

EXAMINING EARLY RELATIONSHIPS IN HEAD START: RELATIONS
AMONG RISK, RELATIONSHIPS, CHILD CHARACTERISTICS,
AND SOCIAL AND ACADEMIC
OUTCOMES

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ABSTRACT

Quality teacher-child and teacher-parent relationships may function to protect young high-risk children from developing poor social and academic outcomes. The current study uses Bronfenbrenner's bioecological theory to conceptualize the relationships between risk, teacher-child and teacher-parent relationship quality, and children's social and academic competence. The objectives of the study were to: a) investigate whether teacher-child and teacher-parent relationship quality moderates the effects of maternal education on children's social and academic competence, and b) examine the associations among child characteristics and teacher-child and teacher-parent relationship quality. Data were collected from 805 Head Start children, their parents, and their classroom teachers. When controlling for children's gender and age, maternal education significantly predicted children's academic outcomes, and teacher-child and teacher-parent relationship quality significantly predicted children's social and academic competence. When controlling for child gender and age, teacher-child closeness and teacher-child conflict moderated the relationship between maternal education and children's letter naming. Child gender was associated with teacher-child closeness and conflict, and child age was associated with teacher-parent relationship quality. Overall, the findings suggest that teacher-child relationship quality may function as both a risk and a protective factor in the development of young high-risk children's outcomes. The results have important implications for research, policy, and practice in promoting school readiness in Head Start children.

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DEDICATION

I dedicate this dissertation to my family. Dad and mom, thank you for your support in my decision to return to school to further my studies and obtain my doctorate. Ilya, you have taught me the importance of prioritizing and balancing work and fun. You have taught me not to take life too seriously. Thank you for your patience, support, and humor throughout the dissertation process.

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CHAPTER 1

INTRODUCTION

Data are emerging that focus on the impact of children's early experiences on development (National Association of School Psychologists [NASP], 2003). Young children, attending Head Start, are at risk for developing negative developmental outcomes due to residing in high-risk communities (Kaiser, Hancock, Cai, Foster, & Hester, 2000). To mitigate these potential negative outcomes, it is paramount that researchers study risk and protective factors that are relevant to these children's outcomes. High-quality early relationships, specifically teacher-child and teacher-parent relationships, show promise in protecting children from the consequences of living in high-risk environments.

Due to growing financial constraints in the U.S. educational system, it is necessary to determine the most important variables that predict high quality relationships for at-risk children. Researchers have found associations between characteristics of children, teachers, and classrooms and quality teacher-child relationships (e.g., Stuhlman & Pianta, 2004). In addition, the positive teacher-parent relationships have been predicted from child characteristics, such as ethnicity, gender, and age (e.g., Hughes, Gleason, & Zhang, 2005; Saft & Pianta, 2001). However, research has not widely examined these early relationships in truly at-risk, preschool populations. The National Association of School Psychologists calls for school psychologists to work with school staff and families to develop preschool intervention programs that are developmentally appropriate, family oriented, and sensitive to cultural and linguistic differences (NASP, 2003). Through a sound understanding of the process

of early relationship development, research can better inform practice. Research-based interventions could be designed to train teachers in building and sustaining quality relationships with young children and their families. These interventions may help curtail negative outcomes among high-risk children.

The purpose of this study was to assess predictors of children's social and academic outcomes in a predominately African American sample of Head Start children. The objectives of this study were: (a) to investigate whether teacher-reported relationship quality serves to moderate the associations between demographic risk and social and academic competence, and (b) to investigate associations between child characteristics and teacher-reported relationship quality.

Theoretical Framework

The bioecological theory provides a framework for conceptualizing children's development by examining environmental influences (Bronfenbrenner, 1977). Through this theory, researchers are able to better understand the concepts of risk and resilience and their relationships with children's outcomes (Luthar, Cicchetti, & Becker, 2000). This framework emphasizes positive development in light of risk factors that predict poor outcomes. Some researchers define resilience as the lack of psychopathology, while others define it as the achievement of developmentally-appropriate tasks (Luthar et al., 2000; Sroufe, Duggal, Weinfield, & Carlson, 2000).

Early School Problems

During the preschool years, negative developmental outcomes are defined by significant deviation in social competence, emotional expression, self-regulation (Campbell, 2006), and academic achievement (Pianta, 1999). This study examined

whether the quality of teacher-child and teacher-parent relationships can protect children in Head Start from negative social and academic outcomes. Research findings indicate that early school problems are linked to serious concomitant and future problems, especially peer rejection (Coie, Dodge, & Kupersmidt, 1990), poor academic performance (Campbell, 2002), and delinquent behavior (Coolahan, Mendez, Fantuzzo, & McDermott, 2000). In this vein, the early childhood years are critical for problem identification, intervention, and prevention of negative developmental trajectories.

Demographic Risk

Children enrolled in Head Start may have a higher probability of experiencing negative school outcomes as a result of living in high-risk environments. By definition, children in Head Start programs qualify for the program because their family's household income falls below the poverty line. Demographic risk factors such as low maternal education (Peisner-Feinberg et al., 2001), which is considered a proxy for socioeconomic status, and economic instability (McLoyd, 1998) have been associated with children's problem behaviors and poor academic skills. These early school problems may also continue during children's later school years (Hamre & Pianta, 2001; McLoyd, Ceballo, & Mangelsdorf, 1996). Furthermore, numerous environmental stressors co-exist with living in poverty, such as exposure to violence, lead poisoning, family unemployment, and high family density (McLoyd, 1998), which potentially interfere with children's school performance. Since the majority of Head Start children are from economically disadvantaged families, it is essential to identify factors that may buffer children from negative social and academic outcomes, such as teacher-child and teacher-parent relationships.

Teacher-Child Relationships: A Protective Factor

Numerous definitions of 'risk' exist in the literature. For the current study's purposes, risk is defined, in terms of demographics (i.e., level of maternal education). Although research shows that children who are considered 'at risk' confront numerous challenges, many experience positive developmental outcomes. In particular, positive teacher-child relationships foster resilience by protecting them from the harmful effects of the high-risk environments that they inhabit (e.g., Hamre & Pianta, 2005). Thus, the understanding of teacher-child relationships is critical in predicting children's outcomes. Through the interaction process between teachers and children, teachers help to regulate children's development of social and academic competencies (Pianta, 1999). In one study, findings revealed at-risk children's positive relationships with preschool teachers were associated with kindergarten teachers' positive perceptions of the same children's work habits, frustration tolerance, and overall competence (Pianta, Nimetz, & Bennett, 1997). However, the researchers did not examine risk, child characteristics, and teacher-child relationships as predictors of both children's social and academic functioning.

In another study, at-risk first graders were placed in classrooms that had both strong instructional and emotional support. These children demonstrated achievement and relationships with teachers similar to their low-risk peers (Hamre & Pianta, 2005). Nevertheless, the study's participants were not considered truly high risk, and the researchers only examined conflictual relationships between the teacher and children and did not examine the impact of early relationships on preschoolers who are predominantly African American. Finally, despite Hamre and Pianta (2005) examining teacher-child relationships as a moderator of achievement, they did not study the quality of

relationships as a moderator of children's social competence. To date, there are limited research studies examining the effects of teacher-child relationships on social competence.

The current study examined whether the quality of teacher-child relationships functions to buffer against risk in the development of young children's social and academic competence, while accounting for child characteristics. Numerous studies have used teacher reports to measure teachers' relationships with children (e.g., Hamre & Pianta, 2001). One measure, the *Student Teacher Relationship Scale* (STRS; Pianta, 2001) was designed using attachment theory and previous studies of teacher-child interactions. This teacher report is purported to assess the dimensions of closeness, dependency, and conflict. The STRS has been found to correlate with measures of classroom behavior problems (Pianta, Steinberg, & Rollins, 1995), as well as observations of young children's classroom engagement and teacher sensitivity (Stuhlman & Pianta, 2001).

Teacher-Parent Relationships: A Protective Factor

In addition to teacher-child relationships, there is some evidence that quality teacher-parent relationships may predict positive school outcomes for children. Research has documented the positive associations between teacher-parent relationships and children's developmental outcomes, especially in the early grades (e.g., Henderson & Mapp, 2002). However, similar to teacher-child relationships, there is limited research on teacher-parent relationships and whether these relationships act as protective factors for children who are at high risk. Research indicates that fewer positive connections exist between home and school for low-income and minority children than for higher income,

Caucasian children (e.g., Entwisle & Alexander, 1988). Incongruent backgrounds of teachers and parents are associated with teachers' perceptions of differences in parental educational values from their own, which in return, influence how teachers view children's academic abilities (Hauser-Cram, Sirin, & Stipek, 2003; Saft & Pianta, 2001). Furthermore, teachers' perceptions of parent attitudes about education have been shown to predict children's classroom participation and engagement (Rimm-Kaufman et al., 2002).

Hughes and Kwok (2007) found that the quality of both teacher-child relationships as well as teacher-parent relationships mediate the associations between lower achieving, first graders' background characteristics and teacher perceptions of children's classroom engagement. Furthermore, the level of children's classroom engagement mediates associations between teacher-child and teacher-parent relationships and children's achievement in the subsequent year. The researchers examined the effects of child characteristics and family risk variables of SES and paternal education on home-school relationships. However, they did not investigate teacher-parent relationship quality in a predominately low-income African American sample. In addition, limited research focuses on teacher-parent relationships in the preschool population. Although researchers have investigated the influences of teacher-parent relationships on children's achievement, thus far, there has been a lack of research on the association between this relationship construct and children's social competence. To date, limited research exists that investigates whether teacher-parent relationship quality moderates the effects of maternal education on children's social-emotional competence.

The current study examined whether the quality of teacher-parent relationships moderate the level of maternal education on children's social and academic outcomes when accounting for child characteristics. Several studies have measured the quality of teacher-parent relationships using teacher reports (e.g., Hughes, Gleason, & Zhang, 2005). One measure, *The Connection Sort* (Waanders, 2002) is a method for assessing teachers' relationships with parents. Classroom teachers organize the names of children into piles by their level of connection with each child's caregiver. Previous research revealed that *The Connection Sort* was positively associated with parent reports of school involvement and parent attendance at school events (Waanders et al., 2007).

Teacher-Child and Teacher-Parent Relationships: Correlates

It is important to examine the factors that are related to teacher-child and teacher-parent relationships to determine the most appropriate means for encouraging positive relationships. In using bioecological theory, proximal processes influencing children's development vary in relation to the specifics of the child and the environment. In addition to demographic risk (e.g., maternal education), children's characteristics are related to the quality of teacher-child and teacher-parent relationships. In particular, some research findings show that teachers perceive differences in their relationships with children and parents due to children's gender, ethnicity, and age (Howes, Phillipsen, & Peisner-Feinberg, 2000; Hughes, Cavell, & Wilson, 2001; Hughes et al., 2005; Saft & Pianta, 2001). To date, there is a need for the expansion of the literature on early teacher-child relationships and teacher-parent relationships in predominantly African American, low-income preschool children. There is also limited research examining the differences in children's age and gender on teachers' relationships with predominantly African

American, low-income children and their parents. This research has important repercussions in providing professional development for teachers on how to establish and maintain quality relationships with all children and families.

Study Overview

This study investigated teacher-child and teacher-parent relationship quality and whether they serve as protective factors for at-risk children. There has been limited research examining whether positive teacher-child and teacher-parent relationships moderate the effects of maternal education on children's social and academic outcomes. The present study expanded on previous research on early relationship variables, teacher-child and teacher-parent relationships, by including variables of maternal education, child characteristics, and children's outcomes of social and academic competence. In addition, most studies have examined overall teacher-child relationship quality. This study examined the three subscales of the Student-Teacher Relationship Scale (STRS; Pianta, 2001), closeness, conflict, and dependency, and their associations with child outcomes. This study advanced the understanding of young children's school readiness outcomes in several ways. It expands on the research that investigates the associations between young, high-risk children's social and academic competence and quality teacher relationships with both children and parents. Furthermore, the current study's child participants are at-risk preschoolers who are enrolled in Head Start and are predominantly African American. The goals of the study were: (a) to investigate whether teacher-reported relationship quality serves to moderate the associations between maternal education and social and academic competence, and (b) to investigate associations between child characteristics and teacher-reported relationship quality.

The study answered the following research questions. Hypotheses that were generated prior to data collection are included with each research question.

1. Does teacher-child and teacher-parent relationship quality serve to moderate the associations between level of maternal education and children's social and academic competence?

a. Teacher's perceptions of teacher-child and teacher-parent relationship quality were anticipated to moderate the association between the level of maternal education and children's social and academic competence.

2. Are child characteristics associated with teacher-child and teacher-parent relationship quality?

a. Teachers were expected to report more positive teacher-child and teacher-parent relationships with girls than boys.

b. Teachers were expected to report more positive teacher-child and teacher-parent relationships with older preschool children than younger preschool children.

CHAPTER 2

LITERATURE REVIEW

The field of school psychology has called for evidence-based prevention and intervention research and practices to improve student outcomes (NASP, 2005). There is a growing body of research that emphasizes the immeasurable impact of a child's experiences during the first few years of life. Head Start provides the opportune setting to implement research-based practices and provide quality experiences for young children. Head Start performance standards identify children's cognitive and language skills as well as their social and emotional development as a priority in promoting children's school readiness (45 CRF § 1304.21(a)(3)(4)). Through the implementation of research- and evidence-based programs, Head Start can provide a buffer for young children from numerous risk factors while promoting school readiness skills in both academic and social domains.

It is important to understand impacts on school readiness to prevent school failure. Children who demonstrate academic and behavioral problems in early childhood are more likely to have problems in later childhood. For instance, children who have been identified as having academic and behavioral problems during preschool have a 50 percent chance of experiencing problems during elementary school (Campbell, 1994; 1995). Some of these children's difficulties could manifest as poor social and academic skills and persistent delinquent behaviors (Campbell, 2002; Coolahan et al., 2000; Hinshaw, 1992; Meehan, Hughes, & Cavell, 2003). As an educational venue for young children, Head Start provides an opportunity to change the developmental trajectory of children who are considered high risk. With the increasing identification of problem

behaviors among young children, it is imperative that researchers pinpoint variables that may impact children's social and academic functioning. In particular, it is paramount that researchers understand the impact of early relationships on young children's development.

Research indicates a rise in the numbers of children enrolling in preschool programs due to maternal employment (Adams, Tout, & Zaslow, 2007). This development has become a catalyst for research that is focused on childhood experiences related to children's social and academic competence. In particular, researchers have investigated the associations between teacher-child relationship quality and children's developmental outcomes. Attachment theory provides a framework for examining the link between teacher-child relationships and children's development (Davis, 2003; O'Connor & McCartney, 2007). The literature indicates that the quality of teacher-child relationships have a significant bearing on children's social and academic competence, behavioral functioning, and emotion regulation (O'Connor & McCartney, 2007; Peisner-Feinberg, et al., 2001; Pianta, 1999). In addition, high-quality teacher-child relationships can be especially important for children who are at risk for lower levels of achievement (Birch & Ladd, 1997; Hamre & Pianta, 2001; O'Connor & McCartney, 2007; Pianta & Stuhlman, 2004) and the development of behavior problems (Hamre & Pianta, 2005; Meehan et al., 2003; Pianta, Nimetz, & Bennett, 1997; Vick, 2008).

In addition to teacher-child relationships, researchers have been examining the impact of teacher-parent relationships on children's development outcomes. Bronfenbrenner's bio-ecological theory has been generally used to conceptualize the influence of teacher-parent relationships on childhood development. Researchers suggest

that the relations between teachers and parents impact teachers' expectations of children's academic competence, children's engagement, and ultimately children's academic outcomes (Hughes et al., 2005). Similar to teacher-child relationships, higher level connections between teachers and parent are instrumental to children who hold a racial/ethnic minority status and who are at high risk (e.g., lower achievers, lower SES, lower level of parental education) (Hughes et al., 2005).

This study examined the literature on the associations between teacher-child and teacher-parent relationships and at-risk, young children's social and academic outcomes. First, the theoretical framework that guides the understanding of children's social and academic competence, and the variables that promote positive development in these areas, namely teacher-child and teacher-parent relationships are provided. Subsequently, the study presented literature on the concepts of risk and resilience and the specific risk factors that are associated with children's academic and social problems. Both early teacher-child relationships and teacher-parent relationships are depicted within the conceptual framework of understanding factors that buffer the impact of risk on children's social and academic outcomes.

Theoretical Framework

The bioecological theory (Bronfenbrenner, 1977; 1979) provides a framework for understanding the various factors that impact children's development and underscores the interdependent nature among these individual, relational, and contextual factors. Researchers have indicated the critical nature of the identification of both risk and protective factors that may impact children's development (e.g., Luthar et al., 2000). This study uses both a risk and resiliency framework to conceptualize the research on the

associations between teacher-child and teacher-parent relationship quality and young children's academic and social competence. The bioecological theory denotes a developmental contextualist model, whereby the individual and the environment influence one another. The model's concept of contextualism explains that various factors affect development (i.e., biological, relational, and environmental) and have reciprocal influence.

The bioecological theory (Bronfenbrenner, 1977; 1979) provides researchers a framework to account for both individual and environmental variables in child development and has been used to understand developmental problems in young children (O' Connor & McCartney, 2007; Pianta, 1999; Pianta & Walsh, 1998). This theory has been used to investigate variables that may explain the variance and persistence of children's problems in achievement (O'Connor & McCartney, 2007) and in social-emotional functioning (Pianta, 1999). Furthermore, this theory helps to understand the reasons that some at-risk children develop positive outcomes while others do not. The child's development is shaped by several microsystems, "the complex of relations between the developing person and environment in an immediate setting containing that person...the factors of place, time, physical features, activity, participant, and role constitute the elements of a setting" (Bronfenbrenner, 1997, p.514).

One microsystem, the home environment, is a setting in which the individual develops. Children whose parents are not able to provide warm, stimulating, organized home environments may be on a trajectory for negative outcomes (e.g., NICHD, ECCRN, 2001). Several researchers support the argument that school is part of a microsystem which positively influences children's development by buffering children

from demographic risk (Pianta, 1999). Proximal processes such as teacher-child relationships play an important role in children's development, especially for children experiencing risk (Pianta et al., 1997). In addition, the interactions between systems, particularly school and home have been implicated in altering children's developmental trajectories (Hughes & Kwok, 2007).

Demographic Risk and Early School Problems

Numerous definitions of risk exist for children who confront challenges in achieving successful school outcomes. Definitions of risk may relate to demographic risks, which are associated with experiences prior to entering school. Maternal education is one important demographic risk variable (Peisner-Feinberg et al., 2001), which also is a proxy for socioeconomic status. The U.S. Department of Education (2000) has reported that mothers who have low levels of education are less likely to provide quality literacy experiences to their children. Consequently, these children enter kindergarten with fewer school readiness skills and these gaps are maintained as children continue through their school years (Alexander & Entwisle, 2001; Hamre & Pianta, 2001).

Family income is another demographic risk factor. Approximately 18% (i.e., 13 million) of American children live in families with cash incomes below the poverty line (U.S. Bureau of the Census, 2004). Family income is considered the strongest correlate of academic achievement (White, 1982), as children who live in poverty have been found to consistently underperform in the academic arena (McLoyd, 1998). Furthermore, children's probability of being retained or referred for special education services increases for each year they live in poverty (Sherman, 1994).

In addition to underachievement, research has revealed a higher incidence of behavioral difficulties exhibited by children living in poverty (e.g., McLoyd, Ceballo, & Mangelsdorf, 1996). Some studies reveal that poverty has a direct link to children's poor developmental outcomes, while others suggest poverty is indirectly linked to family functioning and psychological well-being. Numerous environmental risk factors coincide with being poor, such as family disharmony, violence, lead poisoning, family unemployment, high family density, and family mental health problems, which can all reduce the opportunities for quality care-giving (Brooks-Gunn, 1997; McLoyd, 1990; 1998), and ultimately, increase the potential for children's school problems.

Persistent poverty has been identified to have a stronger effect than transitory poverty on the cognitive development and school achievement of preschool children (Duncan, Brooks-Gunn, & Kelbanov, 1994). Furthermore, young children are at a higher risk of being poor due to their parents being younger and earning less income. Poverty has been shown to have the greatest effect on children's school achievement during the preschool years, which sets the precedent for underachievement for children's futures (Bronfenbrenner et al., 1979). The risk of belonging to a low-income family also continues to disproportionately affect ethnic minority children (McLoyd, 1998). Alexander and colleagues (1987) report that teachers tend to perceive poor students as less mature and possessing fewer self-regulatory skills, which leads teachers to have lower expectations for the achievement of poor children. Head Start's objective is to primarily serve children who live below the poverty line. The research on risk supports the need for empirically-based interventions that specifically target at-risk children and their families.

Resilience Framework

A resilience framework provides a means for understanding the role of early interpersonal relationships in the development of children who confront risk. Luthar, Cicchetti, and Becker (2000) describe resilience as experiencing “significant threat or severe adversity,” and “the achievement of positive adaptation despite major assaults on the developmental process” (p. 543). Low maternal education may be considered a ‘significant threat or adversity’. Children who confront adversity are susceptible to classroom difficulties in achievement and behavior (Hamre & Pianta, 2005; McLoyd, 1998). Due to these children’s exposure to high-risk environments, they have a higher probability of experiencing negative outcomes.

