)
Perceived Financial Resources	4.51 (.52)	4.50 (.52)	4.66 (.45)
Demonstration Group	52%	53%	51%
Cohort 1	44%	55%	59%

Table 2

Intercorrelations between Outcomes, Monthly Income, and Family Routines

| Variable	1	2	3	4	5	6
Outcomes						
1. Social Skills	--					
2. Receptive Vocabulary	$.13^{***}$	--				
3. Reading Score	$.11^{***}$	$.25^{***}$	--			
4. Mathematics Score	$.15^{***}$	$.42^{***}$	$.53^{***}$	--		
Predictor						
5. Monthly Household Income	$.07^{***}$	$.16^{***}$	$.09^{***}$	$.12^{***}$	--	
Mediator/Moderator						
6. Family Routines	$.34^{***}$	$.13^{***}$	$.08^{***}$	$.08^{***}$	$.20^{***}$	--

$^{***}p < .001$

Table 3

Structural equation models testing moderation for social skills and academic achievement

(standardized results with SD in parentheses)

Variables	Social Skills		Academic Achievement	
	Model 1 Uncontrolled	Model 2 Controlled	Model 3 Uncontrolled	Model 4 Controlled
Monthly Income	-.04	-.01	-.11	-.05
	(.080)	(.078)	(.084)	(.075)
Family Routines	.32***	.32***	-.01	.01
	(.035)	(.034)	(.037)	(.033)
Interaction				
Income*Family Routines	.05	.02	.29**	.13
	(.092)	(.090)	(.097)	(.086)
Covariates				
Male		-.10***		-.01
		(.013)		(.012)
African American		.11***		-.32***
		(.014)		(.013)
Hispanic		.11***		-.04
		(.013)		(.029)
Education Level		.08***		-.26***
		(.013)		(.013)
Number of Children in Home		-.10***		-.15***
		(.013)		(.012)
Perceived Financial Resources		.05***		.04**
		(.013)		(.013)
Demonstration Group				
Cohort				
Fit Statistics				
χ^2 *(df)*	Saturated	Saturated	30.81*** (6)	376.89*** (24)
CFI			.91	.92
RMSEA			.028, *p*=1.00	.053, *p*=1.00

**p < .01 ***p < .001
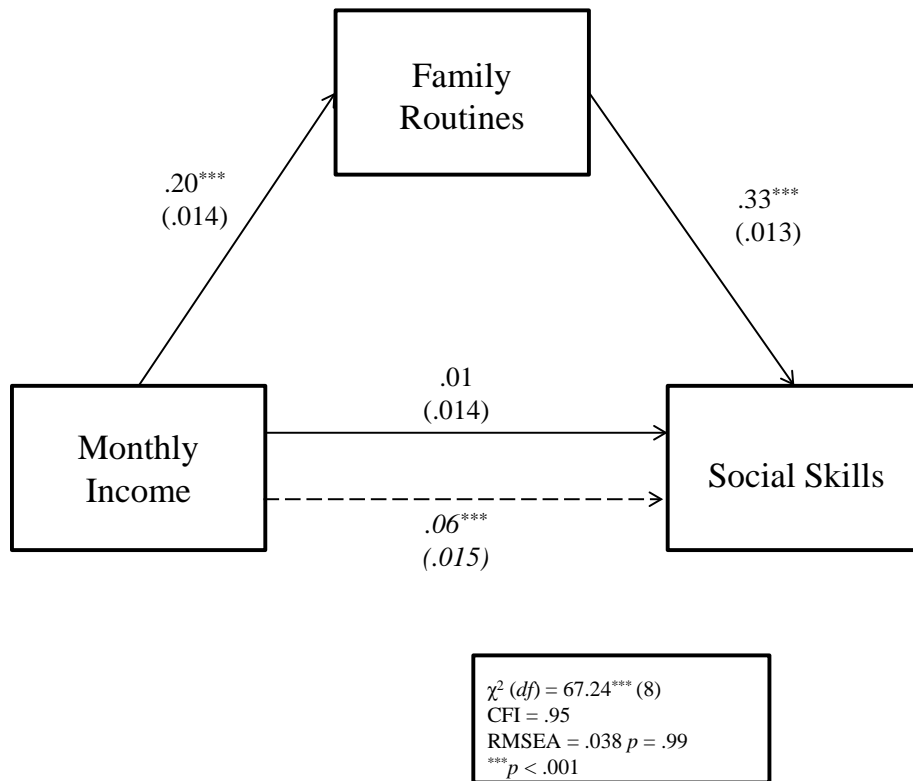
Figure 1. Fitted path diagram for mediation from monthly income to social skills by family routines (standardized results with SD in parentheses) controlling for child sex and race/ethnicity, respondent education, number of children in the home, perceived financial resources, cohort, and program participation on social skills; direct effect from income to social skills in italics.
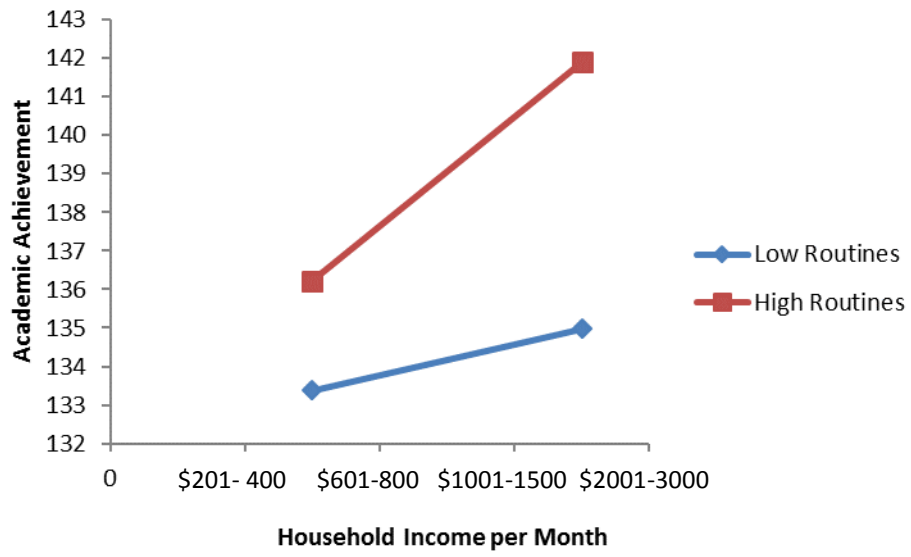
Figure 2. Income predicting academic achievement at high and low levels of family routines

III.   Paper 2 – Environmental structure across contexts: A protective factor for young low-income children both at home and school?

Using data from the National Head Start Public School Early Childhood Transition Demonstration Study (NTDS), I used multi-level modeling (MLM) to investigate whether classroom organization predicts low-income children's social and academic outcomes above and beyond family routines. In addition, I explored whether classroom organization alone, and classroom organization and family routines together, moderate the relationship between income and children's outcomes. Analyses revealed that classroom organization plays an important role in the development of low-income children in kindergarten, even after accounting for the nesting of children within the same classroom. More specifically, children in more organized classrooms exhibited better social skills and receptive vocabulary than their peers in less organized classrooms. Further, classroom organization moderated the association between income and parent reported social skills and receptive vocabulary. Finally, there was a trend for a three-way interaction between income, classroom organization, and family routines. Findings suggest that structure across contexts should be investigated further and may be key for successful outcomes during the kindergarten year. Implications for prevention and intervention both at home and school are discussed.

Keywords: classroom organization, family routines, kindergarten, low-income, home-school collaboration

Environmental structure across contexts: A protective factor for young, low-income children both at home and school?

In the last 50 years, the income-based achievement gap has grown by 40% (Reardon, 2011). This gap is present even as children transition to formal schooling. Low-income children score 1.3 standard deviations below their high-income peers in their kindergarten-entry math skills, nearly two-thirds of a standard deviation below in teacher ratings of attention skills, and one-fourth of a standard deviation higher on teacher-reported antisocial behavior (Duncan & Magnuson, 2011). Unfortunately, these gaps tend to increase over time and in some cases double over the elementary school years (Duncan & Magnuson, 2011). Environmental chaos, both at home and school, is thought to contribute to the achievement gap. Low-income children are more likely to live in crowded, noisy conditions (Evans et al., 2005), change residencies frequently (Federman et al., 1996; Simpson & Fowler, 1994), lack family routines (Fiese & Winter, 2010; Matheny et al., 1995), and attend schools with high levels of environmental chaos, including noise exposure (Haines et al., 2002), overcrowding (National Center for Education Statistics, 2000), and high rates of teacher turnover (Lee & Croninger, 1994). Family routines, however, have been found to predict positive child outcomes among low-income children (Ferretti & Bub, in press; Keltner, 1990). Classroom organization may also be an important buffer for children living in poverty. Indeed, children in organized classrooms exhibit greater engagement in learning (Rimm-Kaufman, Curby, Grimm, Nathanson, & Brock, 2009), more on task behavior, and higher levels of social and academic competence relative to their peers in less organized classrooms (Cameron, Connor, Morrison, & Jewkes, 2008; Wharton-McDonald, Pressley, & Mistretta-Hampston, 1998).

Understanding the role that environmental chaos across contexts plays in children's development is critical. Recent research has indicated that there is a growing lack of structure

and coordination within and across social systems, including the family and school (Evans et al., 2010; Pianta, 2003). Thus, promoting strong home-school connections may offer an increasingly powerful way to stimulate children's positive social, behavioral, and academic development (Bronfenbrenner & Evans, 2000; Bronfenbrenner & Morris, 1998; Taylor & Adelman, 2000). Despite this, we do not know whether organization both at home (marked by family routines) and school (marked by classroom organization) is associated with positive social and academic outcomes. In addition, we do not know whether there are additive effects of home and school organization, or in other words whether children fare better when both settings are organized. Therefore, guided by the Ecological Contexts Model (Bronfenbrenner & Evans, 2000) and the Ecological and Dynamic Model of Transition (Rimm-Kauffman & Pianta, 2000), one goal of the current study was to investigate whether classroom organization predicts children's social and academic outcomes in kindergarten above and beyond family routines. A second goal of the study was to explore whether classroom organization buffers low-income children from the negative effects of poverty. Further, to my knowledge no study has examined whether organization in one context can compensate for disorganization in another. It is possible that classroom organization may buffer low-income children with few family routines or family routines may buffer low-income children in unorganized classrooms from the negative effects of poverty and chaos. Thus, guided by the resilience framework (Luthar et al., 2000; Masten, 2001), the final goal of this study was to investigate whether classroom organization and family routines together moderate the associations between income and children's social and academic outcomes.

The Transition to Kindergarten

The transition to kindergarten is a pivotal developmental task in early childhood and a period when structure may be especially important because it is often a stressful time for children and families (Wildenger & McIntyre, 2011). As children move into formal schooling, they must assume new roles, goals, responsibilities, behaviors, and identities. For example, upon entry to kindergarten, children are faced with increased demands for independence and responsibility (Li-Grining et al., 2010). There is also a new emphasis on academic skills and more focused expectations for behavior and performance (Perry & Weinstein, 1998; Pianta & Kraft-Sayre, 2003; Rimm-Kaufman & Pianta, 2000). In addition, children's relationships change considerably; there is often less family involvement, decreased teacher presence in the context of increased class sizes, and new demands to interact with a wide range of children (Eckert et al., 2008; Ladd et al., 2006; Rimm-Kaufman & Pianta, 2000).

Because a child's academic trajectory is set very early in elementary school and children's skills in kindergarten predict achievement in middle school and beyond (McClelland, Acock, & Morrison, 2006), failure to successfully navigate the kindergarten year can have damaging effects on a child's long-term outcomes (Pelletier & Brent, 2002; Rimm-Kaufman & Pianta, 2000). For example, when compared to their peers with high learning-related skills (e.g., self-regulation and social competence), children with low skills in kindergarten scored significantly lower in reading and math between kindergarten and sixth grade (McClelland et al., 2006). Furthermore, adults who attended low-quality kindergarten classrooms as children earn less, tend to live in lower quality, more dangerous neighborhoods, and are less likely to attend college or save for retirement than are their peers who attended high-quality kindergarten (Chetty et al., 2011). Because children with multiple economic stressors are already behind their more

advantaged peers on indicators of achievement at school entry (Fryer & Levitt, 2005; Murnane,

Willett, Bub, & McCartney, 2006), understanding how parents and teachers can better support

the development of low-income children during their kindergarten year is critical.

Home-School Connections

The two most influential contexts in which young children's learning and development

occur are the home and school. According to Bronfenbrenner and Morris (1998), children's

development is influenced by their interactions within each context, as well as the connections

between settings. Similarly, Epstein's (2001) framework of school engagement asserts that the

home, school, and community are overlapping spheres of influence that share power and

responsibility for children's development. Thus, through shared information between home and

school regarding ways to support learning, rules, and procedures within each context, parents and

teachers can create more consistent messages about behavior and learning across contexts

(Galindo & Sheldon, 2012). Establishing connections between families and schools also creates

continuity across contexts and thus is essential in easing the transition to kindergarten for young

children and their families (Christenson & Sheridan, 2001; Cox, 2005; Mangione & Speth,

1998). Research indicates that children with parents who are more involved in their education,

either at home, through communication with a teacher, or at the school, outperform their peers

socially and academically (Henderson & Mapp, 2002). Parent involvement is associated with

improved behavior at home and school (Sanders & Herting, 2000), increased social skills (Izzo,

Weissberg, Kasprow, & Fendrich, 1999), and better attendance (Epstein, 2001). Similarly, on

average, children of highly involved parents demonstrate higher grade point averages (Marcon,

1999; Miedel & Reynolds, 1999) and scores on standardized tests (Shaver & Walls, 1998) when

compared to their peers with less involved parents.

Home-school connections are particularly important for low-income children who enter school with numerous educational risks (Fantuzzo, McWayne, & Perry, 2004). Fantuzzo et al. (2004) found that among 114 Head Start children, home-based involvement activities, such as reading to a child at home and asking a child about school, were associated with higher academic achievement and lower classroom behavior problems. In addition, among a sample of 307 ethnic minority kindergarten children from a large urban school district, children of parents who provided a rich learning environment at home and helped their child practice what they learned in school exhibited higher levels of social skills, academic achievement in math and reading, and academic motivation (Hampton, Fantuzzo, Cohen, & Sekino, 2004). Research also indicates that parent involvement may mediate the relationship between poverty and student achievement during the transition to kindergarten (Cooper, Crosnoe, Suizzo, & Pituch, 2010). Cooper and her colleagues (2010) found that providing cognitively stimulating materials, including children in organized activities at home, and participating in school-based involvement mediate the relationship between poverty and children's math and reading scores among low-income kindergarteners. These findings highlight that efforts to increase parent involvement may be critical in reducing the achievement gap, particularly during the transition to kindergarten.

