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Effect of Preschool Classroom Quality on Social and Language Development

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EFFECT OF PRESCHOOL CLASSROOM QUALITY ON SOCIAL AND LANGUAGE DEVELOPMENT

by

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ABSTRACT
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The purpose of this study was to examine the effects of child care classroom quality on language and social outcomes for economically disadvantaged preschool youth who have been enrolled in a high-quality preschool program for one year. The study investigated preschool children's receptive language ability and social development in relation to environmental quality and teacher-child interaction quality, while controlling for child and teacher gender, teacher level of education, children's dominant language, and children's initial performance on measures of receptive language and social development, as assessed by the PPVT-IV and DECA-C, respectively. The sample was drawn from a specific model of high quality child care education centers located in urban areas throughout the United States. Survey, child assessment, and observation data used in the present study are part of a larger study known as the Educare Learning Network Implementation Study. The Implementation Study is a partnership between the Ounce of Prevention Fund and Frank Porter Graham Child Development Institute at the University of North Carolina. Principal investigators for the Educare Learning Network Implementation Study are Noreen Yazejian and Donna Bryant. For the present study, child care classroom environmental quality was examined as a broad construct using the

Early Childhood Environment Rating Scale – Revised (ECERS-R; Harms, Clifford, & Cryer, 1998), and the quality of teacher-child interactions was explored in-depth using the Classroom Assessment Scoring System (CLASS; Pianta, La Paro, & Hamre, 2008). Hierarchical linear modeling was used to analyze the impact of quality on children's receptive vocabulary and social competency. Overall classroom quality, as assessed through the ECERS-R, was not related significantly to any of the measured child outcomes. With regard to teacher-child interaction quality, as assessed by the CLASS, results indicated that the quality of emotional support and classroom organization were significantly predictive of children's behavioral concerns. In particular, higher quality emotional support and classroom organization predicted fewer behavioral concerns at school. Together the results suggest that classroom quality factors may impact on students' development of social competencies, however, the results of the present study did not indicate a link between classroom factors and young children's development of early literacy. Possible explanations for the study findings, along with study limitations, are discussed.

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TABLE OF CONTENTS

LIST OF TABLES

CHAPTER ONE

The use of non-parental child care has been on the rise in the United States in recent decades, warranting the need for high quality research on the impact of center-based child care. By the mid-1980s, the majority of women in the United States with preschool-age children were working outside of the home (Deater-Deckard, 1996). Since then, the number of children under the age of five being cared for by someone other than a parent continues to be on the rise. Therefore, child care centers are one of the fastest growing resources for working parents (Deater-Deckard, 1996). A majority of all children now experience center-based child care prior to elementary school, with preschool-age children attending at higher rates than infants and toddlers (Peisner-Feinberg et al., 2001). Due to these high levels of attendance, the quality of center-based child care programs has become an important public policy issue (Peisner-Feinberg et al., 2001). Of particular interest to researchers, educators, and policy-makers is the relation between program quality and children's cognitive and social functioning. Some researchers have found that the quality of these centers is associated with children's social, language, and cognitive development in early childhood (Burchinal et al., 2000; Mashburn, 2008). However, evidence across studies is somewhat inconsistent, which may be due to the methodology used in this type of research. For example, sample sizes and participant characteristics differ widely across studies (Mashburn, 2008; Vandell & Wolfe, 2000). Two large longitudinal studies of children from diverse racial, geographic, and economic backgrounds found long-term effects of preschool quality on development (NICHD-ECCRN, 2002; Peisner-Feinberg et al., 2001). However, other studies with smaller sample sizes of homogenous racial and economic samples of children did not find

any long-term effects of preschool quality on child developmental outcomes (Chin-Quee & Scarr, 1994; Deater-Deckard, Pinkerton, & Scarr, 1996). Mixed results may also be in part due to the lack of variability in quality ratings among classroom or center environments. Studies with little variability in quality between classroom or center environments tend to find a weak relationship between quality of environment and child outcomes (Burchinal et al., 2000).