Despite disadvantaged home environments, however, some children experience ‘the achievement of positive adaptation. Researchers have attempted to unravel the reasons that these at-risk children avert negative outcomes. Children’s early school experiences have been implicated in mitigating children’s negative outcomes. In addition to parents, other adult figures can act as role models for at-risk children (Sroufe et al., 2000). Children experience daily interactions with their teachers, which can act as a “regulatory mechanism” for children and can influence children’s outcomes (Pianta, 1999). Some research suggests high quality teacher-child relationships may serve as a buffer for young at-risk children, leading to positive outcomes (Pianta et al., 1997). In addition, longitudinal studies provide evidence that early teacher-child relationships are predictors of academic and social outcomes in subsequent school years (Birch & Ladd, 1998; O’Connor & McCartney, 2007).

Furthermore, some research supports teachers' connections with parents as protective factors for children who are at risk. In particular, teacher-parent relationships have been associated with children's academic outcomes. These relationships have been shown to relate to teachers' expectations of children's achievement (Hughes et al., 2005) and children's levels of classroom engagement and academic achievement (Hughes & Kwok, 2007). Despite children experiencing negative risk factors, they demonstrate resilience in their achievement. There remains a need for further research on risk and resilience, particularly the associations between teacher-child and teacher-parent relationship quality and young at-risk children's social and academic outcomes.

Teacher-Child Relationships

In the past, the majority of studies investigated the relationships between children and parents and children and peers. However, in recent years, due to children spending more time with caregivers outside the home, researchers have examined other adult-child relationships, such as teacher-child relationships. This growing area of research suggests a strong relationship between teacher-child relationship quality and young children's developmental outcomes.

Davis (2003) reviewed two relevant theoretical frameworks for studying young children's relationships with teachers and their developmental outcomes. The first framework, social constructivist, was derived from Vygotsky's (1978) theory. It provides a means for understanding cognitive development, whereby cognition develops through relationships. In particular, the theory emphasizes the transactional nature of teacher and student relationships and the emergences of social and academic competence through these relationships (Leong & Bodrova, 1995).

The second theoretical framework of attachment also assists in understanding young children's relationships with teachers (Davis, 2003). Attachment theory indicates that children's secure relationships with parents promote exploration, positive emotion, and social competence. Children who are considered to be securely attached to their caregivers show the ability to establish friendships and to be popular with classmates (Verschueren, Marcoen, & Schoefs, 1996). The attachment research reveals that high-quality relationships between young children and caregivers provide internal working models of their social world (Bowlby, 1982), and these attachment relationships represent prototypes for quality relationships throughout children's lives.

Bowlby's attachment theory can be characterized as a theory of psychopathology as well as a theory of normal development. In addition to a cognitive framework of attachment, attachment may have implications in brain system development (Cicchetti & Tucker, 1994) and emotional regulation (Sroufe, 1997). Similar to children's positive environmental reactions, children's negative expectations and biases may lead to and result from environmental reactions in a self-perpetuating manner. For example, avoidant attached children may expect rejection from others as well as frequently be rejected by others, yielding a maladaptive cycle (Sroufe, 1983). Consequently, high-quality early attachment experiences may initiate pathways for children's later quality relationships, whereas, negative early attachment experiences may be associated with later pathology (Sroufe, Carlson, Levy, & Egeland, 1999).

Some children experience teacher-child relationships that are congruent with their parent-child relationships, while others have teacher-child relationships that differ in quality. For instance, O'Connor and McCartney (2006) found that children who were

insecurely attached or avoidant inattached to their caregivers showed negative teacher-child relationships in the early school years. However, Howes, Matheson, and Hamilton's (1994) findings demonstrated that early teacher-child relationships predicted children's social competence with their peers more than children's relationships with their mothers. Further research suggests that teacher-child relationships may compensate for children's insecure relationships with their mothers. Avoidant attached children who spent more hours in school demonstrated better quality relationships with their teachers than avoidant attached children who spent fewer hours in school (O'Connor & McCartney, 2006). Furthermore, teacher-child relationships have been found to be stronger predictors of achievement than insecure maternal attachments and peer relationships in third graders (O'Connor & McCartney, 2007).

Social Competence

Researchers have used the attachment theoretical framework to investigate the influence of teacher-child relationships on children's social competence (Pianta, 1999). Empirical evidence shows that children who experience supportive and less conflictual relationships with teachers are more likely to experience peer acceptance. (Birch & Ladd, 1998). For instance, Birch and Ladd (1998) conducted a longitudinal study to examine the association between children's interpersonal behaviors and teacher-child relationships. One hundred ninety-nine kindergarten children and their teachers participated in the study from public elementary schools located in the Midwest. Researchers collected data using a behavior scale to assess young children's behavior with peers at school, peer nominations of aggression through individual interviews, and a relationship scale that assessed teachers' perceptions of their relationships with their

children (closeness, dependency, and conflict). The researchers found that early antisocial behavior in kindergarteners was associated with higher levels of conflict as well as lower levels of closeness in children's kindergarten and first grade teacher-child relationships. Children who also demonstrated asocial behavior early in kindergarten were more likely to be perceived as being dependent by both their kindergarten and first grade teachers. Furthermore, conflictual teacher-child relationships in kindergarten were associated with decreases in children's pro-social behavior over time, and although not as robust, increases in peer perceptions of aggressive behavior. According to Birch and Ladd (1998), fewer opportunities for pro-social teacher-child interactions may have a negative impact on children's ability to establish and sustain positive relationships with peers, creating a relational cycle of difficulties.

Research suggests that early teacher-child relationships impact children's peer relationships, and further, these early relationships may impact children's future social development (Hamre & Pianta, 2005; Howes, 2000; Pianta & Stuhlman, 2004; Peisner-Feinberg et al., 2001). Howes (2000) examined the relative contributions of early teacher-child relationships on children's social competence. The study included a sample of 307 children with second grade data from the Cost Quality and Outcome Study. Data were collected from preschool through second grade, and observations of children's peer play, and teacher reports of children's behaviors, social competence, and teacher-child relationships were used. Findings showed that social competence with peers in second grade was predicted by preschool child-teacher relationship quality.

Pianta and Stuhlman (2004) also studied teacher-child relationships and their linkage to children's social and behavioral outcomes in first grade. Using data gathered

from 490 children and their families and teachers (a subset of the National Institute of Child Health and Human Development's Study of Early Child Care), the researchers used observations of children's social competence, teacher's ratings of children's social competence and their relationships with children, and both teachers' and mothers' ratings of children's behavioral problems. Data were collected on teacher-child relationships in preschool, kindergarten, and first grade. Findings showed that higher mothers' reports of children's level of internalizing behavior were linked to preschool and first grade teachers' reports of less closeness. Mothers' reports of their children's externalizing behavior were also associated with first grade teachers' reports of relational conflict. Teachers who reported conflictual teacher-child relationships were more likely to rate these children as exhibiting externalizing behavior problems. Conflictual relationships were associated with children's lower social competence. Whereas, teachers who reported close teacher-child relationships rated these children as having more social competence. Overall, these findings suggest children's early interpersonal relationships with teachers impact their development (Pianta & Stuhlman, 2004).

Peisner-Feinberg, Burchinal, Clifford and colleagues (2001) conducted a longitudinal study (as part of the Cost, Quality, and Child Outcomes in Child Care Centers Study) to investigate the impact of child-care quality on children's development. Children (826 in preschool Year 1; 579 in preschool Year 2; 451 in kindergarten; and 418 in second grade) and sites (401 child-care centers) were randomly selected across four states. The researchers collected four types of data: classroom observations, individual child assessments, teacher ratings of students (closeness, conflict, and dependency), and parent reports of family characteristics. The longitudinal study's

findings indicated that children who experience quality relationships with their teachers were more likely to have higher sociability, and fewer behavior problems through second grade. Teacher-child relationship quality in preschool was the strongest longitudinal predictor of children's social competence. This study indicates that children who experience positive relationships outside the home may acquire interaction styles that will determine later relationships.

Academic Competence

In addition to the effects of teacher-child relationships on social-emotional outcomes, findings have linked to the quality of teacher-child relationships to children's academic outcomes. Birch and Ladd (1997) investigated teacher-child relationships (closeness, conflict, and dependency) and associations with young children's school adjustment. Data were collected from kindergarteners ($N=206$) and their teachers ($N=16$) from public elementary schools in the Midwest. They collected information on teacher-child relationships and children's school adjustment through teacher report, child interviews, and a standardized visual and language measure. Study results indicated that children with close teacher-child relationships had higher Metropolitan Readiness Test (MRT) visual and language stanine scores than did children with less closeness. Furthermore, children who were considered less dependent also scored higher on these academic assessments than children who exhibited more dependent behavior with their teachers.

In a study by Peisner-Feinberg and colleagues' (2001), children who experienced quality relationships with their teachers were more likely to have higher receptive language skills, math skills, and cognitive/attention skills through second grade.

Burchinal, Peisner-Feinberg, Pianta, and Howes (2002) investigated the impact of teacher-child interactions on children who are considered at risk for academic problems. Data were collected during two years of preschool, kindergarten, and second grade. The study's results showed that teachers' perceptions of closeness predicted an increase in children's receptive language and reading abilities through second grade, particularly for African American children and children whose parents reported authoritarian attitudes.

In a longitudinal study, Hamre and Pianta (2001) followed 179 children in a small city school district from kindergarten through eighth grade to investigate the extent to which kindergarten teachers' ratings of their relationships with children predicted child outcomes. In the study, kindergarten teachers rated children's behavior and their relationships with students, and follow-up data included academic grades, individual child assessments, work-habit ratings, and discipline records. Results demonstrated that negative relationships in kindergarten (i.e., conflict and dependency) were associated with negative academic and behavioral outcomes through eighth grade.

In addition to examining social and behavioral outcomes, Pianta and Stuhlman (2004) studied the impact of teacher-child relationships on children's academic outcomes in first grade. The researchers used teachers' ratings of children's academic achievement and individual child assessments of vocabulary skills as measures of children's outcome. Results showed that first grade teachers rated children's achievement higher when they perceived closer relationships with them; whereas, teachers rated children as lower achieving when they perceived more conflict with them. However, the study found that teachers' reports of their relationship quality with children were not a significant predictor for children's assessed vocabulary knowledge.

Empirical evidence suggests that teacher-child relationships are important to both children's social and academic outcomes. These relationships may act as positive predictors of children's school successes (Pianta & Stuhlman, 2004). Nevertheless, research suggests that children who experience conflictual and dependent relationships with teachers (from the teacher's perspective) are more likely to be disengaged from school compared to children who experience close teacher-child relationships (Birch & Ladd, 1997; O'Connor & McCartney, 2007; Pianta & Stuhlman, 2004). Thus, children who are disengaged from the classroom setting are more likely to have difficulty in mastering social and academic expectations in the classroom.

A Protective Factor

Protective factors buffer the effects of demographic risk (Luthar et al., 2000). Studies indicate that quality child-care, and specifically, quality teacher-child relationships serve as a buffer against poverty (*e.g.*, Peisner-Feinberg et al., 2001). Peisner-Feinberg and colleagues (2001) investigated children's social-emotional and cognitive development from ages 4 to 8. The study's findings showed that high-risk children (those who had mothers with less education) were impacted more from the level of child-care quality. To expand on Peisner-Feinberg and colleagues' (2001) study, Burchinal and colleagues (2002) also examined parent reports of parenting beliefs and practices. Their findings also indicated that close relationships with teachers may act as a protective factor for children who are at risk for academic failure due to familial characteristics (Burchinal et al., 2002).

The quality of relationships between teachers and children also serve as an important indicator of classroom quality. Researchers have investigated the association

between teacher-reported relationship quality with children and early developmental outcomes in a high-risk sample of children (Pianta et al., 1997). Child participants demonstrated one or more risks (i.e., family income, family stress, maternal education, behavioral adjustment, and cognitive, language, motor development). Results indicated that the quality of teacher-child relationships in preschool were positively associated with kindergarten teacher reports of children's work habits, frustration tolerance, and overall competence.

Similarly, Pianta, La Paro, Payne, Cox, and Bradley (2002) studied 223 child participants in 223 different classrooms, along with information from their teachers and families (a subset of the NICHD Study of Early Child Care) to describe activities and teacher-child interactions in kindergarten classrooms. The goals of this project were to examine associations between demographic characteristics of families, schools, and teachers and observed classroom quality, as well as to understand the relationship between observed classroom quality and child outcomes. Data were obtained using observations in kindergarten classrooms, kindergarten teachers' ratings of children's social and academic outcomes, teacher, school, and classroom descriptive characteristics, and family demographic characteristics. The study's findings showed that there was no typical classroom. Children experience a wide range of instruction, activities, and interactions with teachers. Ratings of teachers' positive interactions with children, classroom instructional climate, and classroom child-centered climate were lower when the poverty level of students was high, children's family income was low, and the number of staff in the classroom was low. Higher levels of maternal education were associated with higher child-centered climate and positive teacher-child interactions.

Hamre and Pianta (2005), in a recent study, conducted a data analysis from the NICHD Study of Early Child Care (NICHD, ECCRN, 1993). Five and 6-year old children were defined as at-risk based on demographic characteristics and teacher reports of children's problems (i.e., behavior, attention, academics, or social skills). At the completion of first grade, the researchers found at-risk children who were placed in classrooms that provided higher instructional and emotional support, showed achievement and teacher-child relationships congruent with their low-risk peers. In contrast, at-risk children who attended lower supportive classrooms demonstrated lower achievement and higher conflictual relationships with teachers.

Emerging research suggests teacher-child relationships serve as a protective factor against the numerous risks that young children confront while experiencing poverty (e.g., Hamre & Pianta, 2005). Research evidence indicates that quality teacher-child relationships can promote positive school outcomes. This finding suggests the importance of investigating the correlates of teacher-child relationships further. With a sound understanding of these processes, researchers and school practitioners can develop educational policies and practices that facilitate quality relationships for young, at-risk children.

Correlates

As an increasing number of young children attend educational programs, researchers have begun to investigate the systems of schools, teachers, and children, and specifically, the associations with teacher-child relationships. Research findings indicate that teacher-child relationship quality can be influenced by child characteristics (e.g., Howes et al., 2000). Gender has been found to play a role in teachers' relationships with

children (Howes et al., 2000; Hughes et al., 2001; Saft & Pianta, 2001). Classroom teachers are more likely to perceive relationships with girls as close and dependent, and relationships with boys as conflictual (Birch & Ladd, 1998; Howes et al., 2000; Stuhlman & Pianta, 2001). For example, in a study of third and fourth graders, the researchers found that girls received higher teacher support and lower teacher conflict scores when compared to boys (Hughes et al., 2001). Furthermore, in Hamre and Pianta's (2001) study, kindergarten teacher-child relationships that were dependent and conflictual predicted negative academic and behavioral outcomes for boys through eighth grade.

In addition to differences in gender, research evidence has also pointed to differences in the ages of children and teacher-child relationships (Saft & Pianta, 2001). Saft and Pianta (2001) used regression analyses to examine child characteristics (i.e., age, ethnicity, and gender) of preschoolers and kindergartners (N=840) and these children's relationships with teachers. The researchers found that conflictual and dependent relationships between teachers and children were individually related to age differences as well as age by ethnicity differences. Younger Caucasian and African American children were found to show less conflict; whereas, younger Hispanic children showed more conflict. Older Caucasian and African American children were found to be more dependent; whereas, older Hispanic children were not.

The effects of teacher-child relationships on children's developmental outcomes have been found to be stronger for African American children (Hughes et al., 2005). When controlling for level of parental educational, teachers report higher relationship quality with Hispanic and White children, compared to African American children. Research findings suggest, overall, that African American children are less likely to

experience quality teacher-child relationships (Alexander, Entwistle, & Thompson, 1987; Saft & Pianta, 2001). In considering these findings, some researchers have investigated the quality of teacher-child relationships as a protective factor for African American children. Positive teacher-child relationships have been found to be stronger predictors of lower aggression levels for aggressive African American and Hispanic children in the subsequent year than for aggressive Caucasian children (Meehan et al., 2003). However, African American children who have fewer quality interactions with teachers may be negatively impacted in terms of their peer relationships, positive self-identity, and motivation. These studies suggest the need for further research to identify how early teacher-child relationships impact African American children's outcomes.

Teacher-Parent Relationships

In recent years, due to children spending more time with caregivers outside the home, researchers have investigated the level of parent involvement in children's schooling. In particular, there is a growing area of research that focuses on the relationships between teachers and parents. This area of research suggests an association between the quality of connections between teachers and parents and children's developmental outcomes.

According to Bronfenbrenner (e.g., 1979), the bioecological framework of multiple, overlapping systems affects the developmental course of individuals. In considering this perspective, children's development occurs in a variety of contexts, in which multiple relationships exist. One context is the family-school mesosystem, involving the interactive processes of families and schools. An example of interactions that occur in this system are teacher and parent interactions. Research has documented

the positive associations between teacher-parent relationships and children's developmental outcomes, especially in the early grades (Boethel, 2003; Henderson & Mapp, 2002). Parent-teacher relationship quality has been defined as the quality of the home-school connection, as measured through trust, mutuality, affiliation, support, shared values, and shared expectations and beliefs about one another and the child (Vickers & Minke, 1995).

A Protective Factor

Rimm-Kaufman, Pianta, Cox, and Bradley (2003) investigated the relationship between teachers' reports of parent school involvement and children's school outcomes in kindergarten, after accounting for socioeconomic status and early maternal sensitivity. The study included teachers' reports for 223 children on family involvement measured by two dimensions: family attitudes toward school and family activities with schools. Children's social and academic outcomes were assessed through classroom observations and teachers' reports. The researchers found that kindergarten teacher perceptions of parent attitudes towards education predicted children's classroom participation and engagement, when controlling for SES and maternal sensitivity. Thus, results indicate that teacher reports of family attitudes are a more reliable predictor of children's outcomes than teacher reports of parent involvement in school activities.

In another study, Hauser-Cram, Sirin, and Stipek (2003) studied the relationship between teachers' perceptions of low-income kindergarteners' abilities and whether teachers' education-related values were congruent with those of the children's parents. Participants included 105 kindergarteners who were recruited for a longitudinal study of low-income families. Data collection included: family and teacher demographics, teacher

ratings of children's academic competencies and education-related goals for children, teacher report of the congruence of their educational-related values with parents, individual child assessments, and classroom observations. In addition to children's academic skills predicting teachers' perceptions of children's academic competence, other variables also explained variance in teachers' perceptions. When controlling for assessed achievement and SES, teachers rated children as less competent when there were perceived value differences with parents. These findings suggest that the incongruent backgrounds of teachers and their students are associated with perceived differences in educational values, which influences teachers' perceptions of children's academic abilities.

Correlates

Several studies have demonstrated that both ethnicity and income are associated with both student academic engagement and achievement (Boethel, 2003). Positive home-school relationships appear to occur less for low-income and racial minority children than for higher income, White students (Entwisle & Alexander, 1988; Hamre & Pianta, 2001; Ladd et al., 1999). In addition, several researchers have indicated that early racial and income differences in relatedness may contribute to disparities in achievement (Pianta, Rimm-Kauffman, & Cox, 1999).

Hughes, Gleason, and Zhang (2005) investigated the relations among children's demographics, parent-teacher and student-teacher relationships, and teacher perceptions of children's academic abilities in an ethnically diverse sample (N=607) of academically at-risk first graders. Participants were recruited from one of three school districts in Texas and were eligible to participate if they scored below the median score on a state

approved literacy assessment. Data were collected through individually administered child assessments of achievement and teacher reports of perceived child achievement, teacher-student relationship (support), and teacher-parent relationship (parent involvement and parent-teacher alliance). Similar to teacher-child relationships, the study's findings revealed that teachers perceived their relationships with White and Hispanic children and parents more positively than with African American children and parents. In addition, results showed that gender was a significant predictor of teacher-parent relationships. Girls experienced higher teacher-parent relationship quality than did boys. When teachers perceived their relationships as less positive, they rated children as less academically competent. The study also noted that teacher perceptions of the quality of their relationships with parents seem to be a stronger predictor of their perceptions of children's abilities than their perceptions of actual parent involvement in school. Thus, perceived shared values between teachers and parents may lead to higher expectations in school than perception of actual parent school involvement. Using path analysis, the researchers found that both relationship variables (i.e., teacher-child and teacher-parent) fully mediated the association between being African American and teachers' perceptions of children's abilities.

Hughes and Kwok (2007) continued the previous work by examining children's background variables, early school relationships (teacher-child and teacher-parent), and changes across academic years in academic ability. The researchers included first grade, lower achieving readers (N=443) attending a school district in Texas. Data were collected through individually administered child assessments of achievement; teacher reports of perceived child achievement, teacher-student support, parent involvement,

parent-teacher alliance; and peer nominations of teacher-student support. Findings suggest that both the quality of teacher-child relationships and teacher-parent relationships mediate the associations between children's background characteristics and teacher perceptions of children's classroom engagement. Furthermore, children's classroom engagement was found to mediate associations between teacher-student and teacher-parent relationships and children's achievement in the subsequent year. African American children and parents were found to experience fewer supportive relationships with teachers than Hispanic and Caucasian children and their parents. These relationship differences may be associated with African American children's lower achievement in the early grades.

Waanders, Mendez, and Downer (2007) examined predictors of parent involvement along three dimensions: home-based involvement, school-based involvement, and parent-teacher relationships. Participants were 154 predominately African American parents that were recruited from two Head Start programs. Teacher-parent relationship data were collected with *The Connection Sort* (Waanders, 2002), a method for obtaining teacher ratings of their relationships with parents. Teachers were asked to organize parents into four categories (i.e., "strongly connected," "moderately connected," "a little connected," or "not connected") based on their level of connection with parents. The study's results showed that teachers' perceptions of their relationships with parents were associated with parents' reports of their school-based involvement. Furthermore, parents' attendance at one of the center's events was associated with teacher perceptions of their relationship with parents. In examining predictors of quality teacher-parent relationships, parents who indicated experiencing higher levels of economic stress

and neighborhood social disorder were perceived as having lower levels of connection with their children's teachers.