Epstein (2001) introduced six key ways parents can be involved in their child's learning: (1) establish home environments that support child development, (2) communicate with teachers and school officials, (3) volunteer at the school, (4) encourage at-home learning, (5) participate in decision making (i.e., PTA or advocacy groups), and (6) collaborate with the community. In the current study, I focus on parents' establishment of a supportive home environment through the use of family routines. Family routines organize the daily lives of families by providing order and predictability. Families who are able to establish and maintain consistent routines have

children who perform better in school and are more cooperative and compliant (Ferretti & Bub, in press; Fiese et al., 2002; Keltner, 1990). There is also some evidence to suggest that there may be long-term benefits of family routines across the transition to kindergarten (Decaro & Worthman, 2011; Ferretti & Bub, 2013). More specifically, children in families who engage in more family routines demonstrate larger increases in school readiness indicators (i.e., behavioral, cognitive, and physical health outcomes) between preschool and kindergarten (Ferretti & Bub, 2013). Family routines provide an important support for children during a stressful transition, but as children begin to spend more time outside of the family we must also consider the role that the classroom plays in children's social and academic development.

Classroom Organization

Just as families use routines to organize their day-to-day activities and direct behavior within a home, teachers use classroom routines to organize day-to-day activities and direct behavior within a classroom. Classroom routines are a part of a larger construct referred to as classroom organization. Classroom organization includes non-instructional practices that help shape the classroom environment and prepare children for learning (Cameron et al., 2005; Wharton-McDonald et al., 1998), as well as actions by the teacher to establish order, engage students, or elicit cooperation with the goal of helping students participate in a learning opportunity (Cameron et al., 2008; Emmer & Stough, 2001). According to the Classroom Assessment Scoring System (CLASS; Pianta, La Paro, & Hamre, 2008), an observational instrument used to assess classroom quality, in highly organized classrooms, teachers use proactive rather than reactive approaches to discipline (e.g., avoids setting up situations in the classroom that may cause behavior problems), establish clear and stable routines (e.g., teacher provides an overall schedule to students so they know what to do), provide activities that are

interesting to children (e.g., uses a range of auditory, visual, and movement materials), and have clear expectations of behavior (e.g., rules are posted in the room) (Emmer & Stough, 2001; Pianta et al., 2008; Rimm-Kaufman et al., 2009). Classroom organization in the current study is comprised of indicators of behavior management, productivity, and instructional learning formats as outlined in the CLASS.

Research examining the benefits of classroom organization to children's learning, especially across the transition to kindergarten, is relatively nascent. Those studies that do exist suggest that teachers who provide organizational information (e.g., classroom rules, procedures) have students with strong behavior regulation (Donohue, Perry, & Weinstein, 2003; Pressley, Rankin, & Yokoi, 1996) and fewer behavior problems (Rutter, Maughan, Mortimore, Ouston, & Smith, 1979). This may be especially important for younger students who are being socialized to the classroom environment and are learning the rules, routines, and procedures of classroom settings for the first time (Brophy, 1988; Cameron et al., 2008). Classroom organization is also strongly associated with children's engagement in learning (Rimm-Kaufman et al., 2009). For example, in a study of 1,268 kindergarten children, Pakarinen and her colleagues (2010) found that classroom organization, as defined by the CLASS, was positively correlated with children's learning motivation. Classroom organization has also been found to benefit children academically. Classroom organization, defined as the amount of time teachers spend providing information about classroom events and instructional activities, is associated with greater gains in word reading skills among first grade children (Cameron et al., 2008). In addition, Ponitz and her colleagues (2009) found that first graders in more organized classrooms, assessed via observation using the CLASS, showed greater literacy, but not math, gains than children in poorly organized classrooms.

51

Gains in academic outcomes for children in well-organized classrooms may be explained, in part, by the fact that in more organized classrooms, teachers are able to spend more time on instructional activities and less time on behavior management (Guthrie, Schafer, & Huang, 2001). Students in poorly managed classrooms receive fewer than 200 minutes of instructional time daily (Smith, 2000). Loss of instructional time often occurs around transitions (e.g., the time between activities or between parts of a lesson). In an elementary school classroom, approximately 31 major transitions (e.g., seatwork to small groups) occur per day, and they account for approximately 15% of classroom time (Burns, 1984). Research indicates the amount of time students spend engaged in academic activities is highly associated with their achievement (Marzano, Gaddy, & Dean, 2000; Silva, 2007). Time spent engaged in academic activities is even more critical for disadvantaged students for whom the link between instructional time and learning is strongest (Berliner, 1991; Smith, 2000). Classroom organization may be one tool to increase academic learning or time on-task in elementary school classrooms. Yinger (1979) argues that classroom routines make the classroom less susceptible to "breakdowns" during interruptions because students know the normal sequence of events. Others go a step further to assert that by providing a predictable time for a specific activity, classroom routines offer a ritualized context that frees children to deal with more complex, higher-order thinking (Au & Kawakami, 1984). In addition, Ponitz and her colleagues assert that classroom organization may be associated with positive child outcomes through modeling. In alignment with the Social Learning Theory (Bandura, 1971), children may structure their own learning and work habits by observing the classroom organization strategies of their teacher, which then encourages future independent learning.

Classroom organization may be particularly beneficial for low-income children who often experience chaotic environments at home (e.g., crowding, noise, lack of routines) and school (e.g., unqualified teachers, high rates of turnover, lack of materials). However, research exploring classroom organization among young, low-income samples is limited. In a 2009 study, Rimm-Kaufman and her colleagues found that among 172 mostly European-American, rural children from working class and poor backgrounds (modal family income ranged from $15,000 to $29,000), children enrolled in kindergarten classrooms with higher quality classroom organization, as measured by the CLASS, exhibited higher levels of self-control, less time off task, and more engagement in learning, even when controlling for other aspects of classroom quality. We know even less about the combined effects of home and school organization among low-income children. Using a sample of 277 African American single-mothers and their 7- to 15-year-old child (M = age 11.40 years), Brody and his colleagues (2002) examined the unique contributions of parenting processes (i.e., monitoring and support) as reported by the mother and classroom processes (i.e., organization, rule clarity, and student involvement) as reported by the child on child self-regulation and adjustment. The researchers found that parenting and classroom processes were associated with self-regulation, which was positively linked with children's adjustment. Further, in alignment with the resilience framework, they found that classroom processes can serve as a protective factor when parenting is compromised and vice versa. Although Brody et al.'s (2002) findings indicate that both the home and school contexts can serve as protective factors, we do not know whether home and school organization in particular benefit young low-income children, and even more importantly whether children in a chaotic home or school setting can be protected by organization in the contrasting setting.

Present Study

The gap in social and academic abilities between poor and non-poor students begins well before children enter school and continues to grow throughout elementary school, but providing low-income children with structure both at home and school may contribute to positive developmental outcomes. Despite evidence indicating that family routines and an organized classroom each benefit young children (Cameron et al., 2008; Rimm-Kaufman et al., 2009), we know little about how family routines and classroom organization may work together to buffer low-income children from the negative effects of poverty during the kindergarten year. To address these gaps in our knowledge, I explore the following research questions: (1) Does classroom organization predict low-income children's social and academic outcomes above and beyond family routines? (2) Does classroom organization moderate the relationship between income and children's social and academic outcomes above and beyond family routines? and (3) Does classroom organization matter more for more disadvantaged children in homes with fewer routines and/or do family routines matter more for more disadvantaged children in classrooms with less organization? I expected that classroom organization would have a positive effect on children's social and academic outcomes above and beyond family routines, such that children in more organized classrooms would be better adjusted. Further, I expected that classroom organization would moderate the negative impact of poverty and would serve as a protective factor for low-income children in families with few routines, while family routines would serve as a protective factor for low-income children in classrooms lacking organization.

Method

Sample

Data for the current study were collected as part of the NTDS, a 6-year longitudinal randomized intervention trial that followed the development of former Head Start children and selected classmates from kindergarten through 3rd grade. The NTDS was conducted between 1992 and 1998 and followed two cohorts of over 10,000 children in more than 450 public schools at 31 locations. The schools cover every major geographic area of the United States (30 different states and the Navajo Nation), including rural and urban areas, and are ethnically diverse. The U.S. Congress legislated and funded the study to test whether providing comprehensive Head Start-like services to children and families from kindergarten through 3rd grade would help maintain former Head Start children's positive academic, social, and health outcomes while also improving long-term outcomes (Ramey et al., 2001). Services included developmentally appropriate curricula, health, nutrition, and social services, as well as parent involvement activities. Elementary schools that agreed to participate in the study were randomly assigned to either a transition demonstration group (offering Head Start services) or a comparison group (offering no "official" Head Start services). It is important to note, however, that in many of the comparison schools, comprehensive educational, social, and health services were offered through other initiatives.

Of the 10,392 children assessed in kindergarten, 4,325 were former Head Start participants, had complete data on the outcomes of interest (i.e., social skills, receptive vocabulary, reading and mathematics scores), and had school and classroom codes (necessary for merging data and for multi-level modeling). These children comprised my analytic sample. Participants were diverse with respect to gender (52% male) and ethnicity (29% AA, 8%

Hispanic, and 52% EA). Twenty-nine percent of the adult respondents had not completed high school. On average, there were 3 children and 2 adults in the home, although only 45% of households had the father in the home. The average income of the current sample was $801 to $1000 a month and all participants were formerly in Head Start, suggesting a relatively disadvantaged sample. Thus, from this point forward, families are referred to as more (lower monthly income) or less (higher monthly income) disadvantaged. Those who were not formally Head Start participants or without complete data were more highly educated ($M = 4.74$ among non-participants and $M = 4.56$ among participants), had higher incomes ($M = 5.46$ among non-participants and $M = 4.80$ among participants), and more often had the father in the home ($M = .54$ among non-participants and $M = .45$ among participants). In addition, they had children who exhibited slightly higher parent ($M = 93.55$ among non-participants and $M = 91.28$ among participants) and teacher ($M = 101.85$ among non-participants and $M = 99.42$ among participants) reported social skills.

Procedure

Data were collected via family interview, direct child assessments, teacher interview, principal reports, direct observations of classrooms, and review of school records. Family interviews, conducted predominantly with mothers, occurred in the respondent's home and direct child assessments were conducted at the school sites by a trained researcher. Data from family interviews, direct child assessments, teacher interviews, classroom observations, and school records in kindergarten were utilized in the current study.

Measures

Outcome Variables

 Social skills. Parent and teacher ratings on the Social Skills Rating System (SSRS) (Gresham & Elliott, 1990) were used to reflect children's social skills in the spring of kindergarten. Parents and teachers were asked to rate how often each of a series of behaviors that influence the child's development of social competence and adaptive functioning occurred (0 = *never*; 1 = *sometimes*; and 2 = *very often*). Sample items include "makes friends easily," and "controls temper in conflict situations with peers." A standard total composite score with a mean of 100 and a standard deviation of 15 was used with higher scores indicating greater perceived social competence. The SSRS was normed on a diverse sample of more than 4,000 children and demonstrates high levels of internal consistency (Gresham & Elliott, 1990). The measure also has moderate concurrent and predictive validity. For example, it is correlated with other measures of social skills including the Social Behavior Assessment and Child Behavior Checklist (Gresham & Elliott, 1990).

 Academic achievement. Two direct assessments were used to reflect children's academic achievement in the spring of kindergarten: The Peabody Picture Vocabulary Test-Revised (PPVT-R) (Dunn & Dunn, 1997) and the Woodcock-Johnson Psycho-Educational Battery-Revised (WJ-R) (McGrew et al., 1991). The PPVT-R is a widely used, reliable and valid measure of receptive vocabulary (the size and range of words that a child understands). The PPVT-R consists of 130 items in which an interviewer says a word (such as "hand," "feather," and "arrow") and asks the child to choose "the best picture of it." Words become progressively more difficult, and the interviewer stops when the child makes six consecutive errors (i.e., a "ceiling" is reached). The PPVT-R correlates moderately well with scholastic aptitude and verbal

intelligence measures (Dunn & Dunn, 1981) and has been found to be a good predictor of school performance among low-income children (McLoyd, 1998). The PPVT-R was standardized nationally on a representative sample of 5,028 participants. Internal consistency ranged from .61 to .88 and the median test re-test reliability was approximately .78 (Ramey et al., 2001). A standard total composite score with a mean of 100 and a standard deviation of 15 was used and higher scores indicate better receptive vocabulary.

Broad reading and mathematics scores from the widely used WJ-R were also used as a measure of academic achievement. The reading and mathematics tests consist of two subtests each: Letter-Word Identification and Passage Comprehension and Calculation and Applied Problems, respectively. Letter-Word Identification tests a child's ability to match a pictorial representation of a word with an actual picture of the object. In the Passage Comprehension test children are asked to read a short passage and identify a missing key word. Calculation and Applied problems measure children's skill in performing addition, subtraction, multiplication, and division. Standard scores for these tests are centered on a mean of 100 and the standard deviation is 15. The WJ-R has high reliability and validity (McGrew et al., 1991). To represent broad achievement, a total composite score was created by averaging the math and reading scores and higher scores indicate better overall achievement.

Primary Predictors

Classroom organization. Teacher reports on the School Climate Survey (SCS; Kelley et al., 1986) were used to represent classroom organization in the spring of kindergarten (9 items; α = .83). Teachers were asked to rate on a 5-point Likert scale how much the community would agree with specific statements at the school-wide level (1 = *strongly disagree* to 5 = *strongly agree*). Using the classroom organization domain of the Classroom Assessment Scoring System

(CLASS; Pianta et al., 2008) as a guide, I selected nine items to reflect the three sub-dimensions of classroom organization: behavior management, productivity, and instructional learning formats. Each of these dimensions was represented by three items and is described in more detail below.

   Behavior management. Behavior management measures the teacher's ability to provide clear behavioral expectations and use effective methods to prevent and redirect misbehavior. Items from the CLASS include clear behavior expectations, anticipates problem behavior, uses positive feedback, and frequent student compliance. The three items from the School Climate Survey that were used to reflect behavior management are: "Teachers praise more often than scold," "Students behave even when no teacher is watching," and "There are clear rules for students to follow."

   Productivity. Productivity measures how well the teacher manages instructional time. Items from the CLASS include activities and centers are ready as students arrive, students and teachers go about the day in an organized, efficient manner, and students know what is expected during transitions. The three items from the School Climate Survey that were used to reflect productivity include, "Taking attendance doesn't interfere with teaching," "Teacher spends most of class in a learning activity," and "Outside interruptions are few."