Furthermore, preschool quality is a broad and multidimensional construct that consists of many specific components. The way in which quality is defined and measured differs across studies and likely influences results (Mashburn, 2008). Studies examining the link between program quality and child outcomes tend to measure quality along a single dimension ranging from low to high quality, therefore neglecting to identify particular quality components that are most related to positive developmental outcomes (Mashburn, 2008). Identifying program features that are specifically linked to child outcomes may inform decisions about how to design effective preschool programs for children.

While there is growing literature on the relation between child care quality and child outcomes, only one known previous research has included both the commonly used Early Childhood Environment Rating Scale – Revised (ECERS-R; Harms et al., 1998) as well as the Classroom Assessment Scoring System (CLASS; Pianta et al., 2008) to assess classroom quality (Mashburn et al., 2008). The CLASS is a more focused and recently developed observational tool used to assess the quality of relationships and interactions in the preschool classrooms (Pianta et al., 2008). The use of the ECERS-R and CLASS to assess quality would benefit research in this area because including both assessment tools

allows for a more in-depth look at quality than the use of only one tool. In addition, many prior research studies in this area have examined quality as a broad construct, and there is a need for research that examines specific quality characteristics at a deeper level for researchers, educators, the public, and policy-makers to better understand the role of specific quality characteristics in improving child outcomes.

Overview of Study

The purpose of the present study is to examine the effect of child care classroom quality on language and social outcomes for economically disadvantaged preschool youth who have been enrolled in a high-quality preschool program for one year. Child care classroom environmental quality is examined as a broad construct, and the quality of teacher-child interactions is explored in-depth. Specifically, the present study investigates preschool children's receptive language ability and social development in relation to environmental quality and teacher-child interaction quality, while controlling for child and teacher gender, teacher level of education, children's dominant language, and children's initial performance on measures of receptive language and social development. The following research questions are addressed in the study:

1) *What are the effects of overall preschool classroom quality on children's language and social development after controlling for child and teacher gender, teacher level of education, children's dominant language, and children's initial performance on measures of receptive language and social development?*
2) *What are the effects of the quality of teacher-child interactions on children's language and social development after controlling for child and teacher gender,*

teacher level of education, children's dominant language, and children's initial performance on measures of receptive language and social development?

a. *What is the effect of Emotional Support on children's language and social development after controlling for child and teacher gender, teacher level of education, children's dominant language, and children's initial performance on measures of receptive language and social development?*
b. *What is the effect of Classroom Organization on children's language and social development after controlling for child and teacher gender, teacher level of education, children's dominant language, and children's initial performance on measures of receptive language and social development?*
c. *What is the effect of Instructional Support on children's language and social development after controlling for child and teacher gender, teacher level of education, children's dominant language, and children's initial performance on measures of receptive language and social development?*

Several hypotheses have been made regarding the present study. First, it is expected that higher preschool classroom quality, when measured as a broad construct of overall environmental classroom quality, will predict better outcomes in children's receptive language ability and social development, after adjusting for child and teacher gender, teacher level of education, children's dominant language, and children's initial performance on measures of receptive language and social development. Second, it is expected that specific aspects of teacher-child interaction, including emotional support, classroom organization, and instructional support, will each be individually predictive of better outcomes in children's receptive language ability and social development, after

adjusting for child and teacher gender, teacher level of education, children's dominant language, and children's initial performance on measures of receptive language and social development.