According to Boethel (2003), teachers and minority, low-SES parents experience fewer positive relationships. The extent and type of involvement of these parents differs from their Caucasian and higher SES counterparts. Research indicates that school staff attributes ethnic minority parents' lack of school involvement to uncooperativeness and apathy towards their children's education (Lopez, 2001). These attributions may have a negative influence on the quality and frequency of teachers' interactions with minority parents. According to Ogbu (1993), parents' beliefs about appropriate caregiving practices and interactions with schools differ depending on social class and ethnic identity. A mismatch of beliefs between teachers and parents may predict fewer quality home-school connections and lower school-based involvement, which may negatively influence the children's school outcomes.

Conclusion

Children who experience demographic risk factors may experience poor developmental outcomes (Hamre & Pianta, 2005). There is a growing need for researchers to investigate protective factors that provide a buffer for at-risk children. Studies suggest that positive teacher-child relationships are important to children's development of emotion regulation, social competence (e.g., Howes, 2000) and achievement (e.g., O'Connor & McCartney, 2007). Some research indicates that these relationships are not only important for development, but may help young children who are exposed to negative life circumstances experience positive outcomes (e.g., Hamre & Pianta, 2005). In addition to teacher-child relationships, evidence supports the role of

teacher-parent relationships in children's development. Connections between teachers and parents have been found to predict teachers' expectations of children's achievement, children's classroom engagement, and academic achievement (Hughes et al., 2005; Hughes & Kwok, 2007).

Given that high-quality teacher-child and teacher-parent relationships have been found to support children's development, it is important to better understand the specific correlates that may relate to these associations. Research suggests that demographic risk and child characteristics are associated with teacher-child relationships (e.g., Saft & Pianta, 2001) and teacher-parent relationships (e.g., Hughes et al., 2005). It is important to determine what factors are most predictive of quality relationships to enhance children's experiences. There is recognition in the field of early childhood education that quality classroom experiences and home-school connections matter for children; however, there is still a lack of information on how to improve interactions between students and teachers and parents and teachers. Progress has also been made in recent years in examining how teacher's relationships with children and parents impact children's development. However, progress is still needed in understanding these influences. This knowledge could be instrumental in the design and implementation of prevention and intervention programs aimed at improving teacher-child and teacher-parent relationships, thereby fostering children's academic and social outcomes.

CHAPTER 3

METHODS

Design

This study employed a multi-method approach to data collection. Researchers have cited a need for studies to examine the determinants, correlates, and consequences of teacher-child relationships (*e.g.*, Pianta, 1999). Thus, data were gathered on child characteristics that might be correlated with the predictors, teacher-child and teacher-parent relationship quality and interactions. In addition to child characteristics, this study aimed to further the research on children's demographic risk through the collection of data on level of maternal education, a proxy for socioeconomic status, and teacher reports of their relationships with both children and parents. This study's cross-sectional design does not reveal the causal effects of demographic risk and the quality of teacher-child and teacher-parent relationships on children's school outcomes. However, longitudinal studies suggest that maternal education, teacher-child relationship quality (Howes, 2000; Peisner Feinberg et al., 2001), and teacher-parent relationship quality (Hughes and Kwok, 2007) act as predictors of children's outcomes.

Participants

Participants were recruited for a Head Start Quality Research Center (HSQRC) intervention study on parent involvement. The sample included 805 children, their parents, and the children's lead teachers in 38 classrooms across six Head Start centers in the southeastern and northeastern United States. Children ranged in age from 34 to 62 months ($M = 47.95$, $SD = 7.11$). The proportion of males ($N=360$) to females ($N=369$) was comparable. The sample was relatively racially and ethnically homogeneous, with

the majority of parents identifying children as African American (81%), while 10% of parents identifying children as another ethnicity (Multi-Racial, Hispanic, White, Asian, Other, respectively) and 9% of parents not identifying ethnicity. A small sub-sample of parents identified children diagnosed with a disability by a professional (N=59) or speaking a language other than English in the home (N=44). In the main study, data collection occurred for more than one year at the same centers. Thus, some children had two years of data collected on them. This study only included the first year of data for these children (N=61) to ensure children are not duplicated and to attempt to standardize the timeframe of children's relationships and parent's relationships with teachers. The study participants were from families who were living at or below the poverty line, a requisite for enrollment in Head Start. The most common level of education was High School Diploma/GED (41%) followed by Some College/Associates Degree/Vocational Technical Diploma (33%), Some High School (17%), Bachelors Degree (7%), Some Graduate or Professional School/Graduate Degree (1%), and Less than an eighth grade, or eighth grade (1%).

Head Start lead teachers participated in the study. The teachers were predominately female and African American. They met the educational and teaching standards for Head Start. The majority of teachers reported having at least five years of early child teaching experience, with more than half of these teachers reporting ten years of experience. The majority of teachers reported having Some College/Associates Degree followed by High School Diploma/GED and Bachelors Degree, respectively.

Procedures

The study used a cross-sectional design and data were collected from the main study, the Head Start Quality Research Center (HSQRC) intervention study on parent involvement. The data that were included in this study were collected over four years, in the spring of each year, and on new children each year of the study. The first three years of the study occurred at Head Start Centers in the southeastern U.S., while the fourth year was held at Head Start Centers in the northeastern U.S. University researchers in both locales were trained to: 1) administer questionnaires to primary caregivers and teachers; 2) conduct individual child assessments; and 3) enter data. IRB consent was obtained for the main study. The university researchers met with the Centers' directors and teachers at each of the Head Start Centers to recruit study participants. The purpose and scope of the study was discussed. Teachers were informed that they would receive monetary compensation for completing questionnaires and the main study's findings would be shared with the Centers. Parents received an invitation to participate in an in-person or telephone interview to collect demographic and parent report information. The majority of parents completed interviews with a trained university researcher via the telephone.

Teacher reports, parent interviews, and child assessments were administered in the fall and spring of each year. This study used data from the spring data collection to allow for ample time for teachers to develop relationships with their students. Lead teachers who consented were visited and asked to complete a background questionnaire. They also completed the *Student Teacher Relationship Scale* (Pianta & Nimez, 1991), *Penn Interactive Peer Play Scale* (Fantuzzo, Coolahan, Mendez, McDermott, & Sutton-

Smith, 1998), and *The Connection Sort* (Waanders, 2002) for each student in the classroom.

If a parent consented to participate in the study, demographic information was collected as part of a one-hour interview. Parents were compensated for their time with gift cards. Children were administered individual child assessments for approximately 25 to 35 minutes, including the *Peabody Picture Vocabulary Test Version III (PPVT-III)*; Dunn & Dunn, 1997) and the *Letter Naming Task* (FACES, 2001).

Variables and Measures

Six sets of variables were examined in this study: 1) Young children's social competence; 2) Young children's academic competence; 3) Teacher-child relationships; 4) Teacher-parent relationships; 5) Level of maternal education; and 6) Child characteristics (See Table 3-1). Data on these variables were collected on new children each year of the study. All of the study's measures have been previously used with similar populations.

Table 3-1. Variables Examined in the Study

| Independent | Dependent |
|---|--|
| Maternal Education Closeness Dependency Conflict Teacher-Parent Relationships | Play Disruption Play Interaction Play Disconnection Receptive Language Letter Naming |

Children's Social Competence

The *Penn Interactive Peer Play Scale (PIPPS)* is a 32-item teacher rating scale of preschool children's interactive peer play. Teachers completed a scale that indicated how frequently they have observed various peer interactive play behaviors in a specific child. Reliability and validity of the teacher form (Fantuzzo et al., 1998) showed three reliable factors: play interaction, play disruption, and play disconnection (Cronbach's *alpha* — .90, .91, and .87, respectively). The play interaction factor is comprised of items that describe pro-social behaviors (e.g., comforting and helping other children, encouraging others to join play, and helping settle peer conflicts). In contrast, the play disruption dimension consists of item descriptions of negative behavior (e.g., starting fights and arguments, not taking turns, destroying others' things, and disrupting the play of others). Play disconnection items described behaviors such as hovering outside the play group, wandering aimlessly during play times, and refusing to play when invited. Concurrent validity for the scale was established using similar indicators of social competence: the Social Skills Rating System (SSRS; Gresham & Elliot, 1990), peer sociometrics, and direct play observation data (Fantuzzo et al., 1998).

Children's Academic Competence

The *Peabody Picture Vocabulary Test, Version III (PPVT-III)*; Dunn & Dunn, 1997) provides a measure of receptive language comprehension. The instrument is designed for use with participants 2.6 years through adulthood, and the format is designed to be developmentally appropriate for young children. The measure requires children to select the pictures that correspond with the words spoken by the evaluator. PPVT-III standard scores are derived from a national standardized sample and are based

on the child's age. Standard scores have a mean of 100 and a standard deviation of 15. The PPVT-III has acceptable split-half and test-retest reliability, is correlated with other vocabulary measures, and is a moderate predictor of school achievement.

The *Letter Naming Task* (FACES, 2001) was developed for use in the Head Start Quality Research Centers curricular intervention studies. Children are exposed to 26 upper-case letters of the alphabet, arranged in order of item difficulty and divided into three groups of 8, 9, and 9 letters. Children are required to identify the letters that they know by name. The test provides information on the number of letters children can reliably identify. Children's awareness and knowledge of letters is an important school readiness skill, a prerequisite for learning how to read.

Demographic Risk

Maternal education was used as a measure of demographic risk in this study. Maternal education, one of the most important demographic risk variables, is associated with experiences prior to entering school and is considered a proxy of socioeconomic status (Peisner-Feinberg et al., 2001). Mothers who have low levels of education have been found to be less likely to provide quality literacy experiences to their children (U.S. Department of Education, 2000). Maternal education was measured on a scale of one through nine, with one being less than eighth grade or an eighth grade education and nine being doctorate or professional degree. Although family income has been found to be the highest single correlate of academic achievement (White, 1982), this variable was not included in the study. However, the majority of study participants are considered to fall in the low income bracket due to Head Start requirements for enrollment.

Teacher-Child Relationships

Preschool children's relational functioning with teachers was assessed with the *Student-Teacher Relationship Scale* (STRS, Pianta, 2001), a 30-item rating scale, designed to assess teachers' perceptions of their relationship with students. Teachers complete a 5-point Likert-type scale that ranges from 1=definitely does not apply to 5=definitely applies, rating how applicable each statement is to their relationship with a child. Three features of the relationship were studied: closeness, conflict, and dependency. The Closeness subscale measures the amount of affection, warmth, and open communication that are present in the relationship (e.g., "I share an affectionate, warm relationship with this child"). The Conflict subscale measures the negative interactions between the teacher and child (e.g., "This child and I always seem to be struggling with each other"). The Dependency subscale measures the degree that the teacher perceives the child to be overall dependent (e.g., "This child reacts strongly to separation from me"). The STRS is scored by calculating the sum of groups of items for each of the subscales, and using a formula to derive the total score. Test-retest reliabilities are reported as: Closeness, .88; Conflict, .92; Dependency, .76; and Total, .89 and internal consistencies are reported as: Closeness, .86; Conflict, .92; Dependency, .64; and Total, .89 (Pianta, 2001). The scale has been found to be psychometrically reliable and valid in heterogeneous samples (e.g., Howes et al., 2000). Furthermore, this scale has been used in numerous studies of pre-school age and elementary-age children, is associated with children's and teachers' classroom behaviors, and correlates with observational measures of quality teacher-child relationships (e.g., Birch & Ladd, 1997; 1998; Hamre & Pianta, 2001).

Teacher-Parent Relationships

The Connection Sort (Waanders, 2002), a method for assessing teachers' relationships with parents, was used. Teachers were asked to organize children's parents into four piles (i.e., "strongly connected," "moderately connected," "somewhat connected," or "not connected") based on their levels of connection. In terms of administration, children's names were written on individual cards. Classroom teachers organized their children into four piles based on their sense of connection with each child's caregiver. Teachers were given definitions for the four categories and examples. They were asked to consider parents' involvement and interactions with them. For instance, "strongly connected" parents have contact with the teacher "once a week or more," and the teachers know them "quite well." After completing the initial sort, teachers were provided another opportunity to review their piles and move parents to a more suitable pile or category. Parents were then allocated a score of one through four, based on the teacher's rating. This type of sorting technique provides teachers a visual prompt of the levels of parent involvement. Previous research with a sample 154 African American Head Start caregivers (Waanders et al., 2007) found *The Connection Sort* was positively associated with parents' reports of their school-based involvement and attendance at school events.

Teacher Characteristics

The lead teacher in each classroom was asked to report demographic information, professional experience, educational background, and training. Descriptive information is included in the study.

Child Characteristics

Parents reported on the following child-specific information that was included in the study: child's gender and age. Although the variable of child ethnicity is not included in this study, participants were predominantly African American. Where N is sufficient, Language Spoken in Home and Diagnosed with a Disability were included in the analysis.

CHAPTER 4

RESULTS

Descriptive Analyses

This section describes the data analytic approach that was used in this study to examine the relations among maternal education, teacher-child and teacher-parent relationships, and children's social and academic outcomes, and further, to investigate the associations between child characteristics and the quality of teacher-child and teacher-parent relationships. First, the data were cleaned and examined for outliers. The three subscales of the STRS, closeness, conflict, and dependency, were used in lieu of the total score to address multicollinearity. Second, variables were evaluated for multivariate normality through histograms and frequencies, and means and standard deviations. Third, missing data were imputed using NORM software for multiple imputation. Fourth, to answer the research question whether child characteristics are associated with teacher-child and teacher-parent relationship quality, bivariate correlations between all variables were run, and differences in teacher-child and teacher-parent relationships, based on child characteristics (i.e., gender, age, language spoken in home, diagnosed with a disability) were examined using one-way analyses of variance. Fifth, a series of hierarchical linear regressions were conducted to assess the relations among the variables. Sixth, Moderated Multiple Regression (MMR) analyses were run to assess whether teacher-child and teacher-parent relationships moderate the impact of low maternal education on children's social and academic outcomes.

The data were entered into Microsoft Excel by graduate researchers. Data were initially cleaned in Excel. Subsequently, data were loaded into SPSS. Frequencies,

means, standard deviations, ranges, and box-plots were examined to ensure data were entered correctly and fell in the ranges of possibility. Mild data outliers were found for each variable. Since the five percent trimmed means did not significantly change the means of the variables, data outliers were included in all further analyses.

The Kolmogorov-Smirnov test (K-S) and Shapiro-Wilk (S-W) test were conducted to test normality by comparing the study's data to a normal distribution with the same mean and standard deviation. Both tests indicated that the data are non-normal. Nevertheless, one limitation of the normality tests is the larger the sample size, the more likely the tests will yield significant results. Thus, the significance of the K-S and S-W tests may indicate slight deviations from normality due to the study's large sample size. Consequently, histograms and Q-Q plots were used to determine the normality of the data. All variables showed non-normal distributions. The variables that showed the most significant non-normal distributions were maternal education and letter naming. To address non-normality of maternal education, Vocational/Technical Diploma and Some College/Associates Degree levels of maternal education were combined, as were Some Graduate or Professional School and Graduate Degree. Visual binning was used to transform the letter naming variable into a more normal distribution.

All independent variables were investigated for multicollinearity (i.e., independent variables are highly correlated with other independent variables). Multicollinearity occurs when intercorrelations among independent variables are greater than .80, the tolerance values are less than .10, and the VIF values are greater than 4.0. In this study, the independent variables were correlated less than .80, showed tolerance

greater than .10, and VIF values less than 4.0. Thus, the study's independent variables met the acceptable criteria for further analysis.

Six sets of variables were examined in this study: 1) Young children's social outcomes; 2) Young children's academic outcomes; 3) Teacher-child relationships; 4) Teacher-parent relationships; 5) Maternal education; and 6) Child characteristics. Means, standard deviations, and frequency tables were computed for each variable and subscale (see Table 4-1). In addition, the study's independent variables were examined based on year, center, and classroom to determine whether between-group differences existed.

Table 4-1. Descriptive Analysis of Variables Examined in Study

| Variables | <i>M/Mdn</i> | <i>SD</i> |
|---|--------------|-----------|
| <i>Student Teacher Relationship Scale (N=720)</i> | | |
| Closeness | 43.61 | 7.67 |
| Conflict | 20.98 | 9.33 |
| Dependency | 11.24 | 3.97 |
| Maternal Education (N=660) | 3 | -- |
| <i>The Connection Sort (N=564)</i> | 3 | -- |
| <i>Penn Interactive Peer Play Scale (N=715)</i> | | |
| Play Interaction | 49.21 | 10.31 |

Table 4-1. (continued)

| Variables | <i>M/Mdn</i> | <i>SD</i> |
|--|--------------|-----------|
| Play Disruption | 48.23 | 13.07 |
| Play Disconnection | 45.03 | 13.38 |
| <i>Peabody Picture Vocabulary Test</i> (N=613) | 84.08 | 13.45 |
| <i>Letter Naming Task</i> (N=629) | 25.26 | 20.01 |

Children's Social Competence

Children's subscale scores on the Penn Interactive Peer Play Scale (PIPPS; Fantuzzo et al., 1995) ranged from low to high in peer play behaviors. Play interaction subscale scores ranged from 1 to 73 ($M=49.21$, $SD=10.31$). An even wider range of scores was found for children's negative peer play; play disruption ranged from 1 to 76 ($M=48.23$; $SD=13.07$), and play disconnection ranged from 1 to 74 ($M=45.03$; $SD=13.38$).

Children's Academic Competence

In this study, children's receptive language (PPVT-III; Dunn & Dunn, 1997) ranged from low to high, 40 to 127 ($M=84.08$; $SD=13.45$). In this study, the receptive language's mean was slightly more than one standard deviation below the normative

sample ($M=100$, $SD=15$). This finding suggests that the study's sample demonstrated lower receptive language than the normative sample. Letter naming (Letter Naming Task; FACES, 2001) ranged from 0 to 52 ($M=25.26$; $SD=20.01$) identified letters.

Although children's scores were skewed slightly positive, almost as many children knew no letters (9%) as children who knew all 52 letters (10%). In the 1998 legislation, the U.S. Congress mandated that Head Start ensure that each child identifies "at least 10 letters of the alphabet." More than half of the children in this study (66%) identified 10 or more letters.

Teacher-Child Relationships

Descriptive analysis showed that teachers' ratings of their relationships (STRS; Pianta 2001) showed variability within classrooms. The STRS scores ranged from low to high for each subscale; the Closeness subscale scores ranged from 19 to 55 ($M=43.61$; $SD=7.68$) out of a possible range from 11 to 55, the Dependency subscales scores ranged from 5 to 25 ($M=11.24$; $SD=3.97$) out of a possible range from 5 to 25, and the Conflict subscale scores ranged from 12 to 58 ($M=20.98$; $SD=9.33$) out of a possible range from 12 to 60. The means and standard deviations of the STRS subscales, Closeness and Dependency, were congruent with the normative sample. The STRS manual indicated that the teachers in the normative sample were more likely to rate their relationships with children positively. In this study, the mean of the Conflict subscale suggests that teachers tended to view their relationships with children even more positively than the normative sample. In the STRS manual, it is recommended that children with Conflict scores above the 75th percentile require teacher support. This study's teachers reported conflictual relationships over the 75th percentile for approximately 15% of children.

Furthermore, teachers rated 24% of children at or below the 25th percentile in experiencing close teacher-child relationships.

One-way analysis of variance was performed to examine between-group differences on the three subscales of the STRS (Pianta, 2001) and the level of connection between teachers and parents (The Connection Sort; Waanders, 2002) based on year of the intervention, center, and classroom. Among teacher-child relationship ratings, there were significant differences between group means, based on the year of the intervention ($p < .05$), center, ($p < .01$) and classroom ($p < .01$). Bonferroni comparisons were conducted to examine specific between-group differences. Mean differences indicated that teachers rated their relationships with children as more negative and less positive during the first year of data collection compared to future years. One large center was rated as having the lowest mean teacher-child conflict and the highest mean teacher-child closeness. This same center participated in a parent involvement intervention during the time period of the data collection. Another large center that was rated as having the highest teacher-child dependency was known to not operate to the same level of quality as some of the other centers. There were also significant mean teacher-child relationship quality differences among classrooms in the study.

Teacher-Parent Relationships

Teachers were more likely to report moderately to strong connections with parents ($Mdn=3$) with scores ranging from 1 to 4. Forty-three percent of teachers reported that they felt “Strongly Connected” with parents, whereas only 5% of teachers felt “Not Connected.” In terms of differences across years, centers, and classrooms, significant mean differences were found based on year ($F(3, 801) = 3.38, p = .02$), center

($F(5, 799) = 2.98, p = .01$), and classroom ($F(32, 772) = 3.90, p = .000$). The smallest center had the second highest mean teacher-parent relationship quality. Both the highest mean quality teacher-parent relationships and the lowest mean teacher-parent relationships came from large centers. However, the center with the highest quality teacher-parent relationships participated in a parent involvement intervention during the data collection time period. In contrast, the center that was reported to have the lowest quality teacher-parent relationships was observed to not meet the same level of quality standards as some of the other centers. Furthermore, teacher-parent relationships also differed based on classrooms.