   Instructional learning formats. Instructional learning formats measures the ways in which the teacher maximizes students' interest, engagement, and ability to learn. Items from the CLASS include teacher balances involvement with student exploration, teacher uses different materials in lessons, students are active participants, and teacher keep questions and directions clear. The three items from the School Climate Survey that were used to reflect instructional

learning formats include, "Teachers explain so students get work done," "Students interested in learning new things," and "Students work hard to complete school assignments."

Household income. Monthly household income, collected in the fall of kindergarten, was represented by a continuous variable (1 = $1 - $200/month, 2 = $201 – $400/month, 3 = $401 – $600/month, 4 = $601 – $800/month, 5 = $801 - $1000/month, 6 = $1001 - $1500, 7 = $1501 - $2000/month, 8 = $2001 – $3000/month, 9 = $3001 - $4000/month, 10 = $4001 - $5000/month, 11 = $5001 - $6000/month, 12 = $6001 or more per month).

Moderator

Family routines. Parent responses to 28 items on the Family Routines Inventory (Boyce et al., 1983) were used to reflect family routines in the fall of kindergarten. Parents were asked to rate how often each week activities such as eating dinner together as a family, children going to sleep at a regular time, and working parents coming home at a regular time occurred (0 = *almost never* to 3 = *almost every day*). A standard total composite score was created by summing all 28 items (α = .73). Higher scores reflect more family routines. The FRI has adequate reliability and validity (Jensen et al., 1983). This measure has been related to success of former Head Start children in elementary school (Keltner, 1990) and is thought to reflect one aspect of family organization.

Control Variables

Family and child characteristics. Parental reports of child sex and race/ethnicity were collected at study entry. Child sex was represented by a dichotomous variable (Male = 0). Race/ethnicity was represented by four dichotomous variables: European American, African American, Hispanic, and Other. Respondent education was represented by a continuous variable (1 = Grades 1-4, 2 = Grades 5-8, 3 = Grades 9-12, 4 = High school graduate, 5 = GED, 6 = some

college, no degree, 7 = associate degree, 8 = bachelor's degree, 9 = professional degree, 10 = doctorate). Ratio of total number of children in the home to number of adults in the home was represented by a continuous variable. As a proxy for partner status, which is not available in the NTDS dataset, I controlled for whether the father is in the home (1 = yes). Cohort was included as a control to account for differences in the timing of the data collection. Program participation was also included as a control to account for possible effects of the intervention. When income was included in the model, I also included the Basic Needs subscale of the Family Resources Scale (FRS; Dunst & Leet, 1987) to control for subjective poverty (α = .71). Using a 5-point scale (1 = not at all adequate and 5 = always adequate), parents rated how adequate they felt their resources are in several financial categories including income, food, housing, and health care. The Basic Needs subscale was created by taking the mean of 9 items (food for two meals a day, house or apartment, enough clothes for your family, heat for your house or apartment, indoor plumbing/water, medical care for your family, furniture for your home or apartment, telephone or access to a phone, and dental care for your family); higher scores indicate higher levels of perceived financial resources.

School characteristics. Number of adults present for 50% or more of the classroom observations and maximum number of children present during any observation cycle, both recorded by trained observers during the Assessment Profile, were included as an index of classroom teacher/child ratio. The ratio was represented by a continuous variable.

<div align="center">

Analysis Plan

</div>

Preliminary analyses. Descriptive analyses were conducted to obtain means and standard deviations and bivariate correlations between all outcome and predictor variables were examined. Because multiple children shared the same classroom, it was possible that I would

need to account for the nesting of children within a classroom (i.e., for their shared experiences). Thus, to determine whether multi-level modeling (MLM) was needed, I began by fitting an unconditional means model for each outcome (parent and teacher reported social skills, receptive vocabulary, and academic achievement) and calculating the intra-class correlation (ICC) or amount of variation that exists within individuals (vs. between classroom). Teacher reported social skills (24%), receptive vocabulary (23%), and academic achievement (23%), all had ICCs greater than 10%, suggesting that a considerable amount of variation in the outcome is attributable to the shared classroom experience and thus MLM is needed (Singer & Willett, 2003).

      Predictive analyses. To address my first research question of whether classroom organization predicts social skills, receptive vocabulary, and academic achievement above and beyond family routines, I first regressed each child outcome (i.e., parent reported social skills, teacher reported social skills, receptive vocabulary, and academic achievement) on classroom organization while controlling for family routines as well as an extensive set of child, family, and school characteristics. As noted above, to account for the interdependence of observations among children in the same classroom, I used MLM for three of the four outcomes (i.e., teacher reported social skills, receptive language, and academic achievement).

      Next, to investigate whether classroom organization moderates the relationship between income and child social and academic outcomes above and beyond family routines (my second research question), I added an interaction term between income and classroom organization to the model. As a final step, to determine whether classroom organization buffers low-income children with low levels of family routines from negative child outcomes, or vice versa (my third research question), I fit an additional model with a three-way interaction (i.e., Income X

Organization X Routines). All main effects and relevant two-way interactions were also included in this analysis. When an interaction was identified, I illustrated the magnitude and direction of those moderated associations by plotting the slopes for prototypical children with low (1 *SD* below the mean) and high (1 *SD* above the mean) income, classroom organization, and family routines. Again, to account for the nesting of children within the same classroom, I used MLM for the models examining teacher reported social skills, receptive vocabulary, and academic achievement. For all research questions, I controlled for a common set of child, family, and school variables in each model (i.e., child sex and race/ethnicity, perceived financial resources, maternal education, number of children and adults in the home, father present in the home, cohort, program participation, and number of children and adults in the classroom). All analysis were conducted using SPSS21. Missing data on the key predictors was handled using standard multiple imputation (MI) procedures outlined by Little and Rubin (2002) and Wideman (2006). For the models using multi-level modeling (teacher reported social skills, receptive vocabulary, and academic achievement), indicators of model fit included the -2 Log-likelihood, Akaike Information Criterion (AIC), and Bayesian Information Criterion (BIC) statistics. For parent reported social skills, where the ICC was less than 10%, I used a basic regression and thus model fit was evaluated using R^2.

Results

Preliminary Analyses

Descriptive statistics. Sample means and standard deviations for the outcome, key predictor, and control variables are presented in Table 1. Intercorrelations among classroom organization, family routines, income, and child outcomes are presented in Table 2. Children displayed moderate social and academic outcomes, although there was considerable variability

63

around the mean. Monthly household income ranged from $1 - $200 per month to $5001 - $6000 per month with an average monthly income of $801 - $1000 per month, suggesting a relatively disadvantaged sample. Teachers reported moderately high levels of classroom organization and on average, parents reported participating in family routines 3 to 5 days per week. More disadvantaged children tended to be in less organized classrooms and had fewer family routines when compared to less disadvantaged children. In addition, children in more organized classrooms, on average, exhibited higher teacher reported social skills, but not parent reported social skills, receptive vocabulary, or academic achievement. Parent reported social skills, on the other hand, was more highly associated with family routines, such that children in families with more routines exhibited better parent reported social skills when compared to their peers in families with fewer routines.

Does classroom organization predict low-income children's social and academic outcomes above and beyond family routines? Parameter estimates and goodness of fit statistics for both the controlled (i.e., classroom organization, family routines, child outcomes and child sex, race/ethnicity, perceived financial resources, income, maternal education, number of children and adults in the home, father present in the home, cohort, program participation, and number of children and adults in the classroom) and uncontrolled (i.e., just classroom organization, and the child outcome) models are presented in Tables 3 (parent and teacher reported social skills) and 4 (receptive vocabulary and academic achievement). Models 1 and 7 reflect the controlled models and Models 2 and 8 reflect the uncontrolled models in both tables. All values reflect pooled estimates (with corrected standard errors) across the five imputations generated to address missing data. Results for teacher reported social skills, receptive vocabulary, and academic achievement are derived from multi-level models; results for parent

64

reported social skills are derived from a basic multiple regression model. Classroom organization significantly predicted one of the four outcomes examined. Specifically, children whose teachers reported higher levels of classroom organization exhibited higher teacher reported social skills in the spring of kindergarten (see Table 3, Model 7; $\beta = .21$, $p < .01$). There was no effect for parent reported social skills, receptive vocabulary, or academic achievement. The pattern of findings for the uncontrolled models was the same as that for the controlled models with one exception. Classroom organization significantly predicted receptive vocabulary, such that children in more organized classrooms exhibited higher levels of receptive vocabulary (see Table 4, Model 2; $\beta = .13$, $p < .01$).

Does classroom organization moderate the relationship between income and child social and academic outcomes above and beyond family routines? Parameter estimates and goodness of fit statistics for models addressing research question two are presented in Tables 3 and 4, Models 3 and 9. Again, uncontrolled estimates were included and are presented in Models 4 and 10. To address this research question, I added to a model that included the direct effects of income and classroom organization on each child outcome (i.e., parent reported social skills, teacher reported social skills, receptive vocabulary, and academic achievement) an interaction term between income and classroom organization. Classroom organization moderated the association between income and parent reported social skills (see Table 3, Model 3). Contrary to expectation, children from more disadvantaged families who were in classrooms with high organization exhibited poorer parent reported social skills relative to children in classrooms with low organization, scoring approximately 2.5 points lower (see Figure 1). In contrast, children from less disadvantaged families who were in classrooms with high teacher reported organization exhibited better parent reported social skills relative to children in classrooms with

65

low organization. In other words, among less disadvantaged children, high levels of classroom organization appear to be beneficial for parent reported social skills; this was not the case for more disadvantaged children.

The pattern of findings for the uncontrolled models was the same as that for the controlled models with one exception. Classroom organization also moderated the association between income and receptive vocabulary in an uncontrolled model (see Table 4, Model 4). Across both more and less disadvantaged children, the children with the highest receptive vocabulary scores were those in classrooms with high teacher reported organization, and those with the lowest receptive vocabulary scores were those in classrooms with low teacher reported classroom organization (see Figure 2). However, less disadvantaged children benefited more from classroom organization, scoring 7 points higher than more disadvantaged children in highly organized classrooms. In addition, the gap between scores from children in high and low organization classrooms was much greater for less disadvantaged children (5 points) than for more disadvantaged children (1 point).

Does classroom organization matter more for low-income children in homes with fewer routines and/or do family routines matter more for low-income children in classrooms with less organization? Parameter estimates and goodness of fit statistics for models addressing this research question are presented in Tables 3 and 4, Models 5 and 11. Uncontrolled estimates were included and are presented in Models 6 and 12. Again, estimates reflect pooled coefficients across multiple imputations and account for the nesting of children within classrooms for teacher reported social skills, receptive vocabulary, and academic achievement. To determine whether classroom organization matters more for more disadvantaged children in homes with fewer routines and vice versa, I created a model that

66

included the direct effects of income, classroom organization, and family routines on each child outcome (i.e., parent reported social skills, teacher reported social skills, receptive vocabulary, and academic achievement), as well as interaction terms between income and classroom organization, income and family routines, and family routines and classroom organization. A three-way interaction between income, classroom organization, and family routines was also included. Although the three-way interaction did not significantly predict any of the child outcomes, there were two noteworthy trends in the uncontrolled models – specifically for parent reported social skills and teacher reported social skills. Among more disadvantaged families, children with high levels of family routines and low levels of classroom organization exhibited better parent reported social skills than their peers, scoring approximately 15 points higher than children with low routines and high classroom organization, the lowest scoring group (see Figure 3). Overall, more disadvantaged children with high levels of family routines and low levels of classroom organization exhibited better parent reported social skills than all children in the less disadvantaged group. More disadvantaged children with high levels of family routines and high classroom organization exhibited slightly better parent reported social skills than children with low levels of family routines and low classroom organization. The pattern of findings varied slightly for less disadvantaged families. Children in less disadvantaged families with high levels of family routines and high classroom organization exhibited the highest levels of parent reported social skills, scoring approximately 12 points higher than less disadvantaged children with low levels of family routines and high classroom organization, the lowest scoring group. Similar to the more disadvantaged group, less disadvantaged children with high levels of family routines and low classroom organization exhibited slightly better parent reported social skills than children with low levels of family routines and low classroom organization. Across both

more and less disadvantaged children, the children with the poorest parent reported social skills were those in families with low levels of family routines but in classrooms with high classroom organization.

The pattern of findings differed considerably for teacher reported social skills. In this model, among children from more disadvantaged families, children with high levels of classroom organization exhibited better teacher reported social skills than their peers, regardless of the level of family routines. Children with low levels of family routines and high levels of classroom organization, scored approximately 8 points higher than children with low routines and low classroom organization, the lowest scoring group (see Figure 4). Among less disadvantaged children, the high routines/high organization group exhibited significantly better teacher reported social skills than all of the other groups while the high routines/low organization group exhibited the poorest teacher reported social skills.

Discussion

Millions of American children are growing up in low-income families and neighborhoods. These children are more likely than their middle- or high-income peers to experience homes and schools characterized by high levels of chaos (i.e., high levels of noise, crowding, clutter, and lack of routine; Evans et al., 2010; Evans et al., 1999; Maxwell, 2010). Environmental chaos is associated with negative child outcomes, including difficulty responding to social cues, difficulty with self-regulation, and lower math and reading scores (Deater-Deckard et al., 2009; Evans et al. 2005; Evans, 2006); however providing low-income children with structure, through family routines and classroom organization, may contribute to increased positive developmental outcomes. Research investigating the role of classroom organization in low-income children's development is scarce, and even fewer studies explore simultaneously the

68

role that structure in both the home and school context plays in children's development. Thus, the purpose of the current study was threefold: First, I investigated the role that classroom organization plays in children's social and academic development; second I explored whether classroom organization moderates the relationship between income and child outcomes; and finally, I tested whether classroom organization and family routines work together to buffer low-income children from the negative effects of poverty. Findings from this study indicate that structure, both at home and school, is associated with positive child outcomes for former Head Start participants in the spring of their kindergarten year. Given the salience of both contexts for early learning, this is a critical step for understanding how best to support low-income children's development.

Classroom Organization and Child Outcomes

Findings from this study partially supported my first hypothesis that classroom organization would be positively associated with children's social and academic outcomes. More specifically, children in more organized classrooms exhibited better teacher reported social skills. This finding is consistent with prior research that indicates teachers who maintain more organized classrooms have students with fewer behavior problems (Rutter et al., 1979), stronger behavioral self-regulation, cooperation, and prosocial skills (Donohue et al., 2003; Rimm-Kaufman et al., 2009), and stronger learning motivation (Pakarinen et al., 2010). Through classroom organization teachers may be modeling positive social skills, such as transitioning between classroom activities smoothly and using time appropriately. In accordance with Social Learning Theory (Bandura, 1971), students are observing these positive behaviors and then enacting them independently. Because there are new focused expectations for behavior when children are first adjusting to formal schooling, this process of modeling behavior may be

69

particularly important during the kindergarten year (Pianta & Kraft-Sayre, 2003; Rimm-Kaufman & Pianta, 2000).