The link between child care quality and developmental outcomes has been supported by research. For example, Kwan, Sylva, and Reeves (1998) found that the quality of preschool day care as measured by both an overall ECERS score and specific ECERS subscale scores were positively and significantly related to certain aspects of children's language development. In addition, Peisner-Feinberg et al. (2001) found that the quality of child care had a modest long-term effect on children's cognitive and socioemotional development through kindergarten, and in some cases through second grade. Specifically, classroom practices were related to children's language and academic skills, and the closeness of the teacher-child relationship was related to both cognitive and social skills (Peisner-Feinberg et al., 2001). Furthermore, Mashburn et al. (2008) discovered that teacher instructional interactions with children predicted children's academic and language skills, and teachers' emotional interactions predicted children's teacher-reported social skills. Burchinal et al. (2000) discovered that higher quality child care was related to higher measures of cognitive development, language development, and communication skills across time, even after adjusting for child and family characteristics of sex, poverty, and the quality of the home environment.

Teacher and child gender were controlled for in the present study because researchers have found that male and female children are impacted by and experience the classroom environment and teacher-child interactions differently (Baker, 2006; Ewing & Taylor, 2009; Graves & Howes, 2011; Van Campen, Ewing, & Taylor, 2009). Baker

(2006) concluded that the link between student outcomes and teacher-child relationships were stronger for girls than for boys, suggesting that girls may benefit more from close relationships with their teachers than boys. Furthermore, research by Ewing and Taylor (2009) demonstrated that quality of teacher-child relationships influenced preschool girls' and boys' adjustment to the classroom differently. Teachers rated boys as having more behavior problems and lower levels of school competence than girls. Boys who experienced high conflict with teachers tended to behave more aggressively than girls who also experienced high conflict with teachers. In addition, of children with a close relationship to teachers, only girls developed more social competence. Similarly, in a study by Graves and Howes (2011), teachers rated pre-school boys as having more behavior problems and less social competence than girls.

Teacher level of education was included as a control variable due to research that suggests a link between teacher level of education and quality of care (Barnett, 2003; Bowman, Donovan, & Burns, 2000; Hamre & Bridges, 2004; Howes, 1997; Howes & Brown, 2000; Tout, Zaslow, & Berry, 2005). For example, in their review of literature on the topic of early child care and education, the National Academy of Sciences Committee on Early Childhood Pedagogy recommended that every early childhood classroom have a teacher with a bachelor's degree (Bowman et al., 2000). Hamre and Bridges (2004) reviewed literature in this area and concluded that teachers with less than an Associate's degree provided lower quality care than teachers with at least an Associate's. In addition, Howes (1997) identified higher quality in classrooms with teachers who had a Bachelor's degree and specialized early childhood training than in rooms where teachers had an Associate's degree and specialized early childhood training. Research by Tout et al.

(2005) also concluded that higher levels of education specific to early childhood have higher quality classrooms.

Children's dominant language was also controlled for in the present study. Research by Denton (2012) indicated that vocabulary development is different for English language learners than for English-speaking peers. According to Denton (2012), effective instruction for ELL students learning to read in English includes a focus on oral language, including purposeful vocabulary instruction. However, despite recommendations to focus on vocabulary, published kindergarten and first grade programs tend to prioritize phonemic awareness and phonics instruction instead of vocabulary development (Denton, 2012). Data used in the present study includes PPVT-IV scores of English language learners who were administered the test in English. The PPVT-IV assesses receptive vocabulary knowledge. Due to data suggesting that vocabulary development for ELL students is different than for English-speaking students, language was controlled for in the present study (Denton, 2012).

Contribution to Literature

This study is unique compared to other research on the link between child care quality and developmental outcomes. The present study includes two measures of preschool quality: a comprehensive observational measure of preschool classroom environments, the ECERS-R (Harms et al., 1998), and a more specific observational measure of the quality of child-teacher interactions in classrooms, called the CLASS (Pianta et al., 2008). Most studies on the relation between program quality and child development tend to measure the construct of quality using the ECERS or ECERS-R, which have served as the standard measures of quality in early education for the last 25

years (Mashburn et al., 2008). The present study expands this body of research by examining classroom environment quality using two measures that are rarely combined in research. Only two known studies have combined the ECERS-R and CLASS measures in a study of preschool quality and child outcomes (Burchinal et al., 2008; Mashburn et al., 2008), while another study used both measures to analyze how child care center structure and functioning, such as public policy and spending, relates to the quality of child care programs (Rohacek et al., 2010). The lack of research studies that include both the ECERS-R and CLASS in examining quality-outcome links makes the present study a valuable contribution to the research in this area.