Maternal Education

Level of maternal education ranged from 1 to 6 ($Mdn=3$). One represented mothers who earned at or below an eighth grade education and six represented mothers who earned Some Graduate/Professional School/Graduate Degree. The greatest number of mothers earned a High School Diploma or GED (41%), followed by a Vocational/Technical diploma/Some College/Associates (33%). Only 8% of mothers earned a Bachelor's degree or beyond. Descriptive analysis showed significant between-group differences for maternal education based on center ($F(5, 799) = 3.94, p = .002$). The smallest center had the lowest means for maternal education, a center that was situated in the most rural area, whereas the remaining centers were equivalent in their means for maternal education.

Child Characteristics

As reported in Chapter 3, children ranged in age from 34 to 62 months ($M = 47.95, SD = 7.11$). The proportion of males ($N=360$) to females ($N=369$) was

comparable. No significant differences in gender and age existed based on center and classroom. The sample was relatively racially and ethnically homogeneous, with the majority of parents identifying children as African American (81%), 10% of parents identifying children as another ethnicity (Multi-Racial, Hispanic, White, Asian, Other, respectively), and 9% of parents not identifying ethnicity. A small sub-sample of parents identified children diagnosed with a disability by a professional (N=59) or speaking a language other than English in the home (N=44).

Missing Data

Frequency tables were tabulated to examine missing values. Due to a large number of missing values, a chi-square was performed to compare the two groups of missing and non-missing data as a function of ethnicity, gender, age, year of intervention, center, and classroom. Listwise deletion was used to define the two groups, complete data and missing data. The two groups were dummy coded 0 and 1, respectively. The variables: ethnicity, center, classroom, and year were significant ($p < .05$). Missing Data may be attributed to random and non-random attributes. Parents may not have completed or returned surveys and children may have missed child assessments due to absence. The missing values analysis also suggested that participants, who had missing data, were more likely to be identified as African American. However, the majority of the study's sample with and without missing data identified as African American.

To avoid the study's sample losing power, multiple imputation was performed to address the missing data in the study. The multiple imputation approach in NORM (Schafer, 1997) uses the Expected Maximation (EM) algorithm and the Markov Chain Monte Carlo (MCMC) method of creating a small number of independent draws of the

missing data from a predictive distribution. The imputation phase generates a specified number of data sets containing different estimates of the missing values. Data augmentation imputes data sets using a two-step process. Estimates of the means and the covariances create a series of regression equations that predict the incomplete variables from the complete variables. The regressions generate predicted scores for the missing values, and furthermore, a normally distributed residual term is added to each predicted value to show variability in the data. The predicted values are then used to generate new estimates of the means and covariances. This process iterates until the model fits to the data (Baraldi & Enders, 2010).

Bivariate Correlations

Correlations were conducted to examine relations among the following variables:

1) Maternal education and young children's social outcomes; 2) Maternal education and young children's academic outcomes; 3) Teacher-child relationships and young children's social outcomes; 4) Teacher-child relationships and young children's academic outcomes; 5) Teacher-parent relationships and young children's social outcomes; and 6) Teacher-parent relationships and young children's academic outcomes. Pearson product-moment correlations were performed to examine the relations among all continuous variables (see Table 4-2 and Table 4-3).

Table 4-2. Bivariate Correlations Between Maternal Education, Teacher-Child Relationships, Teacher-Parent Relationships, and Children's Social Competence

| | Matern Educat ^p | Close ^t | Conflict ^t | Depend ^t | Teacher- Parent Relatio ^q | Play Interact ^t | Play Disconn ^t | Play Disrupt ^t |
|--------------------------------|-------------------------------|--------------------|-----------------------|---------------------|--|-------------------------------|------------------------------|------------------------------|
| Maternal Education | ---- | .02 | .07 | -.01 | .10** | .04 | -.02 | .02 |
| Closeness | | ---- | -.27** | .28** | .05 | .51** | -.27** | -.19** |
| Conflict | | | ---- | .42** | -.05 | -.41** | .45** | .62** |
| Dependency | | | | ---- | .01 | -.04 | .22** | .26** |
| Teacher- Parent Relation | | | | | ---- | .09** | -.11** | -.06 |
| Play Interaction | | | | | | ---- | -.46** | -.38** |
| Play Disconnect | | | | | | | ---- | .55** |
| Play Disruption | | | | | | | | ---- |

^pParent Report Measure. ^tTeacher Report Measure. ^qQ-Sort Measure.

** $p \leq .01$

Table 4-3. Bivariate Correlations Between Maternal Education, Teacher-Child Relationships, Teacher-Parent Relationships, and Children's Academic Competence

| | Matern Educat ^p | Close ^t | Conflict ^t | Depend ^t | Teacher- Parent Relation ^q | PPVT ^a | Letter Naming ^a |
|----------------------------|-------------------------------|--------------------|-----------------------|---------------------|---|-------------------|-------------------------------|
| Maternal Education | ---- | .02 | .07 | -.01 | .10** | .12** | .08* |
| Closeness | | ---- | -.27** | .28** | .05 | .18** | .11** |
| Conflict | | | ---- | .42** | -.05 | -.11** | -.11** |
| Dependency | | | | ---- | .01 | .04 | .01 |
| Teacher-Parent Relation | | | | | ---- | .11** | .19** |
| PPVT | | | | | | ---- | .36** |
| Letter Naming | | | | | | | ---- |

^pParent Report Measure. ^tTeacher Report Measure. ^qQ-Sort Measure. ^aChild Assessment

* $p \leq .05$, ** $p \leq .01$

Maternal Education and Children's Social Competence

Results found no significant associations between maternal education and children's social competence (see Table 4-2). Maternal education was not found to be correlated with teachers' reports of positive, disruptive, and disconnected peer play.

Maternal Education and Children's Academic Competence

Overall, there were significant associations between maternal education and children's academic competence (see Table 4-3), with a slightly stronger relationship with receptive language than letter naming. Maternal education was positively correlated with scores for receptive language ($r = .12, p < .01$) and letter naming ($r = .08, p = .05$).

Teacher-Child Relationships and Children's Social Competence

Overall, teacher reports of teacher-child relationship quality were significantly correlated with children's social competence (see Table 4-2). Teacher-reported closeness was highly positively correlated with teacher reports of pro-social peer play ($r = .51, p < .01$). In contrast, teacher reported closeness was negatively correlated with teacher reports of children's disconnected ($r = -.27, p < .01$) and disruptive peer play ($r = -.19, p < .01$). Teacher-reported dependency was positively correlated with disconnected ($r = .22, p < .01$) and disruptive ($r = .26, p < .01$) peer play. Teacher-reported dependency was not significantly associated with children's pro-social peer play. Furthermore, teacher-reported conflict was found to be highly correlated with children's disconnected ($r = .45, p < .01$) and disruptive ($r = .62, p < .01$) peer play as well as highly negatively correlated with positive peer play ($r = -.41, p < .01$).

Teacher-Child Relationships and Children's Academic Competence

While the correlations between teacher-child relationships and academic outcomes were not as robust as teacher-child relationships and social outcomes, they still were found to be associated with children's academic achievement (see Table 4-3). Teacher-reported closeness was positively correlated with children's receptive language scores ($r = .18, p < .01$) and letter naming scores ($r = .11, p < .01$). Teacher-reported dependency was not correlated with children's receptive language or letter naming ability. However, teacher-reported conflict was negatively correlated with children's receptive language ($r = -.11, p < .01$) and letter naming ($r = -.11, p < .01$).

Teacher-Parent Relationships and Children's Social Competence

Teacher-reported relationship quality with children's parents was also moderately correlated with children's social competence (see Table 4-2). Teacher-parent relationship quality was positively correlated with children's pro-social peer play ($r = .09, p < .01$) and negatively correlated with disconnected peer play ($r = -.11, p < .01$). Teacher-parent relationship quality was not associated with children's disrupted peer play.

Teacher-Parent Relationships and Children's Academic Competence

Overall, teacher-parent relationships were moderately associated with children's pre-literacy scores (see Table 4-3). Teacher-reported relationship quality was positively correlated with children's receptive language ($r = .11, p < .01$) and letter naming ($r = .19, p < .01$).

Analysis of Covariates

To attempt to answer the research question whether child characteristics are associated with teacher-child and teacher-parent relationship quality, bivariate

correlations and one-way analyses of variance were conducted to examine both the associations and differences among the independent and dependent variables, based on child gender and age. Furthermore, a secondary analysis was conducted, using one-way analyses of variance, to examine the differences among the variables, based on the child characteristics of language spoken in the home and child diagnosed with a disability.

Variable differences, based on child ethnicity, were not examined because the majority of child participants were identified as African American. Pearson product-moment correlations were performed to examine the relations among all continuous variables and point-biserial correlations were calculated to examine the relations between child gender and all variables (see Table 4-4 and 4-5).

Table 4-4. Intercorrelations Between Child Characteristics, Maternal Education, Teacher-Child Relationships, and Teacher-Parent Relationships

| | Child Gender ^p | Child Age ^p | Matern Educat ^p | Close ^t | Conflict ^t | Depend ^t | Teacher-Parent Relation ^q |
|-------------------------|---------------------------|------------------------|----------------------------|--------------------|-----------------------|---------------------|--------------------------------------|
| Child Gender | ---- | -.04 | .05 | .10** | -.18** | -.03 | -.03 |
| Child Age | | ---- | -.06 | .07 | -.03 | .01 | .08* |
| Maternal Education | | | ---- | .02 | .07 | .01 | .10** |
| Closeness | | | | ---- | -.27** | .28** | .05 |
| Conflict | | | | | ---- | .42** | -.05 |
| Dependency | | | | | | ---- | .01 |
| Teacher-Parent Relation | | | | | | | ---- |

^pParent Report Measure. ^tTeacher Report Measure. ^qQ-Sort Measure.

* $p \leq .05$, ** $p \leq .01$

Table 4-5. Intercorrelations Between Child Characteristics and Social and Academic Competence

| | Child Gender ^p | Child Age ^p | Play Interact ^t | Play Disconn ^t | Play Disrupt ^t | PPVT ^a | Letter Naming ^a |
|--------------------|---------------------------|------------------------|----------------------------|---------------------------|---------------------------|-------------------|----------------------------|
| Child Gender | ---- | -.04 | .21** | -.12** | -.19** | .06 | .10** |
| Child Age | | ---- | .19** | -.16** | -.01 | .13** | .43** |
| Play Interaction | | | ---- | -.46** | -.38** | .31** | .25** |
| Play Disconnection | | | | ---- | .55** | -.14** | -.16** |
| Play Disruption | | | | | ---- | -.11** | -.12** |
| PPVT | | | | | | ---- | .36** |
| Letter Naming | | | | | | | ---- |

^pParent Report Measure. ^tTeacher Report Measure. ^aChild Assessment

** $p \leq .01$

Child Characteristics and Teacher-Child Relationships

Child gender was moderately associated with teacher-child relationships (see Table 4-4). Dummy codes were used to allow for analysis of gender differences among the variables (Male=1, Female=2). Child gender was positively correlated with teacher-reported closeness ($r = .10, p < .01$) and negatively correlated with teacher reported conflict ($r = -.18, p < .01$). However, child gender was not correlated with teacher reports of children's dependency, and further, child age was not correlated with any of the three subscales of teacher-child relationship quality.

To investigate these covariates further, one-way analyses of variance were performed to determine if there were group membership differences in teacher-child relationship quality, based on child gender and age. There were significant differences in teacher-reported closeness ($F(1, 803) = 9.42, p = .002$) and conflict ($F(1, 803) = 21.67, p = .000$), based on gender. Teachers reported closer relationships with girls ($M = 44.37, SD = 7.23$) than boys ($M = 42.73, SD = 7.94$) and more conflictual relationships with boys ($M = 22.43, SD = 9.72$) than girls ($M = 19.46, SD = 8.37$). Dependent teacher-child relationships did not significantly differ based on gender.

In addition to gender and age, language spoken in the home and child diagnosed with a disability were examined. No between-group differences were found in terms of teacher-child relationships. However, sample sizes for both language spoken at home and child diagnosed with a disability were significantly smaller than the overall sample and unequal across language status and diagnosis, with most children speaking English and holding no diagnosis.

Child Characteristics and Teacher-Parent Relationships

Child age was positively correlated with teacher-parent relationships ($r = .08, p < .05$), indicating that teachers reported closer relationships to parents with older children compared to parents with younger children (see Table 4-4). Gender was not significantly correlated with teacher-parent relationships. Furthermore, there were no between-group differences based on gender.

Language spoken in the home and child diagnosed with a disability were also examined. Similarly to teacher-child relationships, there were no between-group differences found for teacher-parent relationships based on language and disability status.

Child Characteristics and Children's Social and Academic Competence

Prior to performing the regression analysis to test more complex relations, a series of analyses were conducted to investigate covariates further (see Table 4-5). Results showed that social outcomes also differed significantly based on gender. There were significant mean gender differences among play interaction ($F(1, 803) = 33.57, p = .000$), play disruption ($F(1, 803) = 23.67, p = .000$), and play disconnection ($F(1, 803) = 13.82, p = .000$). Teachers reported more pro-social peer play in girls ($M = 51.27, SD = 9.84$) than boys ($M = 47.16, SD = 10.26$). Furthermore, they indicated that boys demonstrated more negative peer play (play disruption: $M = 50.30, SD = 13.56$; play disconnection: $M = 46.72, SD = 12.44$) than girls (play disruption: $M = 45.90, SD = 12.12$; play disconnection: $M = 43.30, SD = 13.63$). Mean-group differences were also found between girls and boys ($F(1, 803) = 8.61, p = .003$) for letter naming. Girls knew more letters ($M = 4.30, SD = 1.74$) than boys ($M = 3.94, SD = 1.70$).

Child age was positively correlated with children's positive peer play ($r = .19, p < .01$), letter naming ($r = .43, p < .01$), and receptive language scores ($r = .13, p < .01$). Thus, teachers reported that older children, as compared to younger children, demonstrated more pro-social peer play behavior, letters, and receptive language. Child age was negatively correlated with disconnected peer play ($r = -.16, p < .01$), suggesting older children showed less disconnected peer play compared to younger children. Child age was not significantly correlated with disruptive peer play.

Children's social and academic outcomes were examined based on child diagnosis with a disability. Mean-group differences were found for pro-social peer play ($F(1, 289) = 6.04, p < .05$), disruptive peer play ($F(1, 289) = 4.40, p < .05$), and letter naming ($F(1, 289) = 4.79, p < .05$). Children diagnosed with a disability were more likely to have fewer positive peer play interactions and more disruptive peer play interactions. Furthermore, they identified fewer letters than children who were not diagnosed. Disconnected peer play and receptive language were not found to have significant group differences based on disability status. Furthermore, language spoken at home did not significantly differentiate children's social or their academic outcomes.

Multivariate Analyses

A series of hierarchical linear regressions were performed to evaluate the effects of child characteristics, maternal education, teacher-child relationship quality, and teacher-parent relationship quality on children's social and academic outcomes. The regression analyses were conducted to assess the amount of variance that each independent variable accounted for among the dependent variables. In addition, the effect sizes (f^2) were calculated to determine the practical significance of the findings.

According to Aiken and West (1991) and Aguinis (2004), the f^2 is recommended for determining effect sizes. Cohen and colleagues (2003) indicated that effect sizes $f^2 = .02$, $.15$, and $.35$ can be considered small, medium, and large, respectively. An R^2 for each model was calculated for determining the effect sizes. This study's analyses yielded effect sizes from $f^2 = .01$ to $f^2 = .60$, a range from small to large effects.

First, five sets of regressions were conducted for the dependent variables: play interaction, play disruption, and play disconnection, receptive language, and letter naming. The control variables of children's gender and age were entered in step 1. Maternal education was entered in step 2 (see Tables 4-6 and 4-7). In controlling children's gender and age, level of maternal education positively contributed to children's receptive language ($\beta = .12, p < .01$) and letter naming ($\beta = .10, p < .01$). Furthermore, the results yielded small effect sizes of $f^2 = .02$ for receptive language and $f^2 = .01$ for letter naming. Maternal education did not significantly predict children's social outcomes.

Table 4-6. Maternal Education as a Predictor of Children's Social Competence

| | Social Outcomes | | | | | | | | |
|--------------------|-----------------|-----|--------------|--------------|-----|--------------|--------------|-----|--------------|
| | Play Interact | | | Play Disconn | | | Play Disrupt | | |
| | β | SE | ΔR^2 | β | SE | ΔR^2 | β | SE | ΔR^2 |
| Step 1 | | | .08** | | | .04** | | | .03** |
| Child Gender† | .21** | .70 | | -.14** | .91 | | -.17** | .91 | |
| Child Age | .19** | .05 | | -.17** | .06 | | -.02 | .06 | |
| Step 2 | | | .00 | | | .00 | | | .00 |
| Child Gender† | .21** | .70 | | -.14** | .91 | | -.17** | .91 | |
| Child Age | .20** | .05 | | -.17** | .06 | | -.02 | .06 | |
| Maternal Education | .04 | .38 | | -.02 | .50 | | .02 | .50 | |

** $p \leq .001$ †male = 1, female = 2

Table 4-7. Maternal Education as a Predictor of Children's Academic Competence

| | Academic Outcomes | | | | | |
|--------------------|-------------------|-----|--------------|---------------|-----|--------------|
| | PPVT | | | Letter Naming | | |
| | β | SE | ΔR^2 | β | SE | ΔR^2 |
| Step 1 | | | .02** | | | .20** |
| Child Gender† | .06 | .96 | | .12** | .11 | |
| Child Age | .13** | .07 | | .44** | .01 | |
| Step 2 | | | .02** | | | .01** |
| Child Gender† | .05 | .95 | | .11** | .11 | |
| Child Age | .14** | .07 | | .44** | .01 | |
| Maternal Education | .12** | .52 | | .10** | .06 | |

** $p \leq .001$ †male = 1, female = 2

Five more sets of regressions were conducted for the dependent variables: play interaction, play disruption, and play disconnection, receptive language, and letter naming. The control variables of children's gender and age were entered in step 1. Teacher-child relationship quality was entered in step 2 (see Table 4-8 and Table 4-9). When controlling for children's gender and age, the teacher-child relationship quality variables as a set were related to children's positive peer play (play interaction: $R^2 = .38$, $F(5, 799) = 98.28$, $p < .01$) and negative peer play (play disruption: $R^2 = .39$, $F(5, 799) = 103.66$, $p < .01$; play disconnection: $R^2 = .26$, $F(5, 799) = 56.89$, $p < .01$). Results indicated that teacher-child closeness ($\beta = .44$, $p < .01$) positively predicted pro-social peer play while teacher-child conflict ($\beta = -.24$, $p < .01$) negatively contributed to children's positive peer play. Teacher-child closeness negatively predicted disconnected peer play ($\beta = -.22$, $p < .01$). Furthermore, teacher-child conflict significantly predicted children's disruptive ($\beta = .60$, $p < .01$) and disconnected ($\beta = .31$, $p < .01$) peer play. Teacher-child dependency also positively predicted children's disconnected peer play ($\beta = .15$, $p < .01$). The findings yielded large effects sizes $f^2 = .49$ for play interaction, $f^2 = .60$ for play disruption, and $f^2 = .30$ for play disconnection.

Table 4-8. Teacher-Child Closeness, Conflict, and Dependency as Predictors of Social Competence

| | Social Outcomes | | | | | | | | |
|-----------|-----------------|-----|--------------|--------------|-----|--------------|--------------|-----|--------------|
| | Play Interact | | | Play Disconn | | | Play Disrupt | | |
| | β | SE | ΔR^2 | β | SE | ΔR^2 | β | SE | ΔR^2 |
| Step 1 | | | .08** | | | .04** | | | .03** |
| Child | .21** | .70 | | -.14** | .91 | | -.17** | .91 | |
| Gender† | | | | | | | | | |
| Child Age | .19** | .05 | | -.17** | .06 | | -.02 | .06 | |
| Step 2 | | | .30** | | | .22** | | | .36** |
| Child | .12** | .58 | | -.05 | .81 | | -.07* | .73 | |
| Gender† | | | | | | | | | |
| Child Age | .15** | .04 | | -.14** | .06 | | .00 | .05 | |
| Closeness | .44** | .04 | | -.22** | .06 | | -.03 | .06 | |
| Conflict | -.24** | .04 | | .31** | .05 | | .60** | .05 | |
| Dependenc | -.06 | .09 | | .15** | .13 | | .01 | .11 | |

* $p \leq .05$ ** $p \leq .001$ †male = 1, female = 2

Table 4-9. Teacher-Child Closeness, Conflict, and Dependency as Predictors of Academic Competence

| | Academic Outcomes | | | | | |
|---------------|-------------------|-----|--------------|---------------|-----|--------------|
| | PPVT | | | Letter Naming | | |
| | β | SE | ΔR^2 | β | SE | ΔR^2 |
| Step 1 | | | .02** | | | .20** |
| Child Gender† | .06 | .96 | | .12** | .11 | |
| Child Age | .13** | .07 | | .44** | .01 | |
| Step 2 | | | .03** | | | .01* |
| Child Gender† | .03 | .96 | | .10** | .11 | |
| Child Age | .12** | .07 | | .43 | .01 | |
| Closeness | .14** | .07 | | .04 | .01 | |
| Conflict | -.08 | .06 | | -.08* | .01 | |
| Dependency | .15 | .15 | | .03 | .02 | |

* $p \leq .05$ ** $p \leq .001$ †male = 1, female = 2

In the full model, teacher-child relationships were associated with children's receptive language ($R^2 = .05$, $F(5, 799) = 8.64$, $p < .01$) and letter naming ($R^2 = .21$, $F(5, 799) = 42.31$, $p < .01$), and in particular, teacher-child closeness positively predicted children's receptive language ($\beta = .14$, $p < .01$) and teacher-child conflict negatively predicted children's letter naming ($\beta = -.08$, $p = .05$) (see Table 10). Furthermore, teacher-child relationship quality yielded small effect sizes for children's academic competence (receptive language: $f^2 = .03$; letter naming: $f^2 = .01$).