Because early social skills predict later academic outcomes, learning to manage social behaviors is an essential first step in formal schooling for young children (Bub, 2009; Bub, McCartney, & Willett, 2007; Heckman, 2006; Raver & Knitzer, 2002). Importantly, teachers may be more focused on social and behavioral outcomes during the transition to kindergarten. A well-managed classroom allows for social skills to be developed and maintained. In fact, prior research indicates that when teachers create an organized classroom, they spend less time on behavior management and more time on instructional activities (Cameron et al., 2005; Guthrie et al., 2001). This is critical given that the amount of time children spend engaged in learning activities is highly associated with their academic achievement (Marzano et al., 2000), particularly for disadvantaged students (Berliner, 1990; Smith, 2000).

I also found that classroom organization was positively related to receptive vocabulary in a model without any control variables. Classroom organization may set the stage for positive teacher-child and child-child interactions that can expand vocabulary (Burchinal & Peisner-Feinberg, 2002; Mashburn, Justice, Downer, & Pianta, 2009). In addition, language is an essential aspect of classroom organization. In an organized classroom, teachers take time to provide clear classroom rules and procedures, thus increasing the number of words to which students are exposed (Cameron et al., 2008). Finally, as was previously noted, classroom organization may allow for more instructional time (Cameron et al., 2005; Guthrie et al., 2001), which is directly linked with higher academic achievement.

Prior research indicates there is a connection between classroom organization and broad academic achievement (Cameron et al., 2008; Ponitz et al., 2009). Thus, the fact that classroom

70

organization did not predict academic achievement was unexpected and is likely due to the coarse classroom organization measure used in the current study. The School Climate Survey (SCS) was not designed specifically to study classroom organization and teachers were asked to provide their perception of others' views of the school environment; thus the true organization of specific classrooms was likely not portrayed. Both Cameron et al. (2008) and Ponitz et al. (2009), on the other hand, used observational measures to define classroom organization, which likely better capture the construct. Despite the limitations of the measure used in the current study, there is still some evidence that classroom organization matters for low-income kindergarteners' outcomes. Based on prior research, I expect these associations would be even stronger with the use of an observational tool or multiple measures of classroom organization.

Classroom Organization as a Moderator

Classroom organization moderated some of the associations between income and children's outcomes, but the pattern was not always in the expected direction. For children from less disadvantaged families (i.e., higher monthly incomes), more organized classrooms appear to foster the development of positive social skills, as reported by parents. To my knowledge, this is the first study to investigate this relationship. Findings are in line with the Resilience Framework (Luthar et al., 2000; Masten, 2001) such that children in classrooms with high levels of organization are able to exhibit positive social skills despite adversity. In other words, classroom organization appears to buffer low-income children from the negative effects of poverty. Maintaining a sense of predictability within the classroom may offset some of the chaos associated with low-income households. Because these children were from somewhat less disadvantaged families, they may also be experiencing lower levels of chaos at home. As a result, they may be better able to take advantage of the structure offered at both home and

71

school. This finding provides additional support for the importance of creating aligned experiences across settings, especially for low-income children.

Contrary to expectations, more disadvantaged children (i.e., lower monthly income) do not appear to benefit from higher classroom organization, at least for parent reported social skills. That is, children at the lower end of the income spectrum who attended more organized classrooms were reported by their parents to have lower social skills. More disadvantaged children likely live in households with higher levels of chaos and fewer family routines. Indeed, prior research indicates that although not equivalent, income and chaos are very highly correlated (Evans et al., 2005; Martin et al., 2011). Thus, when more disadvantaged children attend classrooms that are more organized, they may gain important self-regulation, cooperation, and other prosocial skills (Donohue et al., 2003; Rimm-Kaufman et al., 2009); however, when they return home to a chaotic environment, they may not be able to maintain the skills they learned in their highly structured classrooms. The children who experience chaos both at home and school, on the other hand, encounter a lack of structure in both contexts and in turn can better maintain positive behavior learned in one chaotic environment within another. These findings align with Bronfenbrener and Morris' Ecological Contexts Model (1998), which asserts that children's development is influenced by their interactions within each context, as well as the connections between settings. Organization at school may not improve children's behaviors in extremely chaotic home environments. Thus, creating continuity across settings through home-school collaborations is essential.

There was also some evidence that classroom organization moderated the association between income and children's receptive vocabulary such that children in more highly organized classrooms demonstrated higher receptive vocabulary. It is important to note, however, that this

72

finding was only present when all control variables were removed from the model, suggesting that there may be some important overlap between income and the child and family factors included here. On average, less disadvantaged children demonstrated significantly higher receptive vocabulary compared to more disadvantaged children at both high and low levels of classroom organization. Prior research indicates that poverty is negatively associated with language acquisition such that low-income children are slower to gain language skills (Duncan et al., 1994). Despite a generally low-income sample, less disadvantaged children likely enter school with more language skills than their more disadvantaged peers (Duncan et al., 1998). These early deficits may be difficult to regain by the spring of kindergarten, even in the context of a supportive classroom.

Classroom Organization and Family Routines as Moderators

Contrary to expectation, I did not find evidence that classroom organization and family routines together significantly moderated the association between income and parent and teacher reported social skills, receptive vocabulary, and academic achievement, although for two outcomes, these interactions approached significance. It is important to keep in mind that these moderated associations were present only in the models without control variables. Nevertheless, they provide some evidence that there may be benefits to ensuring structure across environments for low-income children. More disadvantaged children with high levels of family routines and low classroom organization exhibited the highest parent reported social skills, while children with low family routines and high classroom organization exhibited significantly lower social skills (a 15 point gap). These findings indicate that what happens at home in the way of structure and routines may be especially critical for the kindergarten year. Indeed, as Epstein (2001) asserts, parent support and participation takes place not only on school grounds but also at home

73

by creating home environments that foster positive child development. One important form of support, particularly for families in poverty, may be family routines (Ferretti & Bub, 2013; Keltner, 1990). In fact, more disadvantaged children with high levels of family routines and low levels of classroom organization outperformed less disadvantaged children at all levels of family routines and classroom organization. This indicates that family routines may buffer (Luthar et al., 2000; Masten, 2001) the most disadvantaged children from negative social outcomes.

It is worth noting that this pattern of findings aligns with the income by classroom organization to parent reported social skills moderation I discussed earlier. Children in classrooms with high levels of organization but low levels of family routines exhibit the poorest parent reported social skills, possibly because of the differences in structure across contexts. Children practice social skills in a highly organized environment at school and are not able to maintain them in a chaotic home environment. Recall, also, that parents completed both the family routines measure and the social skills measure for this model. Thus, the pattern of findings identified here may simply reflect reporter bias such that parents who report more family routines may also report more favorably on their child's social skills. This possibility is somewhat reduced by the relatively low correlation between family routines and parent-reported social skills ($r=.25$). Importantly, due to data limitations, I used a very coarse measure of classroom organization, which may not have adequately captured the structural elements of a classroom necessary to support children's social skills. Additional research should be conducted utilizing valid and reliable measures of both family routines and classroom organization in order for the relationships between both contexts to be fully understood.

The three-way interaction for teacher reported social skills also approached significance and was more in line with my hypothesis. Teachers who are able to create an organized

74

classroom have students with better social outcomes, even when those children come from families with low levels of family routines. Having family routines in addition to an organized classroom was especially important for the less disadvantaged children (there was a 5 point difference between children in the high routines/high organization and low routines/high organization groups) but made no difference for the more disadvantaged children. These findings highlight that classroom teachers may be able to buffer children with chaotic home environments from negative social outcomes by providing an environment marked by clear and stable routines, clear expectations, and proactive rather than reactive discipline. Among less disadvantaged children, those with high levels of family routines and low classroom organization exhibited the lowest levels of teacher reported social skills. This provides additional evidence for the critical importance of structure within each context. It also suggests that additional work is needed to fully explore the role that classroom organization plays in children's development for children from disadvantaged backgrounds.

Limitations and Future Directions

Although the results from the current study contribute to our knowledge about the role of classroom organization in the development of young children, several limitations must be noted. First, because the data for the current study were not collected specifically to examine classroom organization, the available measures were limited. Classroom organization was measured very coarsely in the spring of kindergarten utilizing the SCS. The SCS asks teachers to "rate how much 'most people' would agree with given statements about the school environment" (Ramey et al., 2001) rather than asking for the teacher's evaluation of the actual environment in their classroom. Future research should utilize observational measures of classroom organization to fully understand the role of structure within specific classrooms, on specific outcomes. A new bi-

75

factor structure created by the founders of the CLASS includes a proactive management and routines dimension and may assist researchers in this endeavor (Hamre, Hatfield, Pianta & Jamil, in press). Teacher perceptions of classroom chaos may also be captured using newly developed survey methods (e.g., the Life in Early Childhood Programs; Wachs et al., 2004). In addition, future research should measure classroom organization at multiple time points, including during preschool and in the fall of kindergarten. Prior research indicates that there are significant changes in classroom structure from preschool to kindergarten (Holland, 2014) and better understanding changes in classroom organization, in particular, may allow practitioners to more adequately align these settings, thereby helping ease the transition to kindergarten. Nevertheless, the fact that this coarse measure predicts and moderates child outcomes suggests that classroom organization may be a promising tool for helping children adjust during the kindergarten year.

Second, the findings are correlational and causal relations cannot be explored. It is likely that children's social skills, for example, contribute to the presence of classroom organization. Longitudinal research is needed to determine the causal direction of these relationships. Similarly, future research should explore the child, teacher, and school characteristics that predict classroom organization. For example, children's social skills, teacher depression, or the physical environment of the school may contribute to whether teachers are able to establish and maintain classroom organization. Exploring the factors that influence classroom organization will help inform prevention and intervention efforts so that practitioners can create tools to help teachers create an organized classroom environment. Likewise, exploring the influence of classroom organization on teachers should also be investigated. Teachers in more organized classrooms may engage in more positive teacher-child interactions, for example, which are associated with positive child outcomes (Burchinal et al., 2008; Hamre & Pianta, 2001). In this

way, the relationship between classroom organization and child outcomes may be mediated or moderated by other teacher, child, or school factors. Understanding the mechanisms through which classroom organization predicts child development, or in other words, *why* and *how* classroom organization matters is a critical next step.

Finally, the participants in the current study were former Head Start families; however families were not chosen at random and the sample is not nationally representative of former Head Start children as a whole. Thus, these results may not be as generalizable. Although all participants were former Head Start families (and were required to meet Head Start income brackets), it is possible that financial circumstances changed for some of the families and I did not exclude families based on monthly income. Nevertheless, the average income was quite low and thus I expect I would see a similar pattern of findings among other low-income samples.

Implications

Despite the limitations, the current findings have several implications for prevention and intervention work. Both the home and school settings, as well as the connections between these settings, are important for positive child development (Bronfenbrenner & Morris, 1998). Unfortunately, low-income children often experience chaos in both settings, which is negatively associated with child outcomes (Evans et al., 2010; Haines et al., 2002; Lee & Croninger, 1994). The current study indicates that researchers and practitioners should work to reduce chaos in both settings simultaneously. Although the positive benefits of classroom organization may influence child behavior at home, and vice versa, it appears that organization within each setting is most salient for behaviors within that setting. Thus, it is important that we work to align structure across contexts. School districts should find ways to encourage teacher/parent collaboration and communication. Teachers may be able to assist parents in creating organization

through resources such as a family routines chart, which can mirror the posted schedule often seen in early childhood classrooms. Such a chart can assist parents, teachers, and children in being aware of the routine and taking pride in accomplishing the set tasks. However, techniques to create structure should not be unidirectional, or just from teachers to parents. Parents offer a rich information base regarding routines their child participates in surrounding activities such as mealtime and bedtime, among others, that may help the child ease into similar activities at school.

Teacher training regarding the importance of classroom organization and how it can be established and maintained may also be beneficial, particularly for incoming teachers who are often the most disorganized (Emmer & Strough, 2001). Schools serving low-income students often have fewer resources but creating organized classrooms is relatively inexpensive and is something that teachers can understand and implement with minimal assistance. In addition, school-wide classroom organization techniques can be implemented to help ease the transition from teacher to teacher (Leinhardt, Weidman, & Hammond, 1987). Intervention studies have reinforced the importance of organizational activities. With only brief training through manuals or short presentations on classroom time and behavior management, two different studies found teachers in experimental conditions displayed better time management, more effectively carried out routines, and described objectives more clearly when compared to teachers in control conditions (Evertson, Emmer, Sanford, & Clements, 1983; Woolfolk & Woolfolk, 1986). In turn, they had students who were less disruptive and more on task (Evertson et al., 1983), conditions linked with higher levels of academic achievement (Marzano et al., 2000; Silva, 2007). Given the importance of aligning contexts, in the future practitioners may consider creating workshops in which parents and teachers can attend together so that similar techniques are utilized across

settings. Both parents and teachers play a key role in reducing chaos and increasing positive

development for low-income children, and increasing organization within and across settings is a

promising tool to do so.