In addition, the present study contributes to research on quality and child outcomes by examining both broad classroom quality as well as the quality of teacher-child interaction and its contribution on child receptive language and social competence. While research using the ECERS and ECERS-R as measures of quality has provided valuable information on the associations between quality and child outcomes, most studies examine child care quality as one broad dimension, utilizing the average overall ECERS quality score in examining the link between quality and child outcomes. The use of one average quality score to assess the link between quality and child outcomes does not provide information on the impact of specific quality components. The present study is an attempt to address this issue by including the CLASS as a measure of quality that closely examines teacher-child interactions. The present study explores the impact of three specific components of teacher-child interactions on children's social and language outcomes. The domains of teacher-child interactions examined in the present study make

up the CLASS assessment, and include *emotional support*, *classroom organization*, and *instructional support* (Pianta et al., 2008).

The CLASS assesses aspects of process quality, and is therefore a more narrowly-focused tool than the ECERS-R. While the ECERS-R focuses broadly on the quality of the classroom environment, examining areas such as furnishings, toileting, child/adult interactions, and both large and small group time, the CLASS focuses largely on the area of staff/child interactions and the use of language in the classroom as both a modeling and interactive technique. Because of this focus, an analysis that includes the CLASS as a measure of preschool classroom quality allows researchers, educators, and policy-makers to examine more specifically the influence of teacher-child interactions and language on child outcomes such as receptive language skill growth and social development.

Finally, the present study is an effort to expand on research exploring the impact of classroom quality on outcomes for socioeconomically disadvantaged children. Much of the research exploring the effect of specific aspects of classroom quality includes socioeconomically diverse samples (Burchinal et al., 2008; Cadima et al., 2010; Curby et al., 2009). More research is needed in order to identify specific components of classroom quality that support the success of children facing economic hardship and therefore are more at-risk for academic failure. Educare schools serve children and families living in poverty. Therefore, the sample for the present study is made up of children from low-income families. Children living in poverty are more vulnerable to school failure compared to children from middle to upper income families (Goelman & Pence, 1998; Pianta et al., 2002). They are most susceptible to low quality care and lower cognitive, social, and academic development (Goelman & Pence, 1998; Pianta et al., 2002). In order

to close the achievement gap between children in poverty and children from middle to upper class families, researchers need to focus on what aspects of classroom quality help to buffer the negative impact of poverty. The present study is an effort to identify the relationship between overall classroom quality and child outcomes, as well as specific components of teacher-child interaction quality and child outcomes for a sample of children living in poverty.

CHAPTER TWO: LITERATURE REVIEW

Theoretical Framework

The present study is guided by ecological systems theory (EST; Bronfenbrenner, 1989). Context and quality of one's environment are key features of this theory. EST suggests that development takes place within several interconnected systems or layers of environment, including microsystems, mesosystems, exosystems, and macrosystems (Bronfenbrenner, 1989).

Each system has an effect on a child's development, and changes or conflict in one layer cause some sort of change in the other layers. Microsystems are the contexts that are closest to the child and with which the child has direct contact. They are characterized by face-to-face interactions between a child and his or her immediate surroundings. Such systems include families, neighborhoods, schools, or child care settings.

The microsystems of families and child care are directly linked with each other, creating a mesosystem. Mesosystems consist of the connection between two or more microsystems. For example, a mesosystem may include the connection between a child's teacher and parents, or between his or her school and neighborhood. Families decide on

child care, which is influenced by family characteristics such as geographical location, socioeconomic status, etc. Both the family system itself as well as the decision on child care has direct influence on children's development, and the link between these two systems can have a direct impact on a mesosystem. According to Marshall (2004), child care has a direct influence on the family system. Parents oftentimes adapt their interactions with their children from what they observe in their children's child care environment, which in turn, also impacts child development (Marshall, 2004). For example, parents may model the way in which their children's teacher manages behaviors because they see those strategies as effective.