Another five sets of regressions were conducted for the dependent variables (see Table 4-10 and 4-11). The control variables of children's gender and age were entered in step 1. Teacher-parent relationship quality was entered in step 2. Teacher-parent relationship quality was significantly associated with children's peer play. In particular, these relationships positively predicted children's pro-social peer play ($\beta = .09$, $p = .01$) and negatively predicted disconnected peer play ($\beta = -.10$, $p < .01$). The results yielded small effect sizes for both play interaction and play disconnection ($f^2 = .01$).

Furthermore, teacher-parent relationships positively predicted children's receptive language ($\beta = .10$, $p < .01$) and letter naming ($\beta = .16$, $p < .01$). Similar to the findings on social outcomes, teacher-parent relationship quality showed small effect sizes for both children's letter naming ($f^2 = .04$) and receptive language ($f^2 = .01$).

Table 4-10. Teacher-Parent Relationships as Predictors of Social Competence

| | Social Outcomes | | | | | | | | |
|--------------------------------|-----------------|-----|--------------|--------------|-----|--------------|--------------|-----|--------------|
| | Play Interact | | | Play Disconn | | | Play Disrupt | | |
| | β | SE | ΔR^2 | β | SE | ΔR^2 | β | SE | ΔR^2 |
| Step 1 | | | .08** | | | .04** | | | .03** |
| Child | .21** | .70 | | -.14** | .91 | | -.17** | .91 | |
| Gender† | | | | | | | | | |
| Child Age | .19** | .05 | | -.17** | .06 | | -.02 | .06 | |
| Step 2 | | | .01* | | | .01* | | | .00 |
| Child | .21** | .70 | | -.14** | .91 | | -.17** | .91 | |
| Gender† | | | | | | | | | |
| Child Age | .19** | .05 | | -.16** | .06 | | -.02 | .06 | |
| Teacher- Parent Relation | .09* | .39 | | -.10* | .50 | | -.06 | .50 | |

* $p \leq .05$ ** $p \leq .001$ †male = 1, female = 2

Table 4-11. Teacher-Parent Relationships as Predictors of Academic Competence

| | Academic Outcomes | | | | | |
|-----------------------------|-------------------|-----|--------------|---------------|-----|--------------|
| | PPVT | | | Letter Naming | | |
| | β | SE | ΔR^2 | β | SE | ΔR^2 |
| Step 1 | | | .02** | | | .20** |
| Child Gender† | .06 | .96 | | .12** | .11 | |
| Child Age | .13** | .07 | | .44** | .01 | |
| Step 2 | | | .01* | | | .03** |
| Child Gender† | .06 | .96 | | .12** | .11 | |
| Child Age | .13** | .07 | | .43** | .01 | |
| Teacher-Parent Relationship | .10* | .53 | | .16** | .06 | |

* $p \leq .05$ ** $p \leq .001$ †male = 1, female = 2

To address the primary question of the current study, hierarchical regressions were conducted to evaluate whether teacher-child and teacher-parent relationship quality moderated the association between maternal education and children's social and academic outcomes. Moderated Multiple Regression (MMR) is an appropriate analysis for estimating moderating effects of variables (Aguinis, 2004; Aiken & West, 1991). This study followed the recommended statistical procedures of Aiken and West (1991) and Aguinis (2004) for the MMR analysis. Fairchild and McQuillin (2010) describe a moderator as a third variable that changes the relation between the predictor and an outcome, impacting the strength and/or direction of the relation between the two variables. In regression terms, the effects of the moderator yield various bivariate regression lines that predict the dependent variable from the independent variable for different values of the moderator. To evaluate moderator effects with an interaction term, several hierarchical linear regressions were run (see Table 4-12 and 4-13). Child characteristics (i.e., gender and age) were entered in step 1, the independent variable (i.e., maternal education) was entered in step 2, the moderator variable (*i.e.* teacher-child and teacher-parent relationships) was entered in step 3, and the interaction term was entered in step 4.

The moderator variables, teacher-child and teacher-parent relationship quality, were considered continuous variables. Aiken and West (1991) recommend centering the variables and using one standard deviation above the mean, the mean, and one standard deviation below the mean to calculate high, medium, and low values for the independent and moderator variables. The relationships among the variables were interpreted through graphs (see Figure 4-1 and 4-2).

This study's main question is whether teacher-child and/or teacher-parent relationship quality moderate the impact of maternal education on children's social and academic outcomes. In the previous regression analyses, maternal education significantly predicted children's academic outcomes; however, it did not predict children's social outcomes. Furthermore, teacher-child closeness, conflict, and teacher-parent relationship quality predicted children's academic outcomes. Thus, three interaction terms were calculated based upon the risk variable, maternal education, as well as the variables, teacher-child closeness and conflict and teacher-parent relationship, which significantly predicted children's academic competence. As per recommendations from Aguinis (2004), unstandardized regression coefficients (i.e., *bs*) opposed to standardized coefficients (i.e., *betas*) are provided for interpretation of the results.

In order to evaluate whether teacher-child closeness moderated the relation between maternal education and children's academic outcomes, a maternal education by teacher-child closeness variable was calculated and a regression was conducted. Children's gender and age were entered in step 1; maternal education was entered in step 2, in step 3, teacher-child closeness was entered, and in step 4, the interaction term was entered (see Table 4-12). The interaction variable significantly predicted children's academic competence, particularly letter naming ($B = -.02, p < .05$) indicating a small moderator effect.

The interaction variable, maternal education by teacher-child conflict, was created and a regression was run (see Table 4-13). In step 1, children's gender and age were entered; in step 2, maternal education was entered; in step 3, teacher-child conflict was entered; and in step 4, the interaction variable was entered. The results indicated that the

interaction variable significantly predicted children's letter naming ($B = .02, p < .01$), suggesting that teacher-child conflict moderated the relation between maternal education and children's letter naming.

Table 4-12. Maternal Education x Teacher-Child Closeness as a Predictor of Academic Competence

| | Academic Outcomes | | | | | |
|------------------------------|-------------------|-----|--------------|---------------|-----|--------------|
| | PPVT | | | Letter Naming | | |
| | B | SE | ΔR^2 | B | SE | ΔR^2 |
| Step 1 | | | .02** | | | .20** |
| Child Gender† | 1.55 | .96 | | .40** | .11 | |
| Child Age | .26** | .07 | | .11** | .01 | |
| Step 2 | | | .02** | | | .01** |
| Child Gender† | 1.41 | .95 | | .39** | .11 | |
| Child Age | .27** | .07 | | .11** | .01 | |
| Maternal Education | 1.85** | .52 | | .19** | .06 | |
| Step 3 | | | .03** | | | .00* |
| Child Gender† | .93 | .94 | | .37** | .11 | |
| Child Age | .25** | .07 | | .11** | .01 | |
| Maternal Education | 1.80** | .52 | | .19* | .06 | |
| Closeness | .29** | .06 | | .02* | .01 | |
| Step 4 | | | .00 | | | .01* |
| Child Gender† | .89 | .95 | | .36** | .11 | |
| Child Age | .25** | .07 | | .11** | .01 | |
| Maternal Education | 1.80** | .52 | | .19* | .06 | |
| Closeness | .30** | .06 | | .02* | .01 | |
| Matern. Educ. X Closeness | -.06 | .07 | | -.02* | .01 | |

* $p \leq .05$ ** $p \leq .001$ †male = 1, female = 2

Table 4-13. Maternal Education x Teacher-Child Conflict as a Predictor of Academic Competence

| | Academic Outcomes | | | | | |
|-----------------------------|-------------------|-----|--------------|---------------|-----|--------------|
| | PPVT | | | Letter Naming | | |
| | B | SE | ΔR^2 | B | SE | ΔR^2 |
| Step 1 | | | .02** | | | .20** |
| Child Gender† | 1.55 | .96 | | .40** | .01 | |
| Child Age | .26** | .07 | | .11** | .11 | |
| Step 2 | | | .02** | | | .01** |
| Child Gender† | 1.41 | .95 | | .39** | .01 | |
| Child Age | .27** | .07 | | .11** | .11 | |
| Maternal Education | 1.85** | .52 | | .19** | .06 | |
| Step 3 | | | .01* | | | .01* |
| Child Gender† | .94 | .96 | | .34** | .01 | |
| Child Age | .26** | .07 | | .11* | .11 | |
| Maternal Education | 1.97** | .52 | | .20** | .06 | |
| Conflict | -.16* | .05 | | -.02* | .01 | |
| Step 4 | | | .00 | | | .01* |
| Child Gender† | .91 | .96 | | .33** | .01 | |
| Child Age | .26** | .07 | | .11* | .11 | |
| Maternal Education | 1.96** | .52 | | .20** | .06 | |
| Conflict | -.16* | .05 | | -.02** | .01 | |
| Matern. Educ. X Conflict | .02 | .06 | | .02* | .01 | |

* $p \leq .05$ ** $p \leq .001$ †male = 1, female = 2

Lastly, the interaction variable, maternal education by teacher-parent relationship quality, was created and a regression was run. In step 1, children's gender and age were entered; in step 2, maternal education was entered; in step 3, teacher-parent relationship quality was entered; and in step 4, the interaction variable was entered. The interaction variable did not significantly predict children's academic outcomes, indicating no moderating effect.

To investigate the moderator effects further, nine means were calculated for three levels of maternal education by three levels of teacher-child closeness as well as teacher-child conflict and a graph was created (see Figure 4-1 and 4-2). Moderator effects consist of two types: ordinal or disordinal interactions (Cohen, Cohen, West, & Aiken, 2003). Ordinal interactions are depicted by lines that do not cross the data plot. In examining the first graph (see Figure 4-1), high levels of teacher-child closeness seemed to buffer the impact of low maternal education on children's letter naming. However, low teacher-child closeness appeared to exacerbate the impact of low maternal education on children's letter naming. In particular, teacher-child closeness had the most impact on children whose mothers did not earn a high school diploma or GED. Furthermore, when the level of maternal education was higher (i.e., above a high school diploma or GED, teacher-child closeness did not appear to have a strong effect on children's letter naming ability.

Figure 4-1. Results of Moderated Multiple Regression of the Effect of Maternal Education on Child Letter Naming by Teacher-Closeness

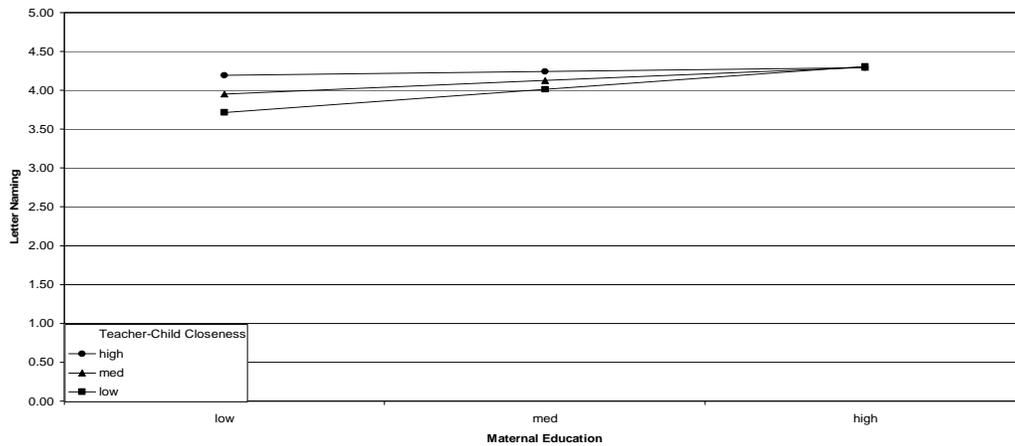


Figure 4-1. Effect of Maternal Education on Child Letter Naming by Teacher-Child Closeness. Points represent three levels of teacher-child Closeness (i.e., one standard deviation below the mean, the mean, and one standard deviation above the mean). Maternal education is also represented by three levels of education based on the mean, one standard deviation below the mean, and one standard deviation above the mean.

The second interaction effect is also illustrated (see Figure 4-2). Low teacher-child conflict appeared to buffer against the influence of low maternal education on children's letter naming, whereas high teacher-child conflict exacerbated the influence of low maternal education on children's letter naming. Teacher-child conflict had the most influence on children whose mothers earned less than a high school diploma or GED. However, the level of teacher-child conflict did not appear to affect the number of letters

children knew when the level of maternal education was higher (i.e., above a high school diploma or GED).

Figure 4-2. Results of Moderated Multiple Regression of the Effect of Maternal Education on Child Letter Naming by Teacher-Child Conflict

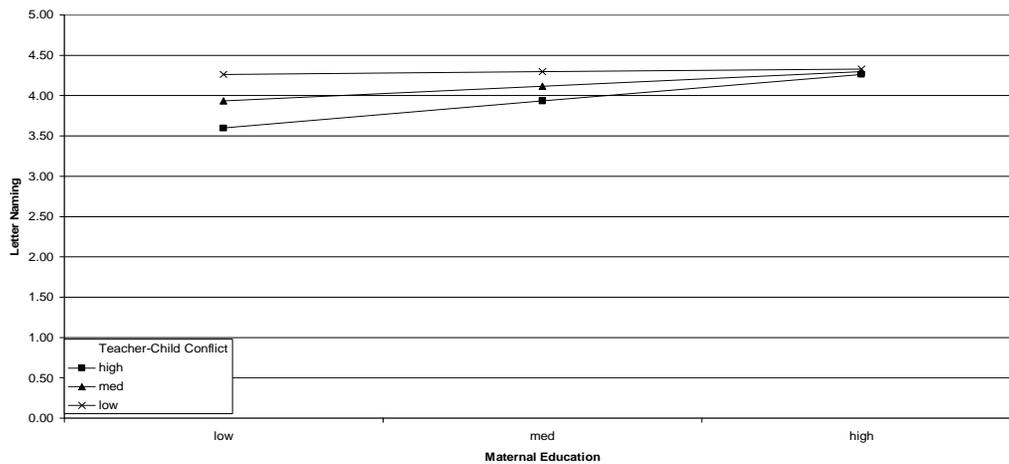


Figure 4-2. Effect of Maternal Education on Child Letter Naming by Teacher-Child Conflict. Points represent three levels of teacher-child Conflict (i.e., one standard deviation below the mean, the mean, and one standard deviation above the mean). Maternal education is also represented by three levels of education based on the mean, one standard deviation below the mean, and one standard deviation above the mean.

The proportion of the variances affected by the moderating effects was also calculated. Both maternal education by teacher-child closeness and maternal education by teacher-child conflict showed small moderating effects ($f^2 = .04$). However, Cohen et al. (2003) suggested that even effect sizes considered “small” can have practical and theoretical importance. Furthermore, Aguinis et al. (2003) conducted a quantitative literature review, in which the medium effect size was .002, putting in question the definition of a critical effect size.

Summary

The first set of regressions, in which five dependent variables (i.e., play interaction, play disconnection, play disruption, receptive language, and letter naming) were regressed on level of maternal education, predicted both children’s receptive language and letter naming, although it contributed only a small proportion of the variance. Maternal education did not predict children’s social outcomes. Teacher-child relationship quality, as a set, explained a significant proportion of the variance in children’s peer play behavior (i.e., pro-social, disconnected, and disruptive peer play). Teacher-child relationship quality also predicted children’s academic outcomes, and in particular, teacher-child closeness predicted children’s receptive language while teacher-child conflict predicted children’s letter naming. Although the proportion of the variances was small, teacher-parent relationship quality also significantly predicted both children’s receptive language and letter naming and children’s pro-social and disconnected peer play.

In order to further investigate the relations among maternal education, teacher-child and teacher-parents relationships, and children’s academic outcomes, a series of

MMR analyses were performed. Results provided some support that teacher-child closeness and conflict moderated the relation between maternal education and child letter naming. Higher levels of teacher-child closeness seemed to buffer the impact of lower levels of maternal education on children's letter naming ability. In contrast, lower levels of teacher-child closeness appeared to increase the impact of lower levels of maternal education on the number of letters children knew. Moreover, lower levels of teacher-child conflict appeared to buffer against the influence of lower levels of maternal education on children's letter naming, whereas higher levels of teacher-child conflict appeared to exacerbate the influence of lower maternal education on children's letter naming. Teacher-child closeness and conflict demonstrated the most impact on the most vulnerable children. These children had mothers who had not earned a high school diploma or GED.

CHAPTER 5

DISCUSSION

The current study investigated the relations among demographic risk, early teacher-reported relationships, and children's social and academic outcomes, and extends the existing literature by examining whether teacher-child relationships and teacher-parent relationships buffer the impact of demographic risk (i.e., maternal education) on young, at-risk children's social and academic outcomes. The current chapter outlines the key findings of the study and conceptualizes these findings through the Bioecological Theory, resilience framework, and relevant literature. The implications for research, policy, and practice are recommended and the limitations are discussed.

The purpose of this study was to examine the role of early teacher-reported relationships in preventing young, vulnerable children's negative social and academic outcomes. Furthermore, relevant child characteristics were examined in relation to teacher-reported relationships and children's outcomes. It was hypothesized that the study's risk variable, maternal education, would be significantly associated with children's social and academic outcomes. In particular, higher levels of maternal education would be associated with higher child outcomes and lower levels of maternal education would be associated with lower child outcomes. The results showed maternal education to be significantly associated with children's academic outcomes, but not significantly associated with children's social outcomes. Furthermore, after controlling for child gender and age, maternal education moderately predicted children's academic outcomes. This finding corresponds to previous research that mothers with lower levels of education are less likely to expose their children to quality literacy experiences (U.S.

Department of Education, 2000) and these children are at a higher risk for entering school with fewer school readiness skills (Alexander & Entwisle, 2001; Hamre & Pianta, 2001).

In the current study, it was also hypothesized that quality teacher-child relationships would predict children's social and academic outcomes. The findings indicated teacher-child relationship quality was strongly related to children's social outcomes. These relationships explained a large proportion of the variance in children's social outcomes. However, teacher-child relationships quality did not significantly moderate the effects of low levels of maternal education on the development of children's social outcomes. In the area of achievement, teacher-child relationship quality was significantly associated with children's academic outcomes. Nevertheless, unlike the findings on social outcomes, teacher-child relationship quality moderated the impact of low levels of maternal education on children's academic outcomes, and specifically child letter naming.

In the area of teacher-parent relationships, it was hypothesized that quality teacher-parent relationships would predict higher academic and social outcomes for children. Unlike teacher-child relationships, teacher-parent relationships were significantly associated with both children's social and academic outcomes. However, these relationships predicted a small proportion of the variance in children's outcomes, and teacher-parent relationships did not moderate the effects of low levels of maternal education on children's outcomes.

When considering child characteristics, it was hypothesized that boys would display higher levels of negative relationships than girls, whereas girls would show higher levels of positive relationships. The results were consistent with the study's

hypothesis, whereby child gender was significantly associated with teacher-child relationship quality, and further, it was associated with children's social and academic outcomes. However, child gender was not significantly associated with teacher-parent relationship quality. The study also hypothesized that older children would demonstrate greater levels of positive relationships than younger children. The findings indicated that child age was significantly associated with teacher-parent relationship quality and children's social and academic outcomes. In contrast, child age was not significantly associated with teacher-child relationship quality. As part of a priori analysis, children who were diagnosed with a disability and second language learner status were not significantly related to teacher-child and teacher-parent relationships. However, children's social and academic outcomes were differentiated based on diagnosed disability status.

The study's findings can be conceptualized within Bioecological Theory (Bronfenbrenner & Ceci, 1994). The results suggest children's outcomes were impacted by the family demographic risk of low levels of maternal education, early teacher-reported relationships, and child characteristics. In determining children's outcomes, Bronfenbrenner and Ceci emphasized the importance of exploring "proximal processes, and their developmental consequences under different environmental conditions" (p. 570). The current study examined teacher-child and teacher-parent relationship quality under different levels of maternal education. Although the findings did not completely support the study's hypotheses, they provided some support that teacher-child relationships act as a proximal process, moderating the impact of low levels of maternal education on children's academic outcomes. However, teacher-parent relationships did

not moderate the effects of low levels of maternal education on children's academic outcomes.

In considering the risk and resilience framework, the current study's hypotheses were not fully substantiated. The risk and resilience framework conceptualizes resilience as the achievement of positive outcomes, despite the exposure to risk factors (Luthar et al., 2000). It was hypothesized that both teacher-child and teacher-parent relationship quality would function as protective factors that buffer against low levels of maternal education and result in children's resilience. In support of this framework, teacher-child relationship quality functioned as a protective factor, moderating the effects of low maternal education on children's academic outcomes. However, teacher-parent relationship quality did not buffer against the risk of low maternal education in the development of children's academic outcomes.

Despite these findings, teacher-child relationship quality did protect against low levels of maternal education when considering children's academic outcomes. In particular, these teacher-reported relationships functioned as a protective factor for children's letter naming ability. While high teacher-child closeness seemed buffer the negative effects of low levels of maternal education, low teacher-child closeness seemed to exacerbate the negative impact of low maternal education. Moreover, low teacher-child conflict appeared to buffer against the negative influence of low maternal education, whereas high teacher-child conflict appeared to exacerbate the negative impact of low maternal education. In particular, teacher-child closeness and teacher-child conflict had the most impact on children whose mothers had not earned a high school diploma or GED. Lastly, although the study did not find moderating effects for teacher-

child relationship quality in relations to maternal education and children's social outcomes, the results showed strong associations between teacher-child relationship quality and children's social outcomes. These associations suggest that teacher-child relationship quality may function as a protective factor against other types of risk as well as being a possible risk factor in itself, increasing children's development of positive or negative social outcomes.