Table 1

Descriptive Statistics for All Study Variables

Variable	Mean/% (SD)	Range
Outcomes		
Social Skills – Parent Report	91.28 (15.35)	53 to 130
Social Skills – Teacher Report	99.42 (16.03)	44 to 130
Receptive Vocabulary	90.58 (15.60)	40 to 159
Academic Achievement	87.02 (13.08)	34 to 152
Predictors		
Classroom Organization	35.20 (5.18)	9 to 48
Monthly Household Income	4.80 (2.08)	1 to 11
Moderator		
Family Routines	54.39 (9.70)	19 to 84
Controls		
Male	47%	0 to 1
European-American	52%	0 to 1
African-American	29%	0 to 1
Hispanic	8%	0 to 1
Financial Resources	4.54 (.51)	1 to 5
Respondent Education Level	4.56 (1.56)	1 to 10
Total Number of Children in the Home	2.79 (1.35)	1 to 11
Total Number of Adults in the Home	1.88 (.83)	1 to 11
Number of Children in Classroom	20.40 (4.13)	6 to 35
Number of Adults in Classroom	1.63 (.70)	1 to 5
Father is in Home	45%	0 to 1
Demonstration Group	54%	0 to 1
Cohort 1	54%	0 to 1

Table 2

Intercorrelations between Outcomes, Classroom Organization, Income, Financial Resources and Family Routines

Variable	1	2	3	4	5	6	7
Outcomes							
1. Social Skills – Parent Report	--						
2. Social Skills – Teacher Report	$.18^{***}$	--					
3. Receptive Vocabulary	$.13^{***}$	$.21^{***}$	--				
4. Academic Achievement	$.13^{***}$	$.25^{***}$	$.39^{***}$	--			
Predictors							
5. Classroom Organization	$.02$	$.14^{***}$	$.09^{***}$	$.05^{**}$	--		
6. Monthly Household Income	$.06^{***}$	$.12^{***}$	$.17^{***}$	$.10^{***}$	$.14^{***}$	--	
Moderator							
7. Family Routines	$.25^{***}$	$.05^{**}$	$.11^{***}$	$.07^{***}$	$.07^{***}$	$.20^{***}$	--

$^{**}p < .01$ $^{***}p < .001$

Table 3

Regression Models Testing Direct Effects of Classroom Organization, Two-way Interactions and Three-way Interactions for Parent and Teacher Reported Social Skills (unstandardized results with SD in parentheses)

Variables	Parent Reported Social Skills							Teacher Reported Social Skills				
	Model 1 Cont.	Model 2 Uncont.	Model 3 Cont.	Model 4 Uncont.	Model 5 Cont.	Model 6 Uncont.	Model 7 Cont.	Model 8 Uncont.	Model 9 Cont.	Model 10 Uncont.	Model 11 Cont.	Model 12 Uncont.
Classroom Organization (Corg)	-.003 (.04)	.025 (.05)	-.26* (.12)	-.30* (.12)	.27 (.68)	.39 (.69)	.21** (.07)	.24** (.07)	.22+ (.13)	.19 (.12)	1.18 (.72)	1.26+ (.73)
Monthly Income	-.02 (.13)		-1.74* (.79)	-1.69* (.82)	7.13 (5.02)	7.77 (5.08)	.43** (.13)		-.05 (.84)	-.08 (.83)	8.00 (5.35)	8.69 (5.42)
Family Routines	.33*** (.02)		.35*** (.03)		.78 (.45)	.89+ (.45)	.04 (.03)		.05+ (.03)		.66 (.47)	.74 (.48)
Interactions												
Income*Corg			.047* (.02)	.061** (.02)	-.17 (.14)	-.19 (.14)			.01 (.02)	.03 (.02)	-.22 (.15)	-.23 (.15)
Income*FR					-.16+ (.09)	-.17+ (.09)					-.14 (.10)	-.16 (.10)
Corg*FR					-.01 (.01)	-.01 (.01)					-.02 (.01)	-.02 (.01)
Income*Corg*Family Routines					.004 (.003)	.004+ (.003)					.004	.004+ (.003)
Covariates												
Male	-2.90*** (.45)		-2.94*** (.50)		-2.92*** (.50)		.52 (.45)		.44 (.50)		.44 (.50)	
African American	1.77** (.54)		1.50* (.60)		1.52* (.60)		-1.25* (.64)		-1.62* (.69)		-1.57* (.69)	
Hispanic	6.09*** (.87)		5.79*** (1.10)		5.74*** (1.01)		2.68** (.93)		2.25* (1.07)		2.27* (1.07)	
Other	1.23 (.76)		2.35** (.89)		2.32** (.89)		.04 (.81)		-1.07 (.94)		-1.06 (.94)	
Financial Resources	2.39*** (.46)		2.65*** (.53)		2.68*** (.53)		.48 (.47)		.66 (.54)		.65 (.54)	

82

Education Level	.96***	1.04***	1.05***	.65***	.73***	.73***
	(.15)	(.17)	(.17)	(.15)	(.17)	(.17)
Father in Home	-.96+	-1.05+	-1.10+	1.73**	2.01**	2.01**
	(.52)	(.58)	(.58)	(.53)	(.59)	(.59)
Ratio of Children to Adults in Home	-1.15***	-1.13***	-1.13***	-.17	-.09	-.08
	(.22)	(.25)	(.25)	(.23)	(.26)	(.26)
Ratio of Children to Adults in Classroom	-.02	-.03	-.03	.02	.02	.02
	(.04)	(.04)	(.04)	(.05)	(.05)	(.05)
Demonstration Group	-.65	-.48	-.50	.08	-.04	-.06
	(.45)	(.50)	(.50)	(.62)	(.68)	(.68)
Cohort	.24	.16	.13	.51	.92	.91
	(.45)	(.50)	(.50)	(.62)	(.68)	(.68)

Fit Statistics

-2LL (df)	35795.01	39137.53	29077.37	29547.923	29074.33	29539.37
	(17)	(4)	(18)	(6)	(21)	(10)
AIC	35828.89	39145.53	29113.37	29559.923	29116.33	29559.37
BIC	35937.34	39171.36	29224.34	29597.001	29245.80	29621.18

R^2 (df)	.091	.000	.096	.007	.098	.061
	(14)	(1)	(15)	(3)	(18)	(7)

Note: Cont. represents the controlled models and Uncont. represents the uncontrolled models. $^+p < .10$ $^*p < .05$ $^{**}p < .01$ $^{***}p < .001$

Table 4

Regression Models Testing Direct Effects of Classroom Organization, Two-way Interactions and Three-way Interactions for Receptive Vocabulary and Academic Achievement (unstandardized results with SD in parentheses)

Variables	Receptive Vocabulary (PPVT)						Academic Achievement					
	Model 1 Cont.	Model 2 Uncont.	Model 3 Cont.	Model 4 Uncont.	Model 5 Cont.	Model 6 Uncont.	Model 7 Cont.	Model 8 Uncont.	Model 9 Cont.	Model 10 Uncont.	Model 11 Cont.	Model 12 Uncont.
Classroom Organization (Corg)	.01 (.06)	.13* (.06)	-.03 (.11)	-.11 (.13)	.47 (.63)	.86 (.68)	.01 (.05)	.04 (.05)	.04 (.11)	-.07 (.11)	.05 (.58)	-.02 (.59)
Monthly Income	.44*** (.12)		.13 (.75)	-.63 (.82)	2.06 (4.73)	3.09 (5.05)	.17 (.11)		.44 (.69)	-.05 (.69)	-2.97 (4.26)	-3.63 (4.30)
Family Routines	.06* (.02)		.07** (.03)		.31 (.42)	.59 (.44)	.03 (.02)		.03 (.02)		.07 (.38)	.11 (.38)
Interactions												
Income*Corg			.01 (.02)	.05* (.02)	-.07 (.13)	-.11 (.14)			-.01 (.02)	.02 (.02)	.09 (.12)	.11 (.12)
Income*FR					-.03 (.09)	-.07 (.09)					.05 (.08)	.06 (.08)
Corg*FR					-.01 (.01)	-.02 (.01)					-.001 (.01)	-.002 (.01)
Income*Corg*Family Routines					.001 (.002)	.003 (.002)					-.001 (.002)	-.001 (.002)
Covariates												
Male	-.54 (.42)		-.44 (.45)		-.45 (.45)		1.93*** (.37)		1.97*** (.41)		1.97*** (.41)	
African American	-9.32*** (.56)		-9.04*** (.60)		-9.02*** (.60)		.41 (.52)		.42 (.57)		.40 (.57)	
Hispanic	-12.18*** (.83)		-12.66*** (.95)		-12.62*** (.95)		.42 (.76)		-.12 (.88)		-.11 (.88)	
Other	-6.54*** (.73)		-6.11*** (.84)		-6.08*** (.84)		-.37 (.66)		-.51 (.77)		-.53 (.77)	
Financial Resources	1.27** (.43)		1.11* (.49)		1.08* (.49)		.86* (.39)		1.12* (.44)		1.11* (.44)	
Education Level	1.87*** (.14)		1.95*** (.15)		1.94*** (.15)		1.19*** (.13)		1.19*** (.14)		1.19*** (.14)	

Father in Home	-2.06***		-2.09***		-2.06***		.63		.59		.62	
	(.48)		(.54)		(.53)		(.43)		(.49)		(.49)	
Ratio of Children to	-1.52***		-1.43***		-1.42***		-.82***		-.71**		-.70**	
Adults in Home	(.21)		(.23)		(.23)		(.18)		(.21)		(.21)	
Ratio of Children to	.06		.07		.07		.05		.06		.06	
Adults in Classroom	(.05)		(.05)		(.05)		(.04)		(.05)		(.06)	
Demonstration Group	.46		-.31		-.32		-.13		-.59		-.57	
	(.51)		(.56)		(.55)		(.51)		(.56)		(.56)	
Cohort	-2.17***		-1.63**		-1.63**		-.18		.22		.25	
	(.51)		(.56)		(.55)		(.51)		(.56)		(.56)	

Fit Statistics

-2LL (*df*)	34930.33	39114.76	28330.23	29382.71	28327.31	29352.52	20459.28	37261.30	27713.60	28223.74	27709.27	28212.74
	(17)	(4)	(18)	(6)	(21)	(10)	(17)	(4)	(18)	(6)	(21)	(10)
AIC	34964.33	39122.76	28366.23	29394.71	28369.21	29372.52	34069.00	37269.30	27749.60	28235.74	27751.27	28232.74
BIC	35072.65	39148.60	28477.22	29431.79	28498.69	29434.32	34177.32	37295.14	27860.58	28272.82	27880.75	28294.53

Note: Cont. represents the controlled models and Uncont. represents the uncontrolled models. $^*p < .05$ $^{**}p < .01$ $^{***}p < .001$
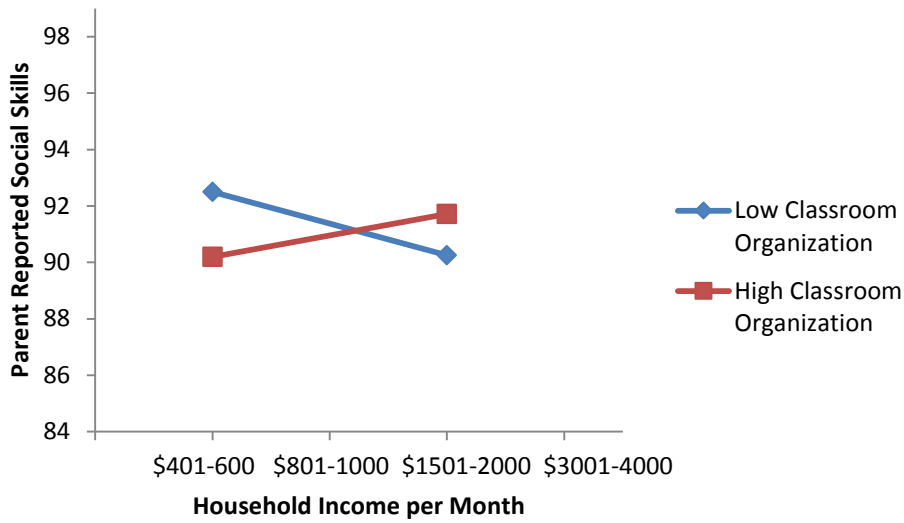
Figure 1. Income predicting parent reported social skills at high and low levels of classroom organization
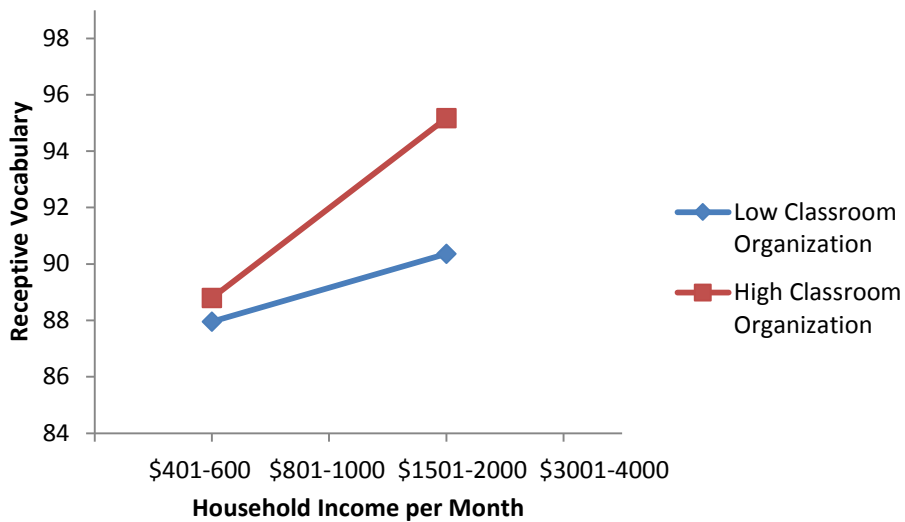

Figure 2. Income predicting receptive vocabulary at high and low levels of classroom organization (uncontrolled model)
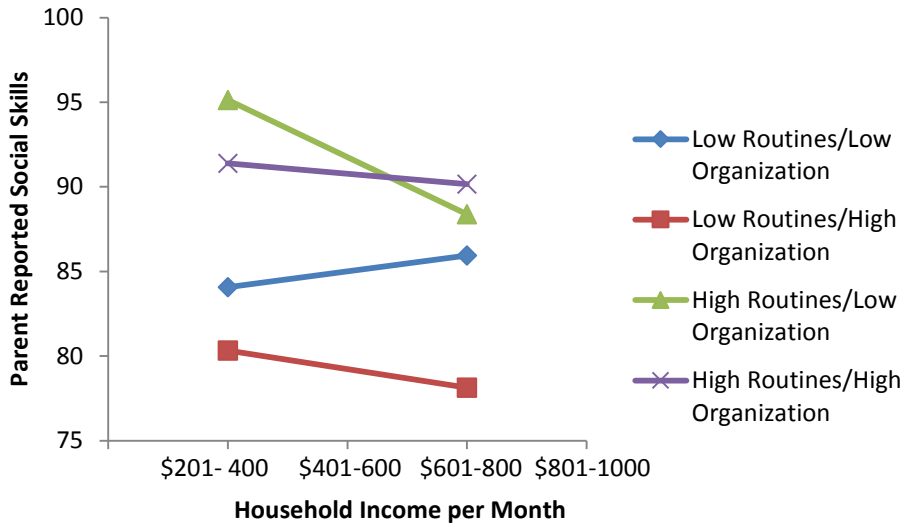
Figure 3. Income predicting parent reported social skills at high and low levels of classroom