The mesosystem of families and child care operate under the larger context of exosystems. Children are not in direct one-to-one interaction with exosystems, but these systems directly influence adults in children's lives. These may include parents' workplaces, teachers' educational institutions, and governmental agencies that set regulations for child care facilities or develop welfare policies. These structures impact child development indirectly by interacting with structures in children's micro or mesosystems.

An example of an exosystem is government policies and regulations. This system influences both the demand for child care and parents' ability to afford it. For example, welfare-reform efforts requiring low-income mothers to find work affect the demand for child care, and access to subsidies affect parents' ability to send their children to child care. There are many low-income families who do not have access to subsidies for child care. Unfortunately, there are direct links between cost of child care and child care quality, thus creating a discrepancy between quality of child care for children from low-

income versus middle to upper-class families. Through these relationships, the exosystem of government policies and regulations provides the context for the relationship between family systems and child care.

Another example of an exosystem is parental employment. The child care system was originally developed in response to an increase in working mothers around the country. Parent or guardian job hours directly influence the type of care that their children will receive. For example, many child care facilities operate during normal weekday hours. However, many parents or guardians work during the evenings or through the night, making it more difficult to find child care. Difficulty finding child care to fit work schedules is especially challenging for low-income families, who are already limited in the care they can access (Marshall, 2004). In this way, the exosystem of parental employment also provides a context for the relationship between family systems and child care.

Finally, macrosystems consist of societal and cultural practices and beliefs, and encompass mesosystems and exosystems. These systems, like others, have an indirect influence on child development through their impact on all other systems. For example, if a society believes that parents should be solely responsible for raising their children, then that society is less likely to have resources available to help parents in need of assistance in child care. This cultural belief therefore impacts parents' ability to care for the children, which in turn, influences child development.

The present study is guided by the theory that children's development occurs within multiple contexts and the relationships among those contexts. There are direct connections between family systems and child care systems, and these relationships

affect child development. The present study is an effort to identify causal relationships between preschool quality and outcomes for children who come from families living in economic hardship. Prior research has found that children living in poverty are more likely to attend lower-quality preschool programs, and therefore benefit less than other children attending higher-quality programs (Goelman & Pence, 1988; Pianta, Paro, Payne, Cox, & Bradley, 2002).

The present study is an effort to highlight ways in which high-quality preschool programs have positive impacts on children from low socioeconomic backgrounds. Due to Bronfenbrenner's (1989) EST and prior research demonstrating the impact of multiple contexts on child development, the proposed study will explore the association between child care quality and child outcomes among a group of children from economically disadvantaged backgrounds in order to determine the impact of child care quality on at-risk children's social competency and receptive vocabulary knowledge.

Center-Based Child Care Quality

Quality of center-based child care is a multidimensional construct that has been explored and defined in many different ways throughout the years (Munton, Mooney, & Rowland, 1995). The construct referred to as "center-based child care quality" is difficult to define as it is based on the values and beliefs of those defining it. Therefore, center-based child care quality is a relative concept that is constantly evolving in its definition and measurement (Friendly, Doherty, & Beach, 2006). In their book about the difficulties of defining quality in day care centers, Moss and Pence (1994) wrote that "…quality in early childhood services is a relative concept, not an objective reality." (p. 1). Several theoretical models of quality as it relates to child care centers have been developed

throughout the years (Donabedian, 1980; Rossbach, Clifford, & Harms, 1991; Maxwell, 1984).