Both family and demographic risk factors place children in jeopardy for developing negative outcomes prior to entering school. The current study included the demographic risk factor, maternal education, one of the most robust demographic risk factors (Peisner-Feinberg et al., 2001; Shonkoff & Phillips, 2000). According to the U.S. Department of Education (2000), children of mothers who have achieved low levels of education are less likely to experience quality language and literacy interactions. These types of interactions provide a basis for the development of school readiness skills. Thus, children whose mothers have achieved lower levels of education are at higher risk for entering kindergarten with fewer academic skills (Pianta & McCoy, 1997) and often these gaps are maintained throughout their school careers (Alexander & Entwisle, 2001). Conceivably, the current study could have found evidence that both teacher-child and teacher-parent relationships buffer against risk had it incorporated additional measures of risk. An explanation of the limited significant outcomes related to maternal education may be that the majority of children in the sample were African American. Research suggests that African American children do not experience the same opportunities as their Caucasian counterparts. Furthermore, the lack of associations between maternal education and children's social outcomes may suggest that parents, who experience fewer

years of education, can still raise socially competent children. Perhaps, the quality of parenting practices would be a more appropriate predictor of children's social outcomes.

Hamre and Pianta (2005) conceptualized risk for early school failure as both demographic and functional. In addition to demographic risk factors, functional risk factors that illustrate children's general functioning in the classroom (e.g., behavior, attention, social skills) have been found to predict children's school outcomes (Hamre & Pianta, 2005). Research studies also suggest the accumulation of risk factors strongly predicts future negative outcomes (Gutman, Sameroff, & Cole, 2003). Furthermore, since the current study focused on Head Start children, most families were considered at-risk (Duncan & Brooks-Gunn, 1997; McLoyd, 1998), which may have not allowed for sufficient variability in the levels of maternal education. In particular, the majority of mothers earned a high school diploma, but few earned beyond a Bachelor's degree. Although limited evidence was found that early teacher-reported relationships protect against low levels of maternal education, the current study's results still add to the research on the associations among risk, early teacher-child relationships and teacher-parent relationships, and children's school outcomes.

Main Results

Children's Social Competence

Developmental theorists have suggested that children's peer play behaviors provide an important context in which children acquire social competencies (Piaget, 1952, 1962; Vygotsky, 1976). Overall, in the current study, teachers reported more pro-social peer play and disruptive peer play than disconnected peer play. Lower levels of disconnected peer play reported by teachers may relate to previous research findings, suggesting that

withdrawn children go unnoticed in the classroom setting and are least likely to be nominated by peers (Fantuzzo et al., 1998).

Child Characteristics

The current study's findings showed that boys exhibited more negative social peer play (i.e., play disconnection and play disruption) than girls. In contrast, girls showed more pro-social peer play behaviors than boys. These results were consistent with previous Head Start studies, indicating that young at-risk boys are rated by teachers as demonstrating fewer pro-social behaviors than girls (e.g., Lambert, Abbott-Shim, & McCarty, 2002). When examining the multidimensionality of children's peer play in Head Start, Coolahan, Fantuzzo, Mendez, & McDermott (2000) found that girls showed greater levels of positive peer play interactions than boys, whereas boys showed greater levels of disruptive and disconnected peer play interactions than girls.

In examining differences in preschool children's social outcomes based on age, the results found that younger children demonstrated more disconnected peer play than older children. However, older children exhibited more pro-social peer play than younger children. These findings are consistent with previous research that older children are more expressive and demonstrate more pro-social behaviors than younger children (Lambert et al., 2002). Furthermore, younger children display significantly higher levels of play disconnection and lower levels of play interaction than older children (Coolahan et al., 2000; Mendez, McDermott, & Fantuzzo, 2002). In addition, the current study's results correspond with the developmental view on self-regulation, indicating that younger children may lack the capacity to regulate their behavior (Campbell, 2006). Researchers also suggest that younger children are more likely to use physical aggression

when interacting with peers. Nevertheless, as their self-regulatory skills develop with age, they appear to use less physical aggression (Tremblay, 2000).

According to the FACES study (Administration on Children, Youth, & Families, 2006), in spring 2004, Head Start teachers reported that 12 percent of Head Start children had diagnosed disabilities with Individualized Educational Programs (IEPs). The current study's results showed children diagnosed with a disability exhibited less pro-social peer play and more disruptive peer play than children who were undiagnosed. These findings suggest that children who have identified disabilities are more likely to have difficulties in their social skills than children who are not identified. Furthermore, the study's results indicated no significant differences in children's social outcomes based on language spoken in the home. Due to the growing number of children who speak a second language in the United States and the limited research on second language learners and children's social outcomes, further research should be conducted in this area to determine whether these children are at a higher risk than English speakers.

Children's social peer play behaviors can function as early precursors to school problems (Coolahan, et al., 2000; Fantuzzo et al., 1998). Coolahan and colleagues (2000) found that children who demonstrated positive peer play were engaged in classroom learning activities. However, children who showed higher disconnected peer play were considered inattentive, passive, and exhibiting low motivation. Children who were reported to be disruptive in their peer play were rated as exhibiting high levels of conduct problems and hyperactivity. Furthermore, children's peer play interactions have also been associated with performance in later school years. Hampton (1999) found teacher reports of peer play interactions predicted first grade report card grades. In particular,

teacher-reported positive peer play in kindergarten was associated with higher levels of children's achievement in first grade. However, disruptive and disconnected peer play behaviors were associated with lower levels of children's achievement in first grade. Moreover, research indicates problems with peers, a lack of social competencies, or unpopularity is associated with later psychopathology (e.g., Masten & Coatsworth, 1995; Sroufe et al., 1999). Overall, the current study found significant differences in children's social outcomes based on gender, age, and disability.

Children's Academic Competence

The descriptive analyses showed that the children in this sample demonstrated lower receptive language than the normative sample (PPVT-III; Dunn & Dunn, 1997). Head Start research indicates that young at-risk children are at a disadvantage in terms of their early literacy skills compared to the national average and these disadvantages continue through their school careers (FACES, ACYF, 2006). However, although these children are behind their non-Head Start peers in terms of their academic competencies, both 3- and 4-year-olds have been found to demonstrate significant increases in vocabulary and 4-year-olds have been found to gain in early reading skills during their enrollment years in Head Start. Furthermore, the larger the gains children made in Head Start, the higher the children's achievement in kindergarten.

Child Characteristics

Head Start children's skills remain below national norms. In terms of the current study, there were no significant differences found in the level of children's receptive language skills based on gender. Thus, boys and girls in the sample had congruent receptive vocabulary knowledge. Nevertheless, boys identified significantly fewer letters

than girls, indicating girls demonstrate an advantage in acquiring early literacy skills over boys.

The study's findings also suggest that older children demonstrated higher receptive language and identified more letters than younger children. These results were expected and correspond with previous research that vocabulary knowledge was greater for older children than younger children in Head Start (FACES, ACYF, 2006; Mendez et al., 2002). Thus, these young children appear to gain vocabulary and early reading skills as they age as well as experience more years of schooling. Furthermore, in the current study, children who were identified with a disability knew fewer letters than children who were undiagnosed. The findings suggest that children diagnosed with disabilities are at a higher risk for not meeting preschool academic competencies. However, there were no significant differences found in academic outcomes between English speakers and second language learners. Overall, the current study found some significant differences in the sample's academic outcomes based on gender, age, and diagnosed disability.

Maternal Education

The descriptive analyses indicate that mothers in this sample experienced relatively high levels of risk. The majority of mothers earned a High School Diploma or GED, with the second largest group having earned a Vocational/Technical diploma/Some College/Associates. Only 8% of mothers earned a Bachelor's degree or beyond. These findings are consistent with the Head Start FACES study (ACYF, 2006) that found the majority of mothers of Head Start children held a high school diploma. The current study supported that Head Start families are considered at risk, and perhaps, less variability exists in Head Start mothers' level of education than the population at large. Overall, the

majority of mothers in the sample had relatively low levels of education. Furthermore, descriptive analysis revealed that the smallest Head Start center, situated in the most rural area, had the lowest mean level of maternal education compared to the other centers. It is also possible that level of maternal education is not as robust of a risk factor for this particular sample of predominantly African American children. Research suggests that African American children do not have the same access to resources and to opportunities as Caucasian children. Thus, other risk factors such as child ethnicity and parenting practices may be more relevant for the current study's sample.

Teacher-Child Relationships

Overall, teachers reported high levels of closeness and low levels of conflict and dependency in the sample. The closeness and dependency subscale means were congruent with the normative sample (STRS; Pianta, 1999). The mean conflict score suggests that teachers tended to view their relationships with children even more positively than the normative sample, with only 15% of the children having conflict reported in the 75th percentile based on the normative sample. In addition, teachers reported 24% of children at or below the 25th percentile in experiencing close teacher-child relationships, as would be expected from the normative sample. In contrast, previous research has shown that teacher-child relationship quality is lower in preschool classrooms that have high concentrations of children from homes below the poverty line (Pianta, Howes, Burchinal, Bryant et al., 2005). Although this study's participants were expected to demonstrate higher teacher-child conflict and lower teacher-child closeness due to their high risk status, overall the sample was rated as having quality teacher-child relationships. However, the findings showed teacher-child relationship quality differed

based on center. These differences appear to be related to whether the center was an intervention site and to center size, in which the teachers of the smallest center or of centers that participated in the parent involvement intervention may have been more likely to develop stronger relationships with children than teachers of larger programs or of non-intervention sites. Thus, regardless of the research evidence suggesting that high quality teacher-child relationships are important for at-risk children (Hamre & Pianta, 2005; Peisner-Feinberg et al., 2001), a substantial percentage of the current study's children were reported to have experienced elevated negative teacher-child interactions based on the center that they attended.

In the current study, there were significant differences related to Head Start Center and classroom. Although one of the centers was large in size, it was rated as having the lowest mean teacher-child conflict, highest mean teacher-child closeness, and highest mean quality teacher-parent relationships. This same center participated in a parent involvement intervention that included educational workshops for parents and teachers. The intervention provided more opportunities for teachers and parents to connect as well as relevant educational instruction and materials to teachers and parents. Consequently, the intervention may have promoted the development of higher quality teacher-child and teacher-parent relationships. Another large center was rated as having the highest mean teacher-child dependency as well as the lowest mean teacher-parent relationship quality. This center was known to not meet the same quality standards as most of the other centers, which may have facilitated teachers' perceptions of dependent relationships with children and weaker relationships with parents. Surprisingly, the program sizes were not associated with differences in teacher-child relationship quality.

The smallest center was not rated the highest in teacher-child relationship quality. Furthermore, there were significant mean teacher-child relationship quality differences among classrooms in the study, suggesting variability in teachers' perceptions of their reciprocal interactions with children across classrooms.

Child Characteristics

The current study found that girls experienced closer relationships with their teachers than boys, whereas boys exhibited more conflict in their relationships with teachers than girls. These findings are consistent with previous studies that suggest differences in relationships based on gender (e.g., Birch & Ladd, 1998; Hamre & Pianta, 2001; Hughes et al., 2001). Furthermore, Birch and Ladd (1997) found girls showed higher quality relationships than boys and these relationships may have been related to girls demonstrating more positive engagement in the classroom than boys. However, the current study's findings contradict previous studies that suggest gender differences did not start to emerge until children are older (e.g., Huston & Alvarez, 1990). The results did not show significant differences in relationship quality based on children's age, disability, or language spoken at home. Campbell (2006) indicated that children ages 2 through 5 are learning to regulate their emotions and behaviors. Thus, one would expect to find that younger children demonstrate significantly more problem behaviors than older children. Perhaps, significant age differences were not found for teacher-child relationships quality due to the limited age range of the sample.

Although teacher-child relationships were not differentiated by ethnicity, the majority of children in the sample were identified as African American. However, teachers in this sample tended to perceive children more positively than the normative

sample, which contradicts previous data suggesting African American children are more at risk for experiencing a lack of quality teacher-child relationships (Alexander et al., 1987; Entwisle & Alexander, 1988; Meehan et al., 2003; O'Connor & McCartney, 2006; Saft & Pianta, 2001). Conceivably, the differences in results may relate to the background characteristics of classroom teachers, as most of the teachers in this sample were African American. O'Connor and McCartney (2006) found that African American children showed lower quality teacher-child relationships than did their Caucasian peers in first grade. However, the majority of teachers in their sample were Caucasian; therefore, the findings may indicate the impact of ethnicity differences between teachers and children. Moreover, Saft and Pianta (2001) found teachers reported more positive relationships with children of the same ethnicity. Thus, research suggests that children who are academically at-risk and who hold minority status are perceived as experiencing less teacher support than their non-minority peers (Hughes, Cavell, & Zhang, 2005). In sum, the current study's findings demonstrate differences in teacher-child relationship quality based on gender. Future research is recommended to further investigate differences in these early relationships based on gender, age, disability, and language spoken in the home in a primarily African American preschool population.

Teacher-Parent Relationships

In the current study, the majority of teachers reported moderately to strong connections with parents. Forty-three percent of teachers reported strong connections with parents, whereas only 5% of teachers reported that they felt not connected with parents. Furthermore, the level of maternal education was significantly positively correlated with teacher-parent relationship quality. Lower SES parents have been found

to be less involved in their children's schooling than higher SES parents (Dornbusch & Ritter, 1988). Perhaps, teachers were able connect better with mothers who had achieved higher levels of education than mothers who had lower levels of education. Fantuzzo et al. (2000) reported that parents of higher levels of education were more likely to be involved in their children's learning. Whereas, according to Lareau (1996), lower-income parents may have different views of how involved they should be in their children's schooling. The parents may view their ability to be involved as limited and defer to teachers. Thus an imbalance in power between teachers and parents may make establishing and maintaining collaborative partnerships difficult. Furthermore, Waanders, Mendez, and Downer (2007) found that parents' self-efficacy toward education and education levels related positively to parent involvement.

In the current study, there were significant differences related to Head Start Center and classroom, in terms of teacher-parent relationship quality. Furthermore, the smallest center, the most rural center, had the second highest mean rating of quality teacher-parent relationships. The differences in the size of the program may have been related to these relationship differences. Teachers in the smaller program may have had more opportunities to develop stronger relationships with parents than in larger programs. However, one of the large centers was rated as having the highest mean quality teacher-parent relationships. This same center had the lowest mean teacher-child conflict and the highest teacher-child closeness. Furthermore, this center participated in a parent involvement intervention, which would have provided more opportunities for teachers to connect with parents. The large center with the lowest mean teacher-parent relationship quality was the same center that had the highest mean teacher-child dependency. This

center was observed to not operate at the same level of quality standards as most of the other centers, which may have fostered weaker teacher-parent connections and higher teacher-child dependency. Furthermore, there were also significant mean differences in teacher-parent relationship quality among the classrooms, suggesting variability in teachers' perceptions of their relationships with parents across classrooms.

Child Characteristics

The study found that teachers were more likely to report stronger connections with older children's parents than younger children's parents. Perhaps teachers perceived stronger connections with parents of older children because the children may have attended the centers for a longer amount of time, providing more opportunities for parents to develop relationships with teachers. Parents may have become more experienced in dealing with the school's expectations over time. According to Mendez, McDermott, and Fantuzzo (2002), older preschool children gained greater language abilities and self-regulation skills compared to younger children in Head Start. Thus, older children may have acquired more school readiness skills, enabling teachers to share more positive reports with parents. Positive communication between teachers and parents may have allowed for stronger connections to develop. The current study did not find differences in teacher-parent relationship based on gender, disability, nor language spoken at home. However, prior research has shown teacher-parent relationship differences based on gender (Hughes et al., 2005). The parents of girls experienced higher parent-teacher alliances than the parents of boys. Previous research also showed that teachers reported stronger teacher-parent alliances with Caucasian children than African American children (Hughes et al., 2005; Hughes & Kwok, 2007). Teachers rated Caucasian parents as

being more involved than Hispanic parents who were more involved than African American parents. Overall, the current study found differences in teacher-parent relationship quality based on age. Due to limited empirical studies focused on teacher-parent relationship quality and its associations with children's developmental stage, gender, disability, ethnicity, and language spoken at home, the associations between these variables merit future investigation.

Maternal Education and Children's Social Competence

In contrast to previous studies, the current study found no significant associations between maternal education and teacher reports of children's social outcomes. Previous research has found that mothers with lower education levels were more likely to have children with fewer school readiness skills in kindergarten and these gaps were maintained through the school years (e.g., Alexander & Entwisle, 2001). Peisner-Feinberg et al. (2001) found stronger positive effects of child-care quality for children who were at higher risk than children who were at lower risk. Child-care closeness was a consistent predictor of problem behaviors for mothers who had earned a high school diploma; however, it became less predictive for children over time whose mothers had more education. Maternal education was moderately related to children's concurrent attention and problem behaviors in preschool and through second grade and modestly related to children's social skills in preschool through kindergarten.

However, the current study used solely teacher reports to measure children's social competence. Perhaps, other measures of social competence would have yielded different results. Classroom observations and parent reports may have provided significant associations with maternal education. Furthermore, the lack of association

may have been due to relatively homogenous education levels of mothers in the sample. The majority of mothers achieved a high school diploma or GED. This lack of variability in maternal education also may be related to maternal education functioning as a proxy for socio-economic status. Since the sample included children who attended Head Start programs, the majority of families were considered to fall in the low socio-economic status category. The lack of associations between maternal education and children's social outcomes also suggests that parents, who have fewer years of education, are still capable of raising socially competent children and children have the ability to be resilient in high-risk environments. Furthermore, the majority of children in the study were African American. Research has found African American children do not experience the same opportunities as Caucasian children, suggesting that ethnicity may be a more appropriate risk factor. Additional measures of risk (e.g., parenting practices, child temperament, etc.) or a comparison of Head Start mothers and children to mothers and children of other preschool programs may have provided more variability in the risk construct, children's outcomes, and in turn, yielded different results. Overall, the current study did not find level of maternal education predicted children's social outcomes.

Teacher-Child Relationships and Children's Social Competence

After examining the relations between maternal education and children's social outcomes, the associations between teacher-child relationship quality and children's social outcomes were investigated. The current study's findings were consistent with previous studies, suggesting that teacher-child relationship quality is associated with children's social outcomes (e.g., Birch & Ladd, 1998; Hamre & Pianta, 2001). Peisner-Feinberg and colleagues (2001) found that the closeness of the teacher-child relationship

in preschool was similar or a stronger predictor of children's behavior and social skills in the classroom compared to maternal education. In particular, researchers found that teachers who provided close teacher-child relationships, positive communication, and affection in preschool had children who were more likely to exhibit high levels of social skills, such as completing of work, tolerating frustration, and interacting with peers (Brophy-Herb, Lee, Nievar, & Stollak, 2007; Howes, Burchinal, Pianta, Bryant, et al., 2008; Peisner-Feinberg & Burchinal, 1997), and lower symptoms of depression, anxiety, and social withdrawal in first grade (Pianta & Stuhlman, 2004). Furthermore, high conflict teacher-child relationships in kindergarten and first grade have been found to be associated with lower social skills in the domains of cooperation, responsibility, self-control, and assertion in first grade (Pianta & Stuhlman, 2004). Both teacher-child conflict and dependency were related to behavioral outcomes through eighth grade (Hamre & Pianta, 2001).

In the current study, teacher-reported closeness was highly associated with young at-risk children's positive peer play and negatively associated with children's negative peer play (i.e., both play disconnection and disruption), suggesting that close teacher-child relationships significantly predict young children's positive social outcomes in Head Start. Teacher-reported dependency was positively correlated with both peer play disconnection and disruption. Furthermore, teacher-child conflict was negatively correlated with children's positive peer play interaction and positively correlated with negative peer play disconnection and disruption.

After controlling for children's gender and age, teacher-child relationship quality, as a set, significantly predicted 36% of the variance in children's play disruption, 30% of

the variance in children's play interaction, and 22% of the variance in children's play disconnection. The effect sizes for teacher-child relationships as predictors of children's social outcomes were large, in terms of Cohen's (2003) estimates, indicating these adult-child interactions are highly related to the development of children's social outcomes. Consistent with the correlation findings, teacher-reported closeness was a strong predictor of both positive and negative peer play. However, although teacher-reported closeness was a highly positive predictor of children's positive peer play interactions and a negative predictor of children's play disconnection, it did not yield significant predictor effects for children's peer play disruption. Teacher-reported dependency was a significant predictor of children's peer play disconnection. Nevertheless, unlike the correlation findings, teacher-child dependency did not significantly predict children's peer play disruption. Lastly, teacher-reported conflict positively predicted children's play disruption and play disconnection and negatively predicted children's positive play interaction. These findings provide evidence that teacher-child relationships have a strong relationship with children's social outcomes.

The most robust and consistent findings were associated with teacher-child closeness and conflict, suggesting both teacher-child relationship variables play an important role in predicting children's social outcomes. Teacher-child closeness was the highest positive predictor of children's positive play interactions and it negatively predicted children's play disconnection. Previous research suggests that preschool children who have high levels of closeness in their relationships with teachers are more likely to demonstrate positive social outcomes (e.g., Howes et al., 2008; Peisner-Feinberg et al., 2001), whereas children who experience high levels of negative teacher-child

relationships are more likely to demonstrate negative social outcomes (Pianta & Stuhlman, 2004). Furthermore, Meehan and colleagues (2003) found differences in behavioral outcomes based on ethnicity, in which positive teacher-child relationships were more beneficial for African American children compared to Caucasian children. Due to the majority of the current study's sample identifying as African American, ethnicity differences were not measured. Further investigation should be conducted to determine how important quality teacher-child relationships are in African American children's outcomes.