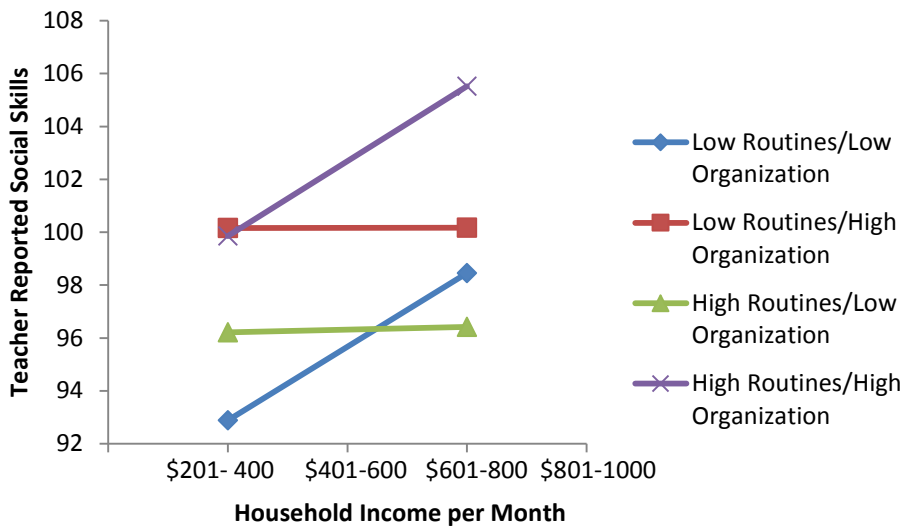organization and family routines (uncontrolled model)

Figure 4. Income predicting teacher reported social skills at high and low levels of classroom

organization and family routines (uncontrolled model)

IV.   General Discussion

More than 25% of American children under the age of 6 live in poor or low-income families (National Center for Children in Poverty, 2013). On average, low-income children are more likely to live in crowded, noisy conditions, change residencies frequently, and lack family routines (Evans & English, 2002; Federman et al., 1996; Fiese & Winter, 2010). In addition, low-income children attend schools with high levels of noise exposure, overcrowding, and high rates of teacher turnover (Haines et al., 2002; Lee & Croninger, 1994). Children developing in chaotic environments exhibit poorer social and academic outcomes (Deater-Deckard et al., 2009; Hardaway et al., 2012). Given the large number of American children living in poverty, and the sustained economic crisis we are currently experiencing, it is critical that researchers begin to find ways to decrease chaos in low-income environments in order to better support the development of ecologically vulnerable children. Structure provided by family routines and classroom organization may be one means of increasing positive development among low-income children.

This dissertation explored *how* family routines benefit low-income kindergartners as well as whether family routines and classroom organization work together to buffer low-income children from the negative effects of poverty. Several findings are noteworthy. First, among a low-income sample, family routines appear to both mediate and moderate the association between income and children's outcomes. More specifically, low-income children in somewhat more advantaged families (i.e., higher monthly incomes) participated in more family routines,

which in turn predicted better social skills. In contrast, among low-income children in more disadvantaged families (i.e., lower monthly incomes), children from families with higher levels of family routines exhibited better academic achievement than children from families with fewer routines. Using a more reliable measure of family routines than often previously used, these findings lend greater support to the notion that family routines can be beneficial for low-income children's development (Anderson & Whitaker, 2010; Ferretti & Bub, in press; McCloyd et al., 2008). Further, consistent with a resilience framework (Luthar et al., 2000; Masten, 2001), results indicate that low-income families are able to establish and maintain family routines despite the adversity associated with poverty. As such, family routines may be a simple yet effective tool to help low-income families with young children provide important supports for their development, particularly as they begin formal schooling. Future research should explore the causal directions of the relationships outlined here as well as the child, family, and neighborhood characteristics that predict the establishment and maintenance of family routines.

The second noteworthy finding from this study is that classroom organization moderates the association between income and parent reported social skills and receptive vocabulary. Unexpectedly, children from more disadvantaged families who were in classrooms with high organization exhibited poorer parent reported social skills relative to children in classrooms with low organization. These findings indicate the home-school connection may be particularly important for low-income children. When children from particularly chaotic home environments attend classrooms with high levels of organization, they may gain self-regulation, cooperation, and other prosocial skills (Donohue et al., 2003; Rimm-Kaufman et al., 2009); however, these skills are learned in a highly structured, organized environment that the children come to rely on. When these children return home, they may not be able to maintain the skills previously

garnered. There is ample research demonstrating that when families are involved in children's learning and development both at home and in school, children do better socially and academically (Fantuzzo et al., 2004; Garrison & Reynolds, 2006; Henderson & Mapp, 2002). Thus, school districts should work to find ways to encourage teacher/parent collaboration and communication. This partnership is essential, especially when working to improve low-income children's outcomes. Teachers may be able to help parents in creating organization at home, and parents may be able to inform teachers of the strategies they use at home that can also be used in the classroom (McCartney, Dearing, Taylor, & Bub, 2007). Given the importance of aligning contexts, in the future practitioners may consider creating workshops in which parents and teachers can attend together so that similar techniques are utilized across settings.

Finally, information can also be gleaned from relationships that were not statistically significant. Classroom organization positively predicted teacher reported social skills and receptive vocabulary but not parent reported social skills or academic achievement. In addition, there were no significant three-way interactions found in the current study, although several three-way interactions approached statistical significance. The limited number of findings is in direct contrast with existing research that suggests classroom organization positively predicts children's outcomes (Cameron et al., 2008; Pakarinen et al., 2010; Ponitz et al., 2009). Although this may suggest that classroom organization does not predict these positive outcomes, my inability to detect effects is more likely due to the coarse measurement of classroom organization used here (i.e., teachers were asked to provide their perception of others' views of the school environment). Future research should work to utilize more in-depth survey (e.g., the Life in Early Childhood Programs) and observational measures (e.g., CLASS) of classroom organization. In addition, researchers should work to incorporate quality measures of family routines (e.g., FRI;

90

daily dairies) and classroom organization in the same study so that links between structure across

contexts can be better understood. Moreover, longitudinal research is needed to determine the

causal directions of relationships between structure and child outcomes. In future research,

structure (i.e., family routines and classroom organization) should be measured across the

kindergarten transition, a time when a child's experiences can change drastically and routines

may be particularly important. Understanding the factors that influence family routines and

classroom organization will help inform prevention and intervention efforts so that practitioners

can create tools to help parents and teachers create organized environments that encourage

positive child development.

Taken together, findings from the current studies indicate environmental structure

matters. Young low-income children benefit from family routines and classroom organization.

Moreover, structural alignment across home and school contexts may be particularly important

for positive child development among a low-income population. The results of these studies

begin to answer *how* structure matters but there are still many questions to be answered including

why structure matters for particular populations and *what* predicts structure over time.

Researchers and practitioners should work together to answer these questions and, more

importantly, to utilize the findings to inform future prevention and intervention efforts.

References

National Center for Children in Poverty. (2013). *Basic facts about low-income children, Children under 6 years, 2011*. New York: Addy, S., Engelhardt, W., & Skinner, C.

Anderson, S. E., & Whitaker, R. C. (2010). Household routines and obesity in US preschool-aged children. *Pediatrics, 125*, 420-428. doi: 10.1542/peds.2009-0417

Annie E. Casey Foundation. (2012). *Kids count data book*. Baltimore, MD.

Au, K. H., & Kawakami, A. J. (1984). Vygotskian perspectives on discussion processes in small group reading lessons. In L. C. Wilkinson, P. L. Peterson, & M. Hallinan (Eds.), *The social context of instruction*. New York: Academic Press.

Bandura, A. (1971). *Social Learning Theory*. New York: General Learning Press.

Baron, R. M. & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*, 1173-1182.

Bennett, L. A., Wolin, S. J., & Reiss, D. (1988). Deliberate family process: A strategy for protecting children of alcoholics. *British Journal of Addiction, 83,* 821-829.

Berliner, D. C. (1991). What's all the fuss about instructional time? In M. Ben-Peretz & R. Bromme (Eds.), *The nature of time in schools theoretical concepts, practitioner perceptions*. New York: Teachers College Press.

Boyce, W. T., Jensen, E. W., James, S. A., & Peacock, J. L. (1983). The Family Routines Inventory: Theoretical origins. *Social Science Medicine, 17,* 193-200.

Britto, P. R., Fuligni, A. S., & Brooks-Gunn, J. (2002). Reading, rhymes, and routines: American parents and their young children. In N. Halfon, K. T. McLearn, & M. A. Schuster (Eds.), *Child rearing in America: Challenges facing parents with young children* (pp. 117-145). New York, NY: Cambridge University Press.

Brody, G. H., Dorsey, S., Forehand, R., & Armistead, L. (2002). Unique and protective contributions of parenting and classroom processes to the adjustment of African American children living in single-parent families. *Child Development, 73*, 274-286.

Bronfenbrenner, U., & Evans, G. W. (2000). Developmental science in the 21st century: Emerging questions, theoretical models, research designs and empirical findings. *Social Development, 9*, 115-125.

Bronfenbrenner, U., & Morris, P. A. (1998). The ecology of developmental processes. In W. Denton, & R. M. Lerner (Eds.), *Handbook of child psychology: Theoretical models of human development* (pp. 993-1028). New York, NY: Wiley.

Brooks-Gunn, J., & Duncan, G. J. (1997). The effects of poverty on children. *The Future of Children: Children and Poverty, 7*, 55-71.

Brophy, J. (1988). Educating teachers about managing classrooms and students. *Teaching and Teacher Education, 4*, 1-18.

Bub, K. L. (2009). Testing the effects of classroom supports on children's social and behavioral skills at key transition points using latent growth modeling. *Applied Developmental Science, 13*, 130-148.

Bub, K. L., McCartney, K., & Willett, J. B. (2007). Behavior problem trajectories and first grade cognitive ability and achievement skills: A latent growth curve analysis. *Journal of Educational Psychology, 99*, 653-670.

Budescu, M., & Taylor, R. D. (2013). Order in the home: Family routines moderate the impact of financial hardship. *Journal of Applied Developmental Psychology, 34*, 63-72.

Burchinal, M., Howes, C., Pianta, R., Bryant, d., Early, D., Clifford, R., & Barbarin, O. (2008). Predicting child outcomes at the end of kindergarten from the quality of pre-kindergarten teacher-child interactions and instruction. *Applied Developmental Science, 12*, 140-153.

Burchinal, M. R., & Peisner-Feinberg, E. (2002). Development of academic skills from preschool through second grade: Family and classroom predictors of developmental trajectories. *Journal of School Psychology, 40*, 415-436.

Burns, R. B. (1984). How time is used in elementary schools: The activity structure of classrooms. In L. W. Anderson (Ed.), *Time and school learning: Theory, research, and practice.* London: Croom Helm.

Cameron, C. E., Connor, C. M., & Morrison, F. J. (2005). Effects of variation in teacher organization on classroom functioning. *Journal of School Psychology, 43*, 61-85.

Cameron, C. E., Connor, C. M., Morrison, F. J., & Jewkes, A. M. (2008). Effects of classroom organization on letter-word reading in first grade. *Journal of School Psychology, 46*, 173-192.

Caspi, A., Taylor, A., Moffitt, T. E., & Plomin, R. (2000). Neighborhood deprivation affects children's mental health: Environmental risks identified in a genetic design. *Psychological Science, 11*, 338-342.

Chetty, R., Friedman, J. N., Hilger, N., Saez, E., Schanzenbach, D. W., Yagan, D. (2011). How does your kindergarten classroom affect your earnings? Evidence from Project Start. *The Quarterly Journal of Economics, 126*, 1593-1660.

Children's Defense Fund. (1995). *The state of America's children yearbook 1995.* Washington

    DC: Children's Defense Fund.

Christenson, S. L., & Sheridan, S. M. (2001). *Schools and families: Creating essential*

    connections for learning. New York: Guildford Press.

Churchill, S. L., & Stoneman, Z. (2004). Correlates of family routines in Head Start families.

    Early *Childhood Research and Practice, 6* (1). Available at http://ecrp.uiuc.edu/v6n1.

    Accessed 19 July 2010.

Coldwell, J., Pike, A., & Dunn, J. (2006). Household chaos – links with parenting and child

    behavior. *Journal of Child Psychology and Psychiatry, 47*, 1116-1122. doi:

    10.111/j.1469-7610.2006.01655.x

Conger, R. D., Conger, K. J., Elder, G. H., Lorenz, F. O., Simons, R. L., & Whitbeck, K. B.

    (1992). A family process model of economic hardship and adjustment of early adolescent

    boys. *Child Development, 63*, 526-541.

Cooper, C. E., Crosnoe, R., Suizzo, M., & Pituch, K. A. (2010). Poverty, race, and parental

    involvement during the transition to elementary school. *Journal of Family Issues, 31*,

    859-883.

Corapci, F., & Wachs, T. D. (2002). Does parental mood or efficacy mediate the influence of

    environmental chaos upon parenting behavior? *Merrill Palmer Quarterly, 48*, 182-201.

Cox, D. (2005). Evidence-based interventions using home school collaboration. *School*

    Psychology Quarterly, 20, 473-497.

Deater-Deckard, K., Mullineaux, P. Y., Beekman, C., Petrill, S. A., Schatschneider, C., &

    Thompson, L. A. (2009). Conduct problems, IQ, and household chaos: A longitudinal

multi-informant study. *Journal of Child Psychology and Psychiatry, 50*, 1301-1308. doi: 10.111/j.1469-7610.2009.02108.x

DeCaro, J. A., & Worthman, C. M. (2011). Changing family routines at kindergarten entry predict biomarkers of parental stress. *International Journal of Behavioral Development, 35*, 441-448.

Donohue, K. M., Perry, K. E., & Weinstein, R. S. (2003). Teachers' classroom practices and children's rejection by their peers. *Journal of Applied Developmental Psychology, 24*, 91-118.

Dumas, J. E., Nissley, J., Nordstrom, A., Smith, E. P., Prinz, R. J., & Levine, D. W. (2005). Home chaos: Sociodemographic, parenting, interactional, and child correlates. *Journal of Clinical Child and Adolescent Psychology, 34*, 93-104.

Duncan, G. J., & Brooks-Gunn, J. (2000). Family poverty, welfare reform, and child development. *Child Development, 71,* 188-196.

Duncan, G. J., Brooks-Gunn, J., & Klebanov P. K. (1994). Economic deprivation and early child development. *Child Development, 65,* 296-318.

Duncan, G. J., & Magnuson, K. (2011). The nature and impact of early achievement skills, attention skills, and behavior problems. In G. J. Duncan & R. J. Murnane (Eds.), *Whither Opportunity? Rising inequality, schools, and children's life changes* (pp. 47-69). New York: Russle Sage Foundation.

Duncan, G. J., Yeung, W. J., Brooks-Gunn, J., & Smith, J. R. (1998). How much does childhood poverty affect the life chances of children? *American Sociological Review, 63,* 406-423.