Donabedian (1980) described three dimensions of center-based child care quality: structure, process, and outcome. According to Donabedian (1980), *structure* refers to the resources and characteristics of the classroom environment. These include child-staff ratio, teacher education, and class size. *Process* refers to the quality of children's experiences in the care setting, including teacher responsiveness, interactions, available activities, and the developmental appropriateness of activities. Process indicators of quality are less stable than structural indicators in that process indicators are largely behavioral. Structural indicators of quality can be regulated by state or local laws and are therefore more easily measurable than process indicators of quality (Marshall, 2004).

Although it is important to understand the link between structural indicators of quality and child outcomes, we also need to explore and understand the mechanisms by which structural indicators influence children's development. To do this, we must examine what actually occurs in preschool settings, otherwise known as the process. Process quality indicators are primarily assessed through observation and have been found to be more predictive of child outcomes than more structural quality indicators such as child-staff ratios or class size (Clifford, Reszka, & Rossbach, 2010). Finally, child *outcomes* refer to physical, physiological, psychological, and social health consequences due to care (Donabedian, 1980).

Rossbach et al. (1991) developed a descriptive framework of day care quality that, similar to the model developed by Donabedian (1980), describes structural and process elements of quality. In this model, *structural* elements of day care are described as the

physical environment, materials, schedule, ratios of staff to children, and people in the setting. *Process* elements are characterized as observable processes or interactions involving both people and materials (Rossbach et al. 1991).

Maxwell (1992) expanded on the description of quality provided by Donabedian (1980) and described six dimensions of quality that have been widely accepted and applied in the medical field. Maxwell's six dimensions include effectiveness, acceptability, efficiency, access, equity, and relevance. The main purpose of these dimensions is to expand and clarify thinking about quality in medical care, but these dimensions can also be applied in thoughts and discussion about child care quality. Furthermore, Munton et al. (1995) wrote that these dimensions can and should be improved and expanded upon when applied to the context of day care settings. Munton et al. (1995) pointed out that the value in such a framework is the description of quality as a multi-dimensional construct.

In their review of literature on quality child care programs throughout the world, Friendly et al. (2006) identified components that many countries, including the United States, have recognized as critical in quality programs. These include the following: (1) safety; (2) good hygiene; (3) good nutrition; (4) appropriate opportunities for rest; (5) promotion of equality of opportunity regardless of gender or other differences; (6) opportunities for play and the development of motor, social, language, and cognitive skills; (7) positive interactions with adults; (8) encouragement and facilitation of emotional growth; and (9) an environment and practices that support positive interaction among children (Friendly et al., 2006).

A number of research studies have identified variables that are predictive of or associated with higher quality child care centers, including a teaching staff with post-secondary early childhood education training, teaching staff salaries at the high end of the continuum, a favorable staff to child ratio, non-profit auspice, high center revenue and/or free or subsidized space used by the center, a director with post-secondary early childhood education training, and a positive organizational climate in the center (Drouin, Bigras, Fournier, Desrosiers, & Bernard, 2004; Friesen, 1992; Goelman, Doherty, Lero, LeGrange, & Tougas, 2000; Jacobs, Mill, & Jennings, 2002; Lyon & Canning, 1995). For example, Goelman et al. (2000) discovered that level of teacher training and teacher salaries were predictive of preschool quality, and Drouin et al. (2004), Friesen (1992), and Jacobs et al. (2002) found that level of teacher training was correlated with preschool quality. Drouin et al. (2004) and Friesen (1992) found that teacher salaries were correlated with preschool quality. Goelman et al. (2000), Drouin et al. (2004), Friesen (1992), and Jacobs et al. (2002) discovered a link between teacher to child ratio and preschool quality. Goelman et al. (2000) also found that teacher satisfaction with co-worker support was predictive of preschool quality, while Drouin et al. (2004) identified a correlation between the two variables. It is important to note that while each of these variables is important, none by itself creates a high quality child care center. Each component works together to enhance quality (Friendly et al., 2006).