The study's findings provide support that positive teacher-child relationships may act as a protective factor in preventing low income children from developing negative social outcomes. Teacher-child conflict was the only significant predictor of all three variables of children's social outcomes. Furthermore, teacher-child conflict was the strongest predictor of children's disruptive play behavior, suggesting that teacher-reported conflict is the most important indicator of teacher-child relationship quality in predicting children's negative social outcomes. Previous studies indicate that children who experience high levels of conflict in their relationships with teachers are less engaged in the classroom (Birch & Ladd, 1998; Hamre & Pianta, 2001). The study's findings suggest that high levels of teacher-child conflict may predict the development of children's negative social outcomes or exacerbate existing social problems in low income children.

Teacher-Child Relationships as a Moderator of Risk on Social Competence

Previous studies have found some evidence that teacher-child relationship quality can function as a protective factor against the development of children's negative social

outcomes (e.g., Birch & Ladd, 1997; Griggs, Gagnon, Huelsman, Kidder-Ashley et al., 2009; Hamre & Pianta, 2005; Pianta & Steinberg, 1995; Pianta et al., 1997). Hamre and Pianta (2005) conducted a secondary analysis using data from NICHD of Early Child Care. The researchers defined “at-risk” children at 5 and 6 years based on low maternal education and teacher reports of children’s problem behaviors (i.e., behavioral, attention, academic, social). The children who experienced both strong instructional and emotional support demonstrated achievement and teacher-child relationship quality congruent to their low risk peers. However, at-risk children who experienced less instructional and emotional support showed lower achievement scores and more conflict in their relationships with teachers. Another study examined teacher-child relationships as a moderator of preschool children’s temperament on peer play behavior. The findings suggested that low conflict and dependent teacher-child relationships are related to less disruptive peer play, and furthermore, the association between children’s temperament and disruptive peer play is buffered by low conflict teacher-child relationships (Griggs et al., 2009).

Similarly to the current study, Hamre and Pianta (2005) identified at-risk children based on low maternal education. However, in the current study, after controlling child gender and age, teacher-child relationship quality was investigated as a protective factor against low levels of maternal education in low-income preschool-aged children. Furthermore, unlike previous studies, this study examined these relationship variables in relation to children’s outcomes with the majority of families identifying as African American. Hierarchical regression was conducted to examine moderator effects and the findings did not support previous research (e.g., Griggs et al., 2009; Hamre & Pianta,

2005) on the protective role of teacher-child interactions in the development of children's social outcomes. Since the study did not find that maternal education significantly predicted children's social outcomes, it was not surprising that significant moderator effects were not found for children's social outcomes. Overall, teacher-child relationship quality was not found to buffer against low levels of maternal education in the development of children's social outcomes. This finding may be attributed to the homogenous nature of the study's maternal education variable (i.e., the majority of mothers had attained relatively low levels of education) and the maternal education variable not being appropriate for the particular sample of predominantly African American. Research suggests that African American children do not have the same access to resources and opportunities as Caucasian children. Furthermore, the findings suggest that mothers, who have earned fewer years of education, can still raise socially competent children and these children may be resilient to the high-risk environments that they live in.

Peisner-Feinberg et al. (2001) found child-care, teacher-child closeness was a significant predictor of problem behaviors for children whose mothers had a high school education and became less predictive for children whose mothers earned higher levels of education. However, maternal education did not buffer against or exacerbate teacher-child closeness in the development of children's sociability outcomes. Future research should investigate heterogeneous samples that have varied levels risk and other risk variables that may provide a fuller picture of the individual importance of different risk factors and the cumulative nature of these factors (Burchinal et al., 2006). In sum, in the

current study, teacher-child relationship quality was not found to moderate the effects of demographic risk on children's social outcomes.

Teacher-Parent Relationships and Children's Social Competence

In addition to examining the indicators of teacher-child relationships quality and their associations with children's social outcomes, teacher-parent relationship quality's impact on children's social outcomes was examined. As subscribed by the Bioecological Theory, the family-school mesosystem includes the interactive processes within and between families and schools (Bronfenbrenner, 1986). Within the family-school mesosystem, is the interactions between teachers and parents. Previous research defined these interactions via the construct of parent involvement, which was defined specific parent behaviors such as school visits, attendance at teacher-parent conferences, volunteering, and monitoring learning at home (ACYF, 2006; Fantuzzo, Tighe, & Childs, 2000; Marcon, 1999). Parent involvement has been associated with children's social outcomes in pre-kindergarten programs and Head Start programs (Marcon, 1999). In particular, preschoolers with high parent involvement had significantly greater development of communication, daily living, socialization, and motor skills compared to the preschoolers with low parent involvement. Along these lines, the Head Start FACES study (ACYF, 2006) reported that parent involvement in Head Start was related to children's social outcomes, whereby children whose parents were more involved demonstrated more positive social behavior than children whose parents were less involved. However, although there is a growing body of literature on parent involvement and its impact on children's outcomes, there is limited empirical research on the teacher-parent relationship quality, in particular.

There is limited empirical research on the importance of teacher-parent relationships and their influence on children's social outcomes. The current study's findings showed that teacher connections with parents were modestly related to children's positive and negative peer play interactions. Specifically, stronger teacher-parent connections were positively associated with children's prosocial peer play interactions and negatively associated with children's disconnected peer play interactions. Thus, children who had parents with stronger connections with teachers were more likely to display positive peer play interactions, whereas children who had parents with weaker connections with teachers were more likely to display disconnected peer play.

To investigate further the associations between teacher-parent relationships and children's social outcomes, hierarchical regression analyses were conducted. After controlling for children's gender and age, similar to the findings from the bivariate correlation analyses, teacher-parent relationship quality significantly predicted children's pro-social peer play and disconnected peer play. It significantly predicted 1% of the variance in children's prosocial peer play interactions and 1% of the variance in children's disconnected peer play interactions. Consequently, the results yielded small effect sizes for teacher-parent relationship quality as a predictor of children's social outcomes. However, these findings expand on the limited research on teacher-parent relationships and young, low-income children's social outcomes in providing some evidence that teacher-parent relationship quality plays an important role in the development of children's social outcomes.

Teacher-Parent Relationships as a Moderator of Risk on Social Competence

For young children from low-income families, parent involvement can function as an important protective factor that promotes resilience (Garmezy, 1991). To examine whether teacher-parent relationship quality functions as a buffer against low levels of maternal education on young low-income children's social outcomes, moderated multiple regression analyses were run. The current study's findings did not find significant moderator effects on the three indicators of children's social outcomes: play interaction, play disconnection, and play disruption. These results are not surprising due to maternal education variable not significantly predicting children's social outcomes. As previously stated, the limited variability of maternal education levels, the majority of the sample's participants identifying as African American, and additional factors such as parenting practices may have not allowed for significant findings in children's social outcomes. Previous research supports that parent involvement in Head Start may play a protective role in preventing negative outcomes due to family risk factors (FACES, ACYF, 2006). When parents were more involved and/or satisfied with the program, their children demonstrated more positive behavior than children whose parents were not involved and/or satisfied. The current study may have also found different results if the teacher-parent relationship construct was expanded to include additional parent involvement variables, and not only teacher reports, but classroom observations and parent reports. Overall, teacher-parent relationship quality was not found to moderate the effects of low maternal education on children's social outcomes. Further investigation should be conducted to shed light on the importance of parent involvement, and in particular,

teacher-parent relationships function in buffering against the development of young at-risk children's negative social outcomes.

Maternal Education and Children's Academic Competence

The associations between maternal education and children's academic outcomes were investigated. Previous research shows that children from low income families and who live in low-income communities are at a greater risk for poor academic outcomes than their peers who live in high income families and communities (McLoyd, 1990). The current study's findings showed that maternal education was significantly and positively associated with both children's receptive language and letter naming. Thus, the higher the level of maternal education the more language and known letters were demonstrated by children. In addition to examining bivariate correlations, hierarchical regressions were conducted. In controlling children's gender and age, maternal education significantly predicted both children's receptive language and letter naming. Maternal education significantly predicted 2% of the variance in children's receptive language and 1% in children's letter naming ability. Consequently, although maternal education significantly predicted children's academic outcomes, small effect sizes were found for these variables.

The current study's results correspond with prior research that has established the impact of family characteristics on children's academic competence in the early school years (e.g., Entwisle & Alexander, 1988; Mashburn et al., 2008; Pianta & McCoy, 1997). In particular, Burchinal et al. (2002) found that maternal education was moderately associated with children's receptive language and letter-word identification in preschool and continued through second grade. Overall, children were more likely to demonstrate

higher receptive language skills and basic reading skills if their mothers experienced more education. Furthermore, after adjusting for children's prior achievement at 54 months, Hamre and Pianta (2005) found children whose mothers earned less than a Bachelor's degree showed lower achievement scores at the end of first grade. The results suggest that at-risk children demonstrate lower achievement compared to their low-risk peers prior to entering school and this gap increases at the completion of first grade. Overall, the results from the current study add to the previous literature that low maternal education predicts children's academic competencies in preschool, and expands on the existing literature to include African American participants.

Teacher-Child Relationships and Children's Academic Competence

In addition to maternal education's associations with children's academic outcomes, this study examined teacher-child relationship quality and its relations to children's academic outcomes. Previous studies showed some evidence that teacher-child relationship quality is significantly associated with children's achievement (e.g., Birch & Ladd, 1997; Burchinal, et al. 2002; Hamre & Pianta, 2005; Howes et al. 2008, O'Connor & McCartney, 2007; Pianta, 1999; Pianta & Stuhlman, 2004; Peisner-Feinberg et al., 1997). For example, Howes et al. (2008) found that preschool-aged children who experienced close teacher-child relationships were more likely to know more letters and have higher language and literacy skills. Furthermore, research findings have suggested that close relationships between teachers and children and quality classroom practices are associated with higher language and cognitive skills in preschool (Peisner-Feinberg et al., 1997; 2001). Children who experienced higher quality preschool also showed better skills in the first year of school. The current study was consistent with prior research, in

which teacher-child relationship quality was significantly related to children's academic outcomes. In particular, teacher-child closeness was significantly and positively associated with both children's receptive language and letter naming. In contrast, teacher-child conflict was significantly and negatively associated with children's receptive language and letter naming. However, teacher-child dependency was not significantly associated with children's academic outcomes. Thus, children who experienced close teacher-child relationships were more likely to demonstrate higher academic outcomes than children who experienced conflictual teacher-child relationships.

Hierarchical regressions were also run to investigate further the associations between teacher-child relationship quality and children's academic outcomes. After controlling children's gender and age, the findings showed that teacher-child relationship quality, as a set, accounted for 3% of the variance in children's receptive language and 1% of the variance in children's letter naming. Consequently, small effect sizes were found for teacher-child relationship quality in predicting children's academic outcomes. After accounting for children's gender and age, teacher-child closeness positively predicted children's receptive language, but did not significantly predict children's letter naming. Teacher-child conflict negatively predicted children's letter naming ability, yet did not predict children's receptive language. Thus, children who had close teacher-child relationships tended to have higher receptive language and children who had conflictual teacher-child relationships tended to know fewer letters.

The current study's results correspond with previous research that close teacher-child relationships were associated with higher receptive language for preschool children

(Burchinal et al., 2002) and negative teacher-child relationships were related to children's lower achievement and school engagement (Hamre & Pianta, 2001; Ladd & Birch, 1999; Howes et al., 1994). In the current study, teacher-child dependency did not significantly predict children's academic outcomes. In contrast, Birch and Ladd (1997) found dependent teacher-child relationships were a strong correlate of school adjustment difficulties, including poor academic performance as well as negative school attitudes and less positive school engagement in kindergarten. The current study may have yielded different findings due to the younger age and higher risk level of the children in the sample, the use of different measurements of outcomes, and differences in children's ethnicity.

O'Connor and McCartney (2007) also found that after controlling for child and family influences, high quality teacher-child relationships fostered children's academic outcomes, increasing the trajectory of teacher-child relationship quality starting in preschool seemed to support children's academic outcomes. On the contrary, the decreasing trajectory of relationship quality was a risk factor for children's outcomes. The quality of reciprocal interactions between teachers and children play an important role in children's outcomes in early childhood and the primary grades. Thus, the study's findings expand on the previous research by including mainly African American children and examining the importance of early teacher-child relationships in young at-risk children's academic outcomes. Overall, the study yielded significant results for teacher-child relationship quality as a predictor of children's academic outcomes.

Teacher-Child Relationships as a Moderator of Risk on Academic Competence

Moderated multiple regression analyses was conducted to examine further the associations between maternal education, teacher-child relationship quality, and children's academic outcomes. Prior studies have found that teacher-child relationships can function as a buffer for at-risk children in developing academic problems (Burchinal et al., 2002; Hamre & Pianta, 2001; O'Connor & McCartney, 2007). As specified previously, in Hamre and Pianta (2005), at-risk children who experienced both strong instructional and emotional support showed academic outcomes and teacher-child relationship quality equivalent to their low risk peers. In contrast, at-risk children who experienced less instructional and emotional support showed lower academic skills and higher teacher-child conflict compared to their low risk peers. Unlike the current study, Hamre and Pianta (2005) did not include high-risk children. Researchers also found that high quality teacher-child relationships buffered children against the negative impact of insecure maternal attachment on children's academic outcomes (O'Connor & McCartney, 2007). The current study found that teacher-child relationship quality significantly moderated low levels of maternal education in the development of children's academic outcomes, particularly for children whose mothers had not earned a high school diploma or GED. Teacher-child closeness significantly moderated low levels of maternal education on children's letter naming. Higher levels of teacher-child closeness seemed buffer the impact of lower levels of maternal education, whereas lower levels of teacher-child closeness seemed to exacerbate the impact. Furthermore, teacher-child conflict also significantly moderated low levels of maternal education on children's letter naming. In

particular, while lower levels of teacher-child conflict appeared to buffer against the impact of lower levels of maternal education, higher levels of teacher-child conflict appeared to increase the impact of lower levels of maternal education.

The current study did not find moderating effects between maternal education, teacher-child relationship quality, and children's receptive language. Although teacher-child closeness and conflict provided the only significant interaction effects related to low income children's letter naming, these findings provide some evidence that teacher-child relationships may mitigate or intensify children's risk of poor academic outcomes. According to Connor et al. (2005), families who are considered to have low socioeconomic status (SES) tend to have children who attend low SES schools that are more likely to have teachers with less education, less warmth and responsiveness, and lower quality classrooms compared to high SES schools. Thus, children who experience these cumulative risk factors of may be especially in need of quality teacher-child relationships. The current study's findings provide some support that that high levels of closeness and low levels of conflict help to protect young at-risk children from poor academic outcomes, whereas, low levels of closeness and high levels of conflict may put these children at greater risk for developing poor academic outcomes.

Teacher-Parent Relationships and Children's Academic Competence

The associations between teacher-parent relationship quality and children's academic outcomes were also investigated. Marcon (1999) found that increased parent involvement and more active types of parent involvement were related to more positive development in all areas of adaptive functioning and early basic skills. However, little empirical research has been conducted on the relationships between families and schools,

namely teacher-parent relationships. Prior research has found that teachers' connections with parents play an important role in children's academic outcomes (e.g., Boethel, 2003; Henderson & Mapp, 2002; Hughes et al., 2005; Hughes & Kwok, 2007; Marcon, 1999; Mashburn & Pianta, 2006; Waanders et al., 2007). For example, Hauser-Cram, Sirin, and Stipek (2003) examined teachers' perceptions of the congruence between their education-related values and those of parents and their perceptions of children's academic abilities. When controlling for children's measured abilities and socio-economic status, teachers reported children to be less competent when they perceived differences in values with parents. Thus, the researchers concluded that differences in teacher and parent backgrounds may lead to teachers perceiving differences in their education-related values with that of parents and differences in children's academic abilities. Similarly, Rimm-Kaufman et al. (2005) found that kindergarten teacher reports of parents' attitudes about education predicted children's participation and classroom engagement, after controlling for SES and maternal sensitivity. Furthermore, Hughes and Kwok (2007) found that teachers' relationships with parents mediated the associations between lower achieving, first grade children's background characteristics and teacher-reported classroom engagement. These first-grade children's classroom engagement also mediated the associations between teacher-parent relationships and children's achievement during their second grade year.

In the current study, teacher-parent relationships were significantly associated with both children's receptive language and letter naming ability. Stronger teacher-parent connections were associated with higher receptive language and more letters identified. In contrast, weaker connections between teachers and parents were associated with lower

receptive language and letter naming. These findings suggest some young children from low-income backgrounds enter on a path for positive academic outcomes while others do not, based on teachers' connections with parents. The study also examined teacher-parent relationships associations with children's academic outcomes, after controlling for children's gender and age. Teacher-parent relationship quality accounted for 3% of the variance in children's letter naming and 1% of the variance children's receptive language. Effect sizes were considered small for both children's receptive and expressive language. Thus, overall, teacher-parent relationship quality modestly predicted young, low-income children's academic outcomes. The current study adds to the literature the associations between teacher-parent relationships and young at-risk children's academic outcomes.

Teacher-Parent Relationships as a Moderator of Risk on Academic Competence

To investigate further the relations between maternal education, teacher-parent relationship quality, and children's academic outcomes, moderated multiple regression analyses were run. The study's hypothesis was that teacher-parent relationship quality would function as a buffer against low levels of maternal education on children's academic outcomes. Previous research has found that teacher-parent relationships mediate the association between African American status and teachers' perceptions of children's abilities (Hughes et al., 2005). Teachers' and parents' shared goals and values may facilitate teachers' expectations of children's abilities. Furthermore, as previously mentioned, the research suggests that teacher-parent relationships mediate the associations between lower achieving children's background characteristics and children's classroom engagement. In turn, classroom engagement mediated the relations between teacher-parent relationship quality and children's achievement the following

year (Hughes & Kwok, 2007). In the current study, although the hierarchical regression analyses found that teachers' connections with parents significantly predicted children's receptive language and letter naming, the results did not yield significant moderating effects for teacher-parent relationship quality. The lack of significant interaction effects may relate to the homogenous nature of mothers' education levels in the sample. Future research should investigate teacher-parent relationship quality's moderator effects in more diverse samples and also include additional measures of risk and teacher-parent relationship quality. In sum, the current study did not find that teacher-parent relationship quality buffered against low maternal education in the development of children's academic outcomes.

Implications

Research

The current study's findings have important implications for future research investigating factors that contribute to young children's risk for developing negative school outcomes and how early relationships can protect against these negative outcomes. It is recommended that future research investigate maternal education's linkage with children's social outcomes with a sample of both Head Start and non-Head Start children and families. In this way, the sample should have more variability in maternal education, allowing for more differentiation of risk. In addition, future research should include ethnically-diverse children to investigate the differences in children's outcomes, based on ethnicity. Furthermore, research should examine whether maternal education is mediated by teacher-child and teacher-parent relationships. Maternal education may indirectly

impact children's social and academic outcomes via teacher-child and teacher-parent relationships.

Future research investigations should broaden the scope of risk factors examined in relation to young children's social and academic outcomes and examine the protective roles of teacher-child and teacher-parent relationships in buffering these risk factors. Rubin, Burgess, Dwyer, and Hastings (2003) indicated that there are three types of risk related to young children's outcomes: a) forces internal to the child; b) socialization forces; and c) external forces. Consequently, there may be other types of risk that demonstrate robust effects and interact with teacher-child and teacher-parent relationship quality in predicting young children's social and academic outcomes. For instance, previous research shows some evidence that teacher-child relationship quality functions as a buffer against rejecting parenting (Hughes et al., 1999) and can attenuate the associations between child temperament and disruptive peer play (Griggs et al., 2009). Furthermore, a cumulative effect of risk could have better predicted children's social and academic outcomes. The cumulative risk model proposes that it is the quantity of risk factors rather than the types or weighting of the factors that influences children's outcomes (Rutter, 1979). Future research should investigate different types of risk and their additive value.

In the area of teacher-parent relationships, Hughes and Kwok (2007) found that teacher-parent relationships mediated the associations between children's background characteristics (i.e., ethnicity) and teacher-rated classroom engagement. However, there is limited evidence of the moderating effects of teacher-parent relationship quality on buffering the impact of risk on children's developmental outcomes. In addition to

maternal education, other risk factors should be investigated in terms of their interactions with these relationships and child outcomes. Overall, it is recommended that researchers assess which early risk factors tend to predict children's negative outcomes and whether teacher-child and teacher-parent relationships function as protective factors for some risk factors and not others.

Children's peer play interactions were the only social outcomes incorporated in the study. Further research should be conducted on the protective role of teacher-child and teacher-parent relationship quality on additional areas of social-emotional functioning (e.g., emotional regulation, externalizing and internalizing behaviors). Previous studies have found support for relations between teacher-child relationship quality and social-emotional functioning (Howes et al., 1994; Pianta & Stuhlman, 2004), but it remains unclear whether teacher-child relationship quality can increase social competencies in some areas but not others. Furthermore, prior research has focused on parent involvement and children's social outcomes and found associations between the two constructs (FACES, ACYF, 2006; Marcon, 1999). However, limited research has explored the associations between teacher-parent relationships and young at-risk children's social outcomes. Mendez (2010) found that parents' participation in a parent involvement program and teacher-parent relationship quality were associated with parent-reported children's social competence. The current study found both teacher-child and teacher-parent relationship quality were related to children's social outcomes. Thus, future research should explore other measurements of social-emotional functioning and how these social competencies relate to teacher-child and teacher-parent relationships.