Duncan, G. J., Ziol-Guest, K. M., & Kalil, A. (2010). Early-childhood poverty and adult attainment, behavior, and health. *Child Development, 81*, 306-325.

Dunn, L. M., & Dunn, L. M. (1981). *Peabody Picture Vocabulary Test – Revised: Manual.* Circle Pines, MN: American Guidance Service.

Dunn, L.M., & Dunn, L.M. (1997). *Peabody Picture Vocabulary Test* (3rd ed.). Circle Pines, MN: American Guidance Service.

Dunst, C. J., & Leet, H. E. (1987). Measuring the adequacy of resources in households with young children. *Child: Care, Health, and Development, 13*, 111-125.

Eckert, T. L., McIntyre, L. L., DiGennaro, F. D., Arbolino, L. A., Perry, L. J., & Begeny, J. C. (2008). Researching the transition to kindergarten for typically developing children: A literature review of current processes, practices, and programs. In D. H. Molina (Ed.), *School psychology 21st century issues and challenges* (pp. 235-252). New York, NY: Nova Science Publishers.

Emmer, E. T., & Stough, L. M. (2001). Classroom management: A critical part of educational psychology, with implications for teacher education. *Educational Psychologist, 36*, 103-112.

Epstein, J. L. (2001). *School, family, and community partnerships.* Colorado: Westview Press.

Evans, G. W. (2004). The environment of childhood poverty. *American Psychologist, 59*, 7-92. doi: 10.1037/0003-066X.59.2.77

Evans, G. W. (2006). Child development and the physical environment. *Annual Review of Psychology, 57*, 423-451.

Evans, G. W., Eckenrode, J., & Marcynyszyn, L. A. (2010). Chaos and the macrosetting: The role of poverty and socioeconomic status. In G. Evans and T. Wachs (Eds.), *Chaos and its influence on children's development: An ecological perspective* (pp 225-238). Washington, DC: American Psychological Association.

Evans, G. W., & English, K. (2002). The environment of poverty: Multiple stressor exposure, psychophysiological stress, and socioemotional adjustment. *Child Development, 73*, 1238-1248.

Evans, G. W., Gonnella, C., Marcynyszyn, L. A., Gentile, L., & Salpekar, N. (2005). The role of chaos in poverty and children's socioemotional adjustment. *Psychological Science, 16*, 560-565.

Evans, G. W., Lepore, S. J., Shejwal, B. R., & Palsane, M. N. (1998). Chronic residential crowding and children's well-being: An ecological perspective. *Child Development, 69*, 1514-1523.

Evans, G. W., Maxwell, L., & Hart, B. (1999). Parental language and verbal responsiveness to children in crowded homes. *Developmental Psychology, 35*, 1020-1023.

Evans, M. A., & Shaw, D. (2008). Home grown for reading: Parental contributions to young children's emergent literacy and word recognition. *Canadian Psychology, 49*, 89-95.

Evertson, C. M., Emmer, E. T., Sanford, J. P., & Clements, B. S. (1983). Improving classroom management: An experiment in elementary school classrooms. *Elementary School Journal, 84*, 173-188.

Fantuzzo, J., McWayne, C., & Perry, M. A. (2004). Multiple dimensions of family involvement and their relations to behavioral and learning competencies for urban, low-income children. *School Psychology Review, 33*, 467-480.

Farah, M. J., Noble, K. G., & Hurt, H. (2006). Poverty, privilege, and brain development: Empirical findings and ethical implications. In J. Illes (Ed.), *Neuroethics: Defining the issues in theory, practice, and policy* (pp. 277-288). New York: Oxford University Press.

Federman, M., Garner, T., Short, K., Cutter, W., Levine, D., McGough D., & McMillion, M. (1996, May). What does it mean to be poor in America? *Monthly Labor Review*, 3-17.

Ferretti, L. K., & Bub, K. L. (in press). The influence of family routines on the resilience of low-income preschoolers. *Journal of Applied Developmental Psychology.*

Ferretti, L. K., & Bub, K. L. (2013). Family routines and school readiness during the transition to kindergarten. Revise and resubmit.

Fiese, B. H. (2006). *Family routines and rituals.* New Haven: Yale University Press.

Fiese, B. H., & Everhart, R. S. (2008). Routines. In *Encyclopedia of infant and early childhood development* (pp. 34-41). Boston: Elsevier Academic Publishing.

Fiese, B. H., Tomcho, T. J., Douglas, M., Josephs, K., Poltrock, S., & Baker, T. (2002). A review of 50 years of research on naturally occurring family routines and rituals: Cause of celebration? *Journal of Family Psychology, 16,* 381-390.

Fiese, B. H., & Wamboldt, F. S. (2000). Family routines, rituals, and asthma management: A proposal for family-based strategies to increase treatment adherence. *Families, Systems and Health, 18,* 405-418.

Fiese B. H., & Winter, M. A. (2010). The dynamics of family chaos and its relation to children's socioemotional well-being. In G. Evans and T. Wachs (Eds.), *Chaos and its influence on children's development: An ecological perspective* (pp. 49-66). Washington, DC: American Psychological Association.

Fryer, R. G., & Levitt, S. D. (2005). The black-white test score gap through third grade. *American Law and Economics Review, 8*, 249-281

Galindo, C., & Sheldon, S. B. (2012). School and home connections and children's kindergarten achievement gains: The mediating role of family involvement. *Early Childhood Research Quarterly, 27*, 90-103.

Garrison, D., & Reynolds, M. R. (2006). Linking family and school with parent consultation and home-school collaboration. *The Family Psychologist, 22*, 4-6.

Guidubaldi, J., Cleminshaw, H. K., Perry, J. D., Natasi, B. K., & Lightel, J. (1986). The role of selected family environment factors in children's post-divorce adjustment. *Family Relations, 35*, 141-151.

Guo, G., & Harris, K. M. (2000). The mechanisms mediating the effects of poverty on children's intellectual development. *Demography, 37,* 431-447.

Guthrie, J. T., Schafer, W. D., & Huang, C. W. (2001). Benefits of opportunity to read and balanced instruction on the NAEP. *Journal of Educational Research, 94*, 145-162.

Gresham, F. M., & Elliott, S. N. (1990). *Social Skills Rating System manual*. Circle Pines, MN: American Guidance Service.

Haines, M. M., Stansfeld, S. A., Head, J. & Job, R. F. S. (2002). Multi-level modeling of aircraft noise on performance tests in schools around Heathrow London airport. *International Journal of Epidemiology Communication and Health, 56*, 139-144.

Haines, M. M., Stansfeld, S. A., Job, R. F. S., Berglund, B. & Head, J. (2001). A follow-up study of effects of chronic aircraft noise exposure on child stress responses and cognition. *International Journal of Epidemiology, 30*, 839-845.

Hambrick-Dixon, P. J. (1988). Effects of experimentally imposed noise on task performance of black children attending day care centers near elevated subway trains. *Developmental Psychology, 22*, 259-264.

Hampton, V., Fantuzzo, J., Cohen, H. L., & Sekino, Y. (2004). A multivariate examination of
parent involvement and the social and academic competencies of urban kindergarten
children. *Psychology in the Schools, 41*, 363-377.

Hamre, B., Hatfield, B., Pianta, R., & Jamil, F. (in-press). Evidence for general and domain-
specific elements of teacher-child interactions: Associations with preschool children's
development. *Child Development.*

Hamre, B. K., & Pianta, R. C. (2001). Early teacher-child relationships and the trajectory of
children's school outcomes through eighth grade. *Child Development, 2*, 625-638.

Hardaway, C. R., Wilson, M. N., Shaw, D. S., & Dishion, T. J. (2012). Family functioning and
externalizing behavior among low-income children: Self-regulation as a mediator. *Infant
and Child Development, 21*, 67-84. doi: 10.1002/icd.765

Hart, S. A., Petrill, S. A., Deckard, K. D., & Thompson, L. A. (2007). SES and CHAOS as
environmental mediators of cognitive ability: A longitudinal genetic analysis.
Intelligence, 35, 233-242. doi: 10.1016/j.intell.2006.08.004

Heckman, J. J. (2006). A broader view of what education policy should be. In N. F. Watt, C.
Ayoub, R. H. Bradley, J. Puma, & W. A. LeBoeuf, (Eds.), *The crisis in youth mental
health: Critical issues and effective programs, Early intervention programs and policies*
(pp. 3-26). Westport, CT: Praeger Publishers/Greenwood Publishing Group.

Henderson, A. T., & Mapp, K. L. (2002). A new wave of evidence: The impact of school,
family, and community connections on student achievement. *Annual Synthesis* 2002.

Hetzner, N. P., Johnson, A. D. & Brooks-Gunn, J. (2011). Poverty, effects of on social and
emotional development. In S. Jarvela (Ed.), *Social and emotional aspects of learning* (pp.
77-86). Oxford, UK: Academic Press.

Holland, A. L. (2014, April). *The transition to formal schooling: Examining structural differences between preschool and kindergarten.* Paper presented at the meeting of the American Educational Research Association, Philadelphia, PA.

Howse, R. B., Lange, G., Farran, D. C., & Boyles, C. D. (2003). Motivation and self-regulation as predictors of achievement in economically disadvantaged young children. *The Journal of Experimental Education, 71*, 151-174.

Izzo, C., Weissberg, R. P., Kasprow, W. J., & Fendrich, M. (1999). A longitudinal assessment of teacher perceptions of parent involvement in children's education and school performance. *American Journal of Community Psychology, 27*, 817-839.

Jensen, E. W., James, S. A., Boyce, W. T., & Hartnett, S. A. (1983). The Family Routines Inventory: Development and validation. *Social Science Medicine, 17,* 201-211.

Johnson, A. D., Martin, A., Brooks-Gunn, J., & Petrill, S. A. (2008). Order in the house! Associations among household chaos, the home literacy envrionment, maternal reading ability, and children's early reading. *Merrill Palmer Quarterly, 54*, 445-472.

Kaiser, A. P., & Delaney E. M. (1996). The effects of poverty on parenting young children. *Peabody Journal of Education, 71,* 66-85.

Kelley, M. A. K., Glover, J. A., Keefe, J. W., Halderson, C., Sorenson, C., & Speth, C. (1986). *School Climate Survey*. Reston, VA: National Assocation of Secondary School Principals.

Keltner, B. (1990). Family characteristics of preschool social competence among Black children in a Head Start program. *Child Psychiatry and Human Development, 21,* 95-108.

Klebanov, P.K., Brooks-Gunn, J., McCarton, C., & McCormick, M. C. (1998). The contribution of neighborhood and family income to developmental test scores over the first three years of life. *Child Development, 69*, 1420-1436.

Koblinsky, S. A., Kuvalanka, K. A., & Randolph, S. M. (2006). Social skills and behavior problems of urban, African American preschoolers: Role of parenting practices, family conflict, and maternal depression. *American Journal of Orthopsychiatry, 76,* 554-563. doi: 10.1037/0002-9432.76.4.554

Koulouglioti, C., Cole, R., & Moskow, M. (2011). Single mothers' views of young children's everyday routines: A focus group study. *Journal of Community Health Nursing, 28*, 144-155. doi: 10.1080/0737016.2011.589236

Ladd, G. W. Birch, S. H., Buhs, E. (1999). Children's social and scholastic lives in kindergarten: Related spheres of influence? *Child Development, 70*, 1373-1400.

Ladd, G. W., Herald, S. L., & Kochel, K. P. (2006). School readiness: Are there social prerequisites? *Early Education and Development, 17*, 115-150.

Lanza, H. I., & Taylor, R. D. (2010). Parenting in moderation: Family routine moderates the relation between school disengagement and delinquent behaviors among African American adolescents. *Cultural Diversity and Ethnic Minority Psychology, 16*, 540-547.

Lanza, H. I., & Drabick, D. A. G. (2011). Family routine moderates the relation between child impulsivity and oppositional defiant disorder symptoms. *Journal of Abnormal Child Psychology, 39*, 83-94.

Larson, E. (2008). Caregiving and autism: How does children's propensity for routinization influence participation in family activities? In W. Dunn (Ed.) *Bringing evidence into*

everyday practice: Practical strategies for healthcare professionals (pp. 284-291).
Thorofare, NJ: Slack Inc.

Lee, V. E., & Croninger, R. (1994). The relative importance of home and school in the development of literacy skills for middle-grade students. *American Journal of Education, 102*, 286-329.

Leinhardt, G., Weidman, C., & Hammond, K. M. (1987). Introduction and integration of classroom routines by expert teachers. *Curriculum Inquiry, 17*, 135-175.

Li-Grining, C. P., Votruba-Drzal, E., Maldonado-Carreno, C., & Haas, K. (2010). Children's early approaches to learning and academic trajectories through fifth grade. *Developmental Psychology, 45*, 1062-1077.

Little, R. J. A., & Rubin, D. B. (2002). *Statistical analysis with missing data.* Hoboken, NJ: John Wiley & Sons.

Loukas, A., & Prelow, H. M. (2004). Externalizing and internalizing problems in low-income Latino early adolescents: Risk, resource, and protective factors. *The Journal of Early Adolescence, 24,* 250-273. doi: 10.1177/0272431604265675

Love, J. M., Logue, M. E., Trudeau, J. V., & Thayer, K. (1992). *Transitions to kindergarten in American schools*. Portsmouth, NH: U.S. Department of Education.

Lowe, E. D., Weisner, T. S., Geis, S., & Huston A. C. (2005). Child-care instability and the effort to sustain a working daily routine: Evidence from the New Hope ethnographic study of low-income families. In C. R. Cooper, C. T. Garcia Coll, W. T. Bartko, H. Davis, & C. Chatman (Eds.), *Developmental pathways through middle childhood:*

Rethinking contexts and diversity as resources (pp. 121-144). Mahwah, NJ: Lawrence

    Erlbaum Associates.

Luthar, S. S., Cicchetti, D., & Becker, B. (2000). The construct of resilience: A critical

    evaluation and guidelines for future work. *Child Development, 71*, 543-562.

Mangione, P. L., & Speth, T. (1998). The transition to elementary school: A framework for

    creating early childhood continuity through home, school, and community partnerships.

    The Elementary School Journal, 98, 381-397.

Marcon, R. A. (1999). Positive relationships between parent school involvement and public

    inner-city preschoolers' development and academic performance. *School Psychology*

    Review, 28, 395-412.

Markson, S., & Fiese, B. H. (2000). Family rituals as a protective factor for children with

    asthma. *Journal of Pediatric Psychology, 25,* 471-479.