Not all evidence suggests a positive relationship between variables, such as teacher salary, and preschool outcomes. Although some researchers identified a link among variables such as teacher salary, teacher education, and preschool outcomes (Goelman et al., 2000; Drouin et al. 2004, Friesen 1992, and Jacobs et al. 2002), Pianta

(2003) reported that common factors used to regulate classroom quality, including class size, teacher education, and the use of a specific curriculum, have little or no relationship to classroom quality or child outcomes.

Center-Based Child Care Quality and Children Living in Poverty

Research is mixed on the link between child care classroom quality and outcomes for children living in poverty. While some researchers have found that quality of care is especially important for children from more at-risk backgrounds (Mashburn, 2008; Peisner-Feinberg et al., 2001), Burchinal et al. (2000) did not identify such a link. In their study on the relationship between child care center-based quality and children's cognitive and language development, Burchinal et al. (2000) explored whether the child characteristics of gender, as well as family characteristics of poverty and quality of home environment moderated the association between quality of child care and child outcomes. Burchinal et al. (2000) discovered that these variables did not moderate the association between child care quality and outcomes, suggesting that high quality child care may not differ in its impact for children of different gender, and may not buffer the negative impact of poverty or low-quality home environments. Research on the impact of child care classroom quality on outcomes of children living in poverty is mixed, therefore demonstrating a need for further exploration on the impact of quality on children from disadvantaged backgrounds.

Bronfenbrenner's Ecological Systems Theory focuses on systems which influence child development both directly and indirectly, and oftentimes these systems are outside of family and child care. These include exosystems of government policies and regulations, as well as macrosystems of societal beliefs and values, such as the

desirability for maternal employment. These systems play a complex role in the development of children from low-income families. For example, government policies and societal beliefs promote the employment of low-income parents. However, low-income parents tend to have less education and fewer skills than more advantaged parents. Therefore, low-income parents often work jobs that are temporary, inflexible, consist of atypical hours, and offer few benefits. Researchers from the Cost, Quality and Child Outcomes Study Team (1995) revealed that children whose mothers had lower levels of education were more susceptible to negative effects of poor quality child care and benefitted more from high quality child care. Unfortunately, some researchers have discovered that children living in poverty are attending preschool programs with lower quality ratings than those attended by children from more advantaged home environments (Goelman & Pence, 1988; Pianta et al., 2002). Although there are government subsidies available for low-income families, not all low-income families receive them. Consequently, children from low-income families are more likely to be placed in child care that is of lower cost and lower quality than children from middle to high-income families.

When children attend low-quality preschool programs, their cognitive development has been noted to also be lower than children attending high-quality preschool programs. Specifically, researchers investigating language and social development have discovered that children attending poor quality child care settings tend to be less advanced in their language and social development than children attending high quality child care settings. Researchers such as Goelman and Pence (1988) discovered that language development for children attending low quality day care settings was lower

than for children attending high quality day care settings. Furthermore, Pianta et al. (2002) found that the quality of teacher-child interactions and instructional climate were rated lower when the child care center consisted of a higher concentration of poverty among children, when family incomes were lower, and when the number of staff in each classroom were lower. They also reported that teacher ratings of children's social and academic competence were lower when child care quality ratings were lower (Pianta et al., 2002). These findings are especially concerning for children living in poverty, as they are most susceptible to low quality care.

The fact that so many children from low-income families are attending child care centers of lower quality than those attended by more advantaged children may have long-term developmental implications for children living in poverty, as researchers have found that preschool quality may be linked to children's functioning in elementary school (Peisner-Feinberg et al., 2001). Children from low-income families typically enter kindergarten with vocabulary levels and pre-literacy skills well below those of their middle-class peers (Cunningham & Stanovich, 1997). When children from impoverished backgrounds begin to fall behind their peers, it is very difficult for them to catch up (Cunningham, 2009). However, if at-risk children can enter kindergarten with a vocabulary close to the average non-poor American child, their chances of becoming good readers, graduating high school and staying on a successful life trajectory will have been improved (Cunningham & Stanovich, 1997).