Recent government policies are emphasizing the importance of young children's school readiness (e.g., No Child Left Behind Act, U.S. Department of Education, 2001). Future research should explore the influences of teacher-child and teacher-parent relationships on not only social outcomes but academic outcomes. There is evidence that teacher-child relationships (e.g., Hamre & Pianta, 2001; Peisner-Feinberg et al., 2001) and parent involvement (e.g., Marcon, 1999; Mendez, 2010) are associated with children's academic outcomes. For instance, preschool teacher-child relationships have been evidenced to predict children's academic outcomes in early elementary school (Hamre & Pianta, 2001). Although parent involvement has been associated with children's academic outcomes, there is a limit of research studies investigating teacher-parent relationships' associations with children's academics. Previous research on teacher-parent relationships has shown associations with children's classroom engagement and teachers' perceptions of children's academic abilities (Hauser-Cram et al., 2003; Hughes et al., 2005; Hughes & Kwok, 2007). Mendez (2010) found that both parents' participation in a parent involvement intervention and teacher-parent relationship quality were associated with high levels of children's receptive language. It is recommended to expand the measurements of academic outcomes to include other early literacy measures (e.g., mathematics), and further, conduct additional research that specifically focuses on young at-risk children, and whether teachers' relationships with these children and parents can protect against school failure.

Another area that calls for further investigation is children's appraisals of teacher-child relationships and teacher-parent relationships. This study only employed teacher reports of their relationships with children and families. Numerous studies have only

used teacher reports of teacher-child relationships (e.g., Hamre & Pianta, 2001) and teacher-parent relationships (e.g., Hughes & Kwok, 2007). In recent studies, researchers have started to examine children's reports of teacher-child relationships and teacher-parent relationships and how these relationships are associated with children's outcomes (Decker, Dona, & Christenson, 2007; Doll, Zucker, & Brehm, 2004; Mantzicopoulos & Neuharth-Pritchett, 2003). Doll, Zucker, and Brehm (2004) developed a classroom-based survey to target general classroom learning supports and to define goals for consultation in elementary and middle school classrooms. In particular, the survey measures teacher-child relationships, home-school relationships, peer relationships, and children's academic efficacy and self-determination. Furthermore, Decker, Dona, and Christenson (2007) found that children's reports of their relationships with teachers were associated with social, behavioral, and classroom engagement outcomes for elementary school-aged children. Mantzicopoulos and Neuharth-Pritchett (2003) developed the Young Children's Appraisals of Teacher Support (Y-CATS) designed to measure Head Start attendees and former Head Start attendees perceptions of their relationships with teachers. The researchers found that African American males reported more conflictual relationships with teachers and these reports were associated with children's academic achievement and teacher reports of children's social behavioral outcomes. Further research should be conducted to develop appropriate measurement tools to assess preschool children's perceptions of their relationships with teachers and their parents' relationships with teachers. Young children's perceptions of these relationships may be equally as important as teachers' perceptions. Although teacher-child and teacher-parent

relationships involve reciprocal interactions between teacher and child and teacher and parent, most studies include reports only from the teacher and not from the child.

The current study attempts to measure teacher-child and teacher-parent relationships in Head Start. There may be better measures of these constructs or more relevant constructs that were not measured. Researchers have defined teacher-child relationship quality as the constructs of closeness, dependency, and conflict. These constructs may be too narrowly defined when measuring teacher-relationship quality. In the area of parent involvement, some researchers have differentiated between parenting attitudes and values, parenting practices, and parenting styles (e.g., Smetana & Daddis, 2002). This line of research has shown how different aspects of parenting influence children's outcomes (Hauser-Kram, et al., 2003; Hughes & Kwok, 2007; Linver, Brooks-Gunn, & Kohen, 2002; Marcon, 1999; Waanders et al., 2007). It is important for future research to investigate whether there are other important constructs of teacher-child relationship quality and teacher-parent relationship quality that are not currently being measured.

The current study did not examine teacher characteristics and their associations with teacher-child relationship quality and teacher-parent relationship quality. Kesner (2000) found differences in teachers' relationships with kindergarten through fifth grade children, based on their ethnicity, gender, and perceived relationship history. Future research should expand the scope of potential correlates to include teacher characteristics, such as training, education, experience, depression, and stress. Limited research has been conducted in this domain (e.g., Hamre & Pianta, 2004; Hamre, Pianta, Downer, & Mashburn, 2008; Yoon, 2002). Some support exists that depressed teachers are less

sensitive and responsive in their caregiving and display more negative behaviors with children (Hamre & Pianta, 2004). Hamre et al. (2008) found that teachers who reported more depression and less self-efficacy and teachers who were observed to provide less emotional support in the classroom were more likely to report higher conflict with children in their classroom than expected. Furthermore, the stress levels of teachers also have been associated with a higher likelihood of expulsions in preschool (Gilliam & Shahar, 2006). In particular, teachers were four times more likely to expel a child if these teachers reported high versus low job stress levels. Even less evidence is available in regard to the associations between teacher characteristics and teacher-parent relationship quality. Rimm-Kaufman and Pianta (1999) found the number of years of teaching preschool was associated with the rate of family-school contact. Furthermore, research has shown that teachers will rate children as less competent when they perceive value differences with parents (Hauser-Cram, et al., 2003). It is recommended that future research continue to investigate teacher characteristics and how they may play a role in the quality of teachers' relationships with children and parents.

Future research should also investigate teacher-child relationship and teacher-parent relationship influences on children who are identified as experiencing problems prior to classroom entry. The effects of teacher-child relationship and teacher-parent relationship dynamics may buffer or magnify the initial behaviors and achievement of at-risk children. Furthermore, future studies should examine the stability of teacher-child and teacher-parent relationships over time. The current study examined relationships and children's outcomes during one time period instead of over several time periods. Teachers' perceptions of their relationships with children and parents may be a

summation of their experiences over the year or a reflection of their experiences on a given day or week.

It is recommended that researchers examine differences in early relationships and children's outcomes, based on diagnosed disability and language spoken at home. The current study had a sample size of children diagnosed with a disability and children who spoke another language at home. Thus, it is important that future research include these child characteristics when examining teacher-child and teacher-parent relationships impact on children's social and academic outcomes.

It is recommended to collect information from multiple informants on teacher-child and teacher-parent relationships and children's outcomes. Although teacher reports have been found to be reliable (Pianta, 1999), it is important to use multiple methods of data collection to ensure unbiased data. Previous studies have used classroom observations to assess teacher-child relationship quality (e.g., Hamre & Pianta, 2005; Peisner-Feinberg et al., 2001). Furthermore, several observational measures are purported to measure overall classroom quality (e.g., Arnett Scale; Arnett, 1989; ECERS-R; Harms, Clifford, & Cryer, 1998). Nevertheless, there are few measures for data collection on individual teacher-child interactions. It is important that future research incorporate parent reports and observational measures and continue to examine the stability of children's outcomes across contexts determining whether the influences of teacher-child relationship quality and teacher-parent relationship quality are limited to the classroom setting.

The current study provides further support that teacher-child relationship quality and teacher-parent relationship quality are significantly related to children's social and

academic outcomes. Nevertheless, the design of the study was cross-sectional, not allowing for conclusions about causation. Research designs should be controlled and longitudinal to determine the impact of these early relationships on children's outcomes. However, the current study employed moderated multiple regression analyses to assess the moderation effects of early relationships on children's outcomes. An alternative option would have been to use structural equation modeling to test the causal relationships. This analytical tool is considered more powerful than regression, whereby it models interactions, accounts for measurement error, and tests overall models in lieu of the individual relationships between the variables (Garson, 2006). Future researchers should employ this method and similar methods to evaluate interactive models of children's development.

Policy and Practice

Research has provided some support that Head Start programs play an important role in the development of children's social and academic competencies (FACES,ACYF,OPRE, 2006). However, further program evaluation and improvement of services are needed to prevent young at-risk children from developing negative outcomes. In particular, the current study provides some evidence that providing training to teachers on child development and barriers to parent involvement, and the means to increase both teacher-child and teacher-parent relationship quality may increase Head Start's positive influence on children's social and academic competence.

The current study expands on the growing body of literature that quality teacher-child and teacher-parent relationships can predict children's positive social and academic outcomes (Birch & Ladd, 1997; Hughes & Kwok, 2007; Marcon, 1999; O'Connor &

McCartney, 2007; Pianta & Stuhlman, 2004; Pianta et al., 2005). While the majority of children in the sample experienced quality teacher-child and teacher-parent relationships, 15% of children experienced teacher-child conflict at elevated levels as well as 24% experienced low teacher-child closeness. These findings are worrisome considering the evidence that early conflictual relationships predict later school problems (Pianta et al., 1995).

It is important to instruct teachers on how to deal with these negative relationships and lack of positive relationships with children and families. Head Start teachers require support and training on how to interact with all children and families, and in particular, children and families who are most at risk. Teachers may lack the adequate skills to deal with children's negative behaviors, which unfortunately may relate to teacher burnout and high turnover rates. Thus, mental health service providers should be available to consult with teachers in assessing and responding appropriately to children and families who are at risk as well as provide supportive strategies for maintaining teachers' overall wellness.

Higher education programs tend to focus on preparing teachers to instruct children in the necessary academic skills, and may not prepare teachers on how to positively and appropriately interact with children and their families. Employing classroom observations and report measures are critical to assessing classroom practices and providing feedback to teachers that will help positively shape children's experiences. It is essential that training programs incorporate individualized ongoing assessment and feedback and mentoring to teachers in addition to mandated professional development workshops.

Head Start mandated professional development trainings could be used to train teachers on positive teacher-child and teacher-parent interactions. Furthermore, teachers could learn how to better handle children who are displaying social and academic problems. Programs may want to focus on identifying teachers who are experiencing high conflict and low close relationships with children and teach them techniques to avoid conflict and to promote close relationships with children. For example, interventions such as Banking Time, a set of one-to-one meetings between the teacher and child comprising of child-led play and teacher facilitation techniques, could be implemented (Driscoll & Pianta, 2010). As a result of this intervention, Head Start teachers reported increased closeness with children, and children's increased frustration tolerance, task orientation, and competence, and decreased conduct problems. Similar research-based interventions should be used to assist teachers in developing positive relationships with children.

Moreover, Head Start teachers require more training on understanding developmentally-appropriate behavior and gender differences in behavior. The current study's findings suggest that teachers reported that younger children displayed more play disconnection and older children displayed more play interaction, receptive language, and letter naming. Furthermore, young children tended to have parents who had weaker connections with teachers. Research suggests that adult caregivers frequently perceive young children's behavior as abnormal due to limited knowledge of developmentally-appropriate behavior (Campbell, 2002). In addition, the study found that teachers perceived more closeness with girls than boys and more conflict with boys than girls. Furthermore, teachers reported that girls were more likely to have pro-social peer play

interactions than boys while boys were more likely to have disconnected and disruptive peer play interactions than girls. Girls also identified more letters than boys. With a fuller understanding of developmentally-appropriate behaviors and gender differences, teachers may have a better frame of reference to qualify children's behaviors as within the normal range or meeting criteria for more serious problems. Furthermore, a better understanding of children's development and gender-specific behaviors may assist teachers when discussing their concerns with parents, and in turn, help build stronger relationships between teachers and parents.

Teachers also need training in how to promote home-school connections with parents of at-risk young children. These connections have the potential of fostering school readiness skills for children. Mendez (2010) conducted an intervention to promote parent involvement with ethnic minority families of children attending Head Start. Teacher-parent relationship quality was associated with parents' participation in the intervention program. Furthermore, both parental participation and teacher-parent relationship quality were associated with high levels of children's school readiness outcomes. In particular, children who participated in the intervention demonstrated more receptive language and parent-reported social competence by end of year. Thus, the findings suggest that parent involvement in children's educational programs increases the continuity of learning across home and school environments and facilitates children's development of social and academic outcomes. Nevertheless, the process of establishing home-school connections is not necessarily an easy one. Many families confront numerous barriers that dissuade them from becoming more involved in their children's schooling (e.g., differing views of educational practices, language barriers, work schedule

conflicts, mental health). Thus, it is important that teachers are trained to recognize potential barriers to parent involvement, have the knowledge to overcome these barriers, and establish quality relationships with parents.

In sum, the current study supports policies and practices that promote Head Start children's social and academic competencies. In particular, it is recommended that Head Start centers focus on teacher-child relationships and teacher-parent relationships to promote positive social and academic functioning, specifically for children who are most at risk for negative developmental outcomes. As a result of the study's findings, the following recommendations are provided: 1) Center-wide screening of risk factors and children's social and academic problems during enrollment as well as a process for referrals and follow-ups; 2) Trainings and continual feedback for teachers in regards to the identification of children's social and academic problems; 3) Observation, monitoring, and feedback regarding teachers' interactions with children and families, especially children who are displaying social and academic problems; and 4) Incorporation of evidence-based interventions that promote children's social and academic competencies through quality relationships with children and families.

Limitations

Although the current study adds to the literature on teacher-child and teacher-parent relationships, there are several limitations worth noting. Since the study's design was cross-sectional, did not include a control group, and was correlational and not causal, the results of the study should not be considered determinants of children's social and academic competencies and generalized to all Head Start children. In addition, it is possible that the significance of the interaction effects may have been due to the large

sample size. The study also included substantial missing data. To address this issue, the method of multiple imputation was performed. The multiple imputation approach in NORM (Schafer, 1997) uses the Expected Maximization (EM) algorithm and the Markov Chain Monte Carlo (MCMC) method of creating a small number of independent draws of the missing data from a predictive distribution. Other methods of addressing the missing data, such as maximum likelihood estimation, might have yielded different results.

Moderated multiple regression was selected as the data analytical design for the study due to the research questions and ample sample size. Nevertheless, the data analytical design was correlational and cannot be used to determine causal effects of the variables. In contrast, structural equation modeling tests causal relationships and is considered more powerful than regression, whereby it tests overall models instead of the relationships among the variables. Furthermore, hierarchical linear modeling has been recommended when individuals' behaviors exist within organizations (Davidson, Kwak, Seo, & Choi, 2002). This type of data analysis was not conducted due to the sample of organizations not being sufficient to assure model convergence. Since the current study did not use hierarchical linear modeling, it did not account for the nested design of the data.

The study's data analytical design did not allow for conclusions in regard to the causation of risk and teacher-child and teacher-parent relationship quality on children's social and academic outcomes. The study was unable to determine the direction of causality between risk, teacher-child relationship quality, teacher-parent relationship quality, and children's social and academic competence. The study attempted to answer whether quality teacher-child and teacher-parent relationships lead to positive peer play

interactions and high academic outcomes. In contrast, perhaps, children who display negative peer play interactions and lower academic outcomes facilitate teacher-child interactions signified by high conflict, low closeness, and weak teacher-parent connections. To answer these questions, researchers would need to conduct a longitudinal study that controlled for children's initial social and academic functioning. Nevertheless, strong empirical support exists that maternal education and teacher-child relationship quality (Peisner-Feinberg et al., 2001) are longitudinal predictors of children's problem behaviors. Limited empirical evidence exists that teacher-parent relationship quality is a longitudinal predictor of children's social and academic competence. Future research should investigate the transactional nature of teacher-child and teacher-parent relationships and children's social and academic competence.

In the current study, the findings indicated high correlations between teacher-child relationships and children's social outcomes, which may be interpreted as two measures of the same construct. Nevertheless, Pianta and Stuhlman (2004) argue that early teacher-child relationship quality has been found to have long-term predictive validity on children's subsequent behavioral outcomes. The same study found associations between teacher-reported and observed relationship quality and children's behaviors. This finding supports that teachers can be accurate reporters of their relationships and children's outcomes.

The study also did not collect data on the overall classroom. Bio-ecological theory indicates that it is important to investigate contextual variables and proximal processes in predicting children's developmental outcomes. The study focused on proximal processes, teacher-child relationships and teacher-parent relationships, rather

than the classroom context. However, it is essential to understand children's developmental outcomes within the classroom context (i.e., structure, demands). For instance, teachers' instructional styles have been associated with teacher-child relationships and children's outcomes (Hamre & Pianta, 2005; Stuhlman & Pianta, 2004). Furthermore, teachers' emotional support predicted children's social competence, whereas instructional support predicted children's academic competence (Hamre & Pianta, 2005). Although some researchers have started to examine the complex interactions among classroom contextual influences, teacher-child interactions, and children's behavioral outcomes (e.g., Buyse, Verschueren, Doumen, Van Damme, et al., 2008) further research is needed that incorporates both contextual and proximal processes in predicting children's social and academic outcomes.

Conclusion

In the developmental systems model, social interactions can act as a key mechanism that impacts children's readiness to learn. Relationships between children and teachers and teachers and families are proximal processes in which children acquire social and academic competence. Children are imbedded in these multiple social systems (families, schools, peers) and children's developmental outcomes are the consequences of the associations between these contexts (Mashburn & Pianta, 2006). Furthermore, this theory helps to conceptualize the quality of relationships as a means of fostering young at-risk children's resilience. In using developmental theory, the current study adds to the growing body of literature that supports the important role that teachers play in promoting young children's development.

The current study's results replicate and expand on previous research with predominantly African American children who attend Head Start. Previous research has found that high close teacher-child relationships were associated with children's positive social and academic outcomes and high conflict teacher-child relationships are associated with negative social outcomes and poor academic outcomes (e.g., Pianta & Stuhlman, 2004). Low teacher-child dependency has also been found to be associated with children who exhibit low disruptive peer play (Griggs et al., 2009). The current study found that teacher-child relationship quality was strongly associated with young at-risk children's social competence and moderately associated with their academic competence. These results suggest that it may be equally as important to prevent teacher-child conflict as to promote teacher-child closeness when attempting to reduce young at-risk children's negative social and academic outcomes. Young children who experience quality relationships with their teachers may develop internal working models of appropriate play behavior and develop cognition through these relationships. Although teacher-child dependency was not as robust of a predictor of children's outcomes as closeness and conflict, it was found to have a significant relationship with play disconnection. Young children who are at-risk and more dependent on their teachers may lack the adequate skill-set to play appropriately with their peers

The current study also adds to the growing literature on teacher-parent relationships and their associations with children's school outcomes. Previous studies have found teacher-parent relationship quality was associated with parent-reported children's social competence (Mendez, 2010) and teacher expectations' of children's academic abilities (Hughes et al., 2005). The current study's results suggest that children

whose parents experienced stronger relationships with teachers demonstrated more positive peer play, less disconnected peer play, and better academic outcomes. Parents who are involved more in their children's schooling and know teachers well may provide more opportunities for children to gain the necessary social and academic skills to be successful in school. Furthermore, teachers were able to establish better connections with parents who had more education. The study's findings suggest that stronger teacher-parent relationships may help to foster young at-risk children's social and academic outcomes, whereas weaker teacher-parent relationships may increase young at-risk children's vulnerability for negative outcomes.

Maternal education moderately predicted children's academic outcomes, but did not predict children's social outcomes. Consequently, maternal education may have not been a robust risk factor for this particular sample of predominantly African American children. Other risk factors may have yielded different results. However, the findings suggest that mothers who have attained higher levels of education may provide greater opportunities for children to gain developmentally-appropriate academic skills. Previous research had found that mothers who have experienced low levels of education are less likely to provide quality literacy experiences to their children (U.S. Department of Education, 2000). Furthermore, the lack of association between maternal education and children's social outcomes suggests parents who experience fewer years of education can still raise socially competent children.

Child characteristics also were found to relate to relationships between children and teachers, parents and teachers, and children's competencies. Overall, boys experienced more negative relationships with teachers, more negative peer play, and

poorer letter naming outcomes than girls. Furthermore, younger children had parents who experienced weaker relationships with teachers, higher negative peer play, and poorer letter naming and receptive language outcomes than older children. Lastly, the study provided some support that children who are diagnosed with a disability are more at risk for negative social and academic outcomes. Many teachers may not possess the adequate skill-set to deal appropriately with children and families who are most at risk. These findings are disturbing since research indicates that children's early relationships are important in establishing children's interaction styles, which can persist throughout early childhood into the elementary school years (Howes, 2000).

The current study found some support that teacher-child relationship quality functions as a protective factor as well as a risk factor for children at risk. The findings suggest that teacher-child relationship dynamics may magnify children's achievement differences in the most at-risk young children. In particular, high teacher-child closeness and low teacher-child conflict buffered against low maternal education in the development of children's letter naming. Furthermore, low teacher-child closeness and high teacher-child conflict appeared to exacerbate the relationships between low maternal education and children's letter naming. These results add to the growing body of literature that suggests that early relationships may assist young children who experience negative risk factors in developing positive outcomes (e.g., Hamre & Pianta, 2005).

It is recommended that future research examine teacher-child relationships and teacher-parent relationships and children's social and academic outcomes over time, to evaluate the moderating effects of teacher-child and teacher-parent relationship quality on children's trajectories. Additional research is needed to better understand how teachers

impact the pathways from risk to children's overall school readiness outcomes for designing and implementing classroom interventions. In particular, interventions should target the improvement of teacher-child relationships and teacher-parent relationships in promoting children's resilience. Empirically-validated training programs should be developed for teachers to learn how to develop and maintain positive relationships with children, especially for children who are most at risk for school failure. The current study adds to the growing body of research that enhancing teacher-child relationships and teacher-parent relationships may promote school readiness outcomes for all young children, and in particular, may be vital in shaping positive social and academic outcomes for the most vulnerable young children.

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