Martin, A., Razza, R. A., & Brooks-Gunn, J. (2011). Specifying the links between household

    chaos and preschool children's development. *Early Child Development and Care, 17*, 1-

    17. doi: 10.1080/03004430.2011.605522

Marzano, R. J., Gaddy, B., & Dean, C. (2000). *What works in classroom instruction*. Aurora,

    CO: Mid-Continent Research for Education and Learning.

Mashburn, A. J., Justice, L. M., Downer, J. T., & Pianta, R. C. (2009). Peer effects on children's

    language achievement during pre-kindergarten. *Child Development, 80*, 686-702.

Masten, A. S. (2001). Ordinary magic: Resilience processes in development. *American*

    Psychologist, 56, 227-238.

Matheny, A. P., Wachs, T. D., Ludwig, J. L., & Phillips K. (1995). Bring order out of chaos: Psychometric characteristics of the confusion, hubbub, and order scale. *Journal of Applied Developmental Psychology 16*, 429-444.

Maxwell, L. E. (2003). Home and school density effects on elementary school children: The role of spatial density. *Environment and Behavior, 35*, 566-578.

Maxwell, L. E., (2010). Chaos outside the home: The school environment. In G. W. Evans & T. D. Wachs (Eds.) *Chaos and its Influence on Children's Development: An Ecological Perspective* (pp. 83-95). Washington, DC: American Psychological Association.

McCartney, K., Dearing, E., Taylor, B. A., & Bub, K. L. (2007). Quality child care supports the achievement of low-income children: Direct and indirect pathways through caregiving and the home environment. *Journal of Applied Developmental Psychology, 28*, 411-426.

McClelland, M. M., Acock, A. C., & Morrison, F. J. (2006). The impact of kindergarten learning-related skills on academic trajectories at the end of elementary school. *Early Childhood Research Quarterly, 21*, 471-490.

McGrew, K. S., Werder, J. K., & Woodcock, R. W. (1991). *WJ-R technical manual.* Allen, TX: DLM.

McLoyd, V. C. (1998). Socioeconomic disadvantage and child development. *American Psychologist, 53,* 185-204.

McLoyd, V. C., Toyokawa, T., & Kaplan, R. (2008). Work demands, work-family conflict, and child adjustment in African American families: The mediating role of family routines. *Journal of Family Issues, 29*, 1247-1267. doi: 10.1177/0192513X08320189

Miedel, W. T., & Reynolds, A. J., (1999). Parent involvement in early intervention for disadvantaged children: Does it matter? *Journal of School Psychology, 37*, 379-402.

Mistry, R. S., Biesanz, J. C., Taylor, L. C., Burchinal, M., & Cox, M. J. (2004). Family income and its relation to preschool children's adjustment for families in the NICHD study of early child care. *Developmental Psychology, 40,* 727-745.

Muniz, E. I., Silver, E., & Stein, R. E. K. (2014). Family routines and social-emotional school readiness among preschool-age children. *Journal of Developmental & Behavioral Pediatrics, 35*, 93-99.

Murnane, R. J., Willett, J. B., Bub, K. L., & McCartney, K. (January 2006). "Explaining Puzzling Patterns in Black-White Achivement Gaps." Harvard Graduate School of Education.

Murphy, D. A., Marelich, W. D., Herbeck, D. M., & Payne, D. L. (2009). Family routines and parental monitoring as protective factors among early and middle adolescents affected by maternal HIV/AIDS. *Child Development, 80*, 1676-1691.

Muthén, L.K., & Muthén, B. O. (1998-2007). *Mplus User's Guide.* Fifth Edition. Los Angeles, CA: Muthén & Muthén.

National Center for Ed Statistics (2000). Conditions of America's public school facilities. Washington, D.C: U.S. Department of Education.

Pakarinen, E., Kiuru, N., Lerkkanen, M., Poikkeus, A., Siekkinen, M., & Nurmi, J. (2010). Classroom organization and teacher stress predict learning motivation in kindergarten children. *European Journal of Psychology Education, 25*, 281-300.

Pelletier, J., & Brent, J. M. (2002). Parent participation in children's school readiness. The effects of parental self-efficacy, cultural diversity and teacher strategies. *International Journal of Early Childhood, 34*, 45-60.

Perry, K. E., & Weinstein, R. S. (1998). The social context of early schooling and children's

      school adjustment. *Educational Psychologist, 33*, 177-194.

Petrill, S. A., Pike, A., Price, T., & Plomin, R. (2004). Chaos in the home and socioeconomic

      status are associated with cognitive development in early childhood: Environmental

      mediators identified in a genetic design. *Intelligence, 32*, 445-460. doi:

      10.1016/j.intell.2004.06.010

Pianta, R. C. (2003). The transition to school: A focus on children, families, schools, and

      communities. *Focus on Pre-K and K, 16*, 1-8.

Pianta, R., & Kraft-Sayre, M. (2003). *Successful kindergarten transition.* Baltimore: Paul H.

      Brooks Publishing.

Pianta, R. C., La Paro, K. M., & Hamre, B. K. (2008). *The Classroom Assessment Scoring*

      System. Manual, Pre-K. Baltimore: Brookes.

Pike, A., Iervolino, A. C., Eley, T. C., Price, T. S., & Plomin, R. (2006). Environmental risk and

      young children's cognitive and behavioral development. *International Journal of*

      Behavioral Development, 30, 55-66.

Ponitz, C. C., Rimm-Kaufman, S. E., Brock, L. L., & Nathanson, L. (2009). Early adjustment,

      gender differences, and classroom organizational climate in first grade. *The Elementary*

      School Journal, 110, 142-162.

Pressley, M., Rankin, J., & Yokoi, L. (1996). A survey of instructional practices of primary

      teachers nominated as effective in promoting literacy. *Elementary School Journal, 96*,

      363-384.

Quick, B. L., Fiese, B. H., Anderson, B., Koester, B. D., & Marlin, D. W. (2011). A formative evaluation of shared family mealtime for parents of toddlers and young children. *Health Communication, 26*, 656-666. doi: 10.1080/10410236.2011.561920

Ramey, S. L., Ramey, C. T., Phillips, M. M., Lanzi, R. G., Brezausek, C., Katholi, C. R., . . . Snyder, S. W. (2001). *Head Start children's entry into public school: A report on the National Head Start/Public School Early Childhood Transition demonstration study.* Washington, DC: Department of Health and Human Services, Administration on Children, Youth, and Families.

Raver, C. C., & Knitzer, J. (2002, July). Ready to enter: What research tells policymakers about strategies to promote social and emotional school readiness among three- and four-year-old children. (NCCP Policy Paper No. 3). New York: Columbia University Mailman School of Public Health.

Reardon, S. F. (2011). The widening academic achievement gap between the rich and the poor: New evidence and possible explanations. In G. J. Duncan & R. J. Murnane (Eds.), *Whither Opportunity? Rising inequality, schools, and children's life changes* (91-115). New York: Russle Sage Foundation.

Rimm-Kaufman, S. E., Curby, T. W., Grimm, K. J., Nathanson, L., & Brock, L. L. (2009). The contribution of children's self-regulation and classroom quality to children's adaptive behaviors in the kindergarten classroom. *Developmental Psychology, 45*, 958-972.

Rimm-Kaufman, S. E., & Pianta, R. C. (2000). An Ecological perspective on the transition to kindergarten: A theoretical framework to guide empirical research. *Journal of Applied Developmental Psychology, 21*, 491-511.

Rimm-Kaufman, S. E., Pianta, R. C., & Cox, M. J. (2000). Teachers' judgments of problems in the transition to kindergarten. *Early Childhood Research Quarterly, 15*, 147-166.

Rutter, M., Maughan, B., Mortimore, P., Ouston, J., & Smith, A. (1979). *Fifteen thousand hours: Secondary schools and their effects on children.* Cambridge, MA: Harvard University Press.

Sanders, M. G., & Herting, J. R. (2000). Gender and the effects of school, family, and church support on the academic achievement of African-American urban adolescents. In M. G. Sanders (Ed.), *Schooling students placed at risk: Research, policy, and practice in the education of poor and minority adolescents* (pp.141–161). Mahwah, NJ: Lawerence Erlbaum Associates.

Senechal, M., & LeFevre, J. (2001). Storybook reading and parent teaching: Links to language and literacy development. *New Directions for Child and Adolescent Development, 92*, 39-52.

Shamama-tus-Sabah, S., Gilani, N., & Wachs, T. D. (2011). Relation of home chaos to cognitive performance and behavioral adjustment of Pakistani primary school children. *International Journal of Behavioral Development, 35*, 507-516. doi: 10.1177/0165025411406852

Shaver, A. V., & Walls, R. T., (1998). Effect of Title 1 parent involvement on student reading and mathematics achievement. *Journal of Research and Development in Education, 31*, 90-97.

Silva, E. (2007). *On the clock: Rethinking the way schools use time.* Washington DC: Education Sector Reports.

Simmons, J. P., Nelson, L. D., & Simonsohn, U. (2011). False-positive psychology: Undisclosed

flexibility in data collection and analysis allows presenting anything as significant.

Psychological Science, 22, 1359-1366.

Simpson, G. A., & Fowler, G. (1994). Geographic mobility and children's emotional/behavioral

adjustment. *Pediatrics, 93*, 303-309.

Singer, J. D., & Willett, J. B. (2003). *Applied longitudinal data analysis: Modeling change and

event occurrence.* New York: Oxford University Press.

Smith, B. (2000). Quantity matters: Annual instructional time in an urban school system.

Educational Administration Quarterly, 36, 652-682.

Smith, J., Brooks-Gunn, J., & Klebanov, P. (1997). Consequences of living in poverty for young

children's cognitive and verbal ability and early school achievement. In G. Duncan, & J.

Brooks-Gunn (Eds.), *Consequences of growing up poor* (pp. 132-189). New York:

Russell Sage.

Snow, C. E., & Beals, D. E. (2006). Mealtime talk that supports literacy development. *New

Directions for Child and Adolescent Development, 2006*, 51-66. doi: 10.1002/cd.155

Stipek, D. J., & Ryan, R. H. (1997). Economically disadvantaged preschoolers: Ready to learn

but further to go. *Developmental Psychology, 33,* 711-723.

Spagnola, M., & Fiese, B. H. (2007). Family routines and rituals: A context for development in

the lives of young children. *Infants and Young Children, 20*, 284-299.

Taylor, L., & Adelman, H. S. (2000). Connecting schools, families, and communities.

Professional School Counseling, 3, 298-307.

United Nations Children's Fund (2012). *Measuring child poverty: New league tables of child poverty in the world's rich countries* (UNICEF Report Card 10). Florence, Italy: UNICEF Innocenti Research Centre.

U.S. Census Bureau (2011, November). *Child poverty in the United States 2009 and 2010: Selected race groups and Hispanic origin.* Retrieved September 12, 2013, from https://www.census.gov/prod/2011pubs/acsbr10-05.pdf.

Vernon-Feagans, L., Garrett-Peters, P., Willoughby, M., Mills-Koonce, R., & The Family Life Project Key Investigators. (2011). Chaos, poverty, and parenting: Predictors of early language development. *Early Childhood Research Quarterly*, article in press. doi: 10.1016/j.ecresq.2011.11.001

Von Suchodoletz, A., Trommsdorff, G., Heikamp, T., Wieber, F., & Gollwitzer, P. M. (2009). Transition to school: The role of kindergarten children's behavior regulation. *Learning and Individual Differences, 19*, 561-56.

Wachs, T. D., & Evans, G. W. (2010). Chaos in context. In G. Evans and T. Wachs (Eds.), *Chaos and its influence on children's development: An ecological perspective* (pp. 3-13). Washington, DC: American Psychological Association.

Wachs, T. D., Gurkas, P., & Kontos, S. (2004). Predictors of preschool children's compliance behavior in early childhood classroom settings. *Applied Developmental Psychology, 25*, 439-457.

Weisner, T. S. (2010). Well-being, chaos, and culture: Sustaining a meaningful daily routine. In G. W. Evans & T. D. Wachs (Eds.), *Chaos and its influence on children's development: An ecological perspective* (pp. 211-224). Washington DC: American Psychological Association.

Wharton-McDonald, R., Pressley, M., & Mistretta-Hampston, J. (1998). Literacy instruction in nine first-grade classrooms: Teacher characteristics and student achievement. *The Elementary School Journal, 99*, 101-128.

Wideman, K. (2006). Misisng data: What to do with or without them. In K. McCartney, M. Burchinal, & K. L. Bub (Eds.), *Best practices in quantitative methods for developmentalists, Monographs of the Society for Research in child Development*, 71. Boston, MA: Blackwell Publishing.

Wildenger, L. K., & McIntyre, L. L. (2011). Family concerns and involvement during kindergarten transition. *Journal of Child and Family Studies, 20*, 387-396.

Woods, J. & Goldstein, H. (2003). When the toddler takes over: Changing challenging routines into conduits for communication. *Focus on Autism and Other Developmental Disabilities, 18,* 176-181.

Woolfolk, A. E., & Woolfolk, R. L. (1986). Time management: An experimental investigation. *Journal of School Psychology, 24*, 267-275.

Yinger, R. (1979). Routines in teacher planning. *Theory Into Practice, 18*, 163-169.

Appendix A

Family Routines Inventory (Jensen et al., 1983)

1. Parent(s) have some time each day for just talking with the children

2. Parent(s) have certain things they do every morning while getting ready to start the day

3. Working parent has a regular play time with the children after coming home from work

4. Working parent takes care of the children sometime almost every day

5. Children do the same things each morning as soon as they wake up

6. Parent(s) and children play together sometime each day

7. Non-working parent and children do something together outside the home almost every day (e.g., shopping, walking, etc.)

8. Family has a 'quiet time' each evening when everyone talks or plays quietly

9. Family goes some place special together each week

10. Family has a certain 'family time' each week when they do things together at home

11. Parent(s) read or tell stories to the children almost every day

12. Each child has some time each day for playing alone

13. Children take part in regular activities after school

14. Young children go to play-school the same days each week

15. Children do their homework at the same time each day or night during the week

16. Parents have a certain hobby or sport they do together regularly

17. Children have special things they do or ask for each night at bedtime (e.g., a story, a good-night kiss, a drink of water)

18. Children go to bed at the same time almost every night

19. Family eats at the same time each night

114

20. At least some of the family eats breakfast together almost every morning

21. Whole family eats dinner together almost every night

22. At least one parent talks to his or her parents regularly

23. Family regularly visits with relatives

24. Family checks in or out with each other when someone leaves or comes home

25. Working parent(s) come home from work at the same time each day

26. Family has certain things they almost always do to greet the working parent(s) at the end of the day

27. Parent(s) have certain things they almost always do each time children get out of line

28. Children do regular household chores