While educators may not be able to change the home environment for children in their classrooms, classroom quality is more controllable, especially with the support of policy makers and administrators. Therefore, the present study is an effort to continue to

bring attention to the importance of quality in education and child care for children from disadvantaged backgrounds. Cunningham (2009) sums the problem up in the statement that "Ignoring the quality offered to marginalized populations in preschool could be impairing the language, literacy, and cognitive development of these children, which continues to widen the achievement gap in our urban schools" (p. 505).

Center-Based Child Care Quality and Child Outcomes

The past few decades have led to major developments in child care education research. The use of pre- and post- assessments to measure child progress in preschool centers has become quite common, as well as researchers trying to identify specific features of programs that contribute to child outcomes. For example, interaction styles between teachers and children or teaching styles likely vary from classroom to classroom within a child care education center and therefore contribute differently to child outcomes. The use of multi-level modeling for data analysis allows researchers to explore the unique contributions of specific components, and has become the current trend in this area of research (Kwan et al., 1998). Research has demonstrated that quality does matter in child development. Many researchers have found evidence that higher quality of child care tends to lead to better child developmental outcomes (Burchinal et al., 2000, 2008; Mashburn, 2008). Quality of child care environments is therefore important for researchers, educators, and policymakers to consider when designing and implementing such centers.

Structural Quality & Child Outcomes

Structural aspects of the child care environment are those that are most frequently investigated by researchers (Layzer & Goodson, 2006). For example, child-staff ratio and

group size are two structural features that have been shown to be associated with the quality of children's experiences in the child care setting. Specifically, a low child-staff ratio alone or in interaction with a small group size, has predicted higher quality experiences for children, including an increased number of individualized interactions between children and adults (Howes & Hamilton, 1993; Layzer, Goodson, & Moss, 1993).

Although a majority of research in this area has discovered a positive and significant relation among child-staff ratio, group size, and child outcomes, some researchers have not identified this link (Love, Ryer, & Faddis, 1992; Whitebook, Howes, & Phillips, 1989). Research by Love et al. (1992) discovered that a negative change in child-staff ratio had no significant effect on child behaviors. In addition, the National Child Care Staffing Study did not identify any link among group size and global measures of the quality of the classroom environment (Whitebook et al., 1989).

Researchers have also discovered that the quality of the physical environment of child care facilities is related to children's cognitive and social development (Friendly et al., 2006). Elements of the physical environment include but are not limited to the following: design of indoor and outdoor space, availability and quality of equipment and program resources, food preparation, placement of toilets and sinks, and amenities such as outdoor play space and windows for natural lighting or ventilation (Friendly et al., 2006). Physical environment is assessed by tools like the ECERS-R (Harms et al., 1998), which considers program procedures such as hand-washing, as well as resources and amenities, such as outdoor access and equipment for the enhancement of gross motor skills. These features, along with others considered a part of the physical environment,

have been linked to children's safety, health, behavior, as well as cognitive and social development (van Liempd, 2005; Proshansky & Fabian, 1987; Moore, 1986).

Olds (2001) identified a relationship between the physical environment of child care education centers and child/staff interaction. Olds (2001) pointed out that the design of a center's physical environment can influence the interaction between children and staff members. In her guide to child care design, Olds (2001) identified four basic needs of children that should be considered in the design of early child care education centers to enhance the quality of interaction between children and staff members. Specifically, Olds (2001) recommended that the design of a center's environment should encourage movement, support comfort, foster competence, and encourage a sense of control.

Process Quality & Child Outcomes

According to Layzer and Goodson (2006), children's experiences in child care settings can be divided into three categories: size/composition of children's groupings as well as types of activities, teacher behaviors and their interactions with children and other adults, and the behavior of children with adults, each other, and during individual play. Layzer and Goodson (2006) reported that there are several beliefs that are generally agreed upon regarding children's preschool experiences. First, children should engage in a variety of activities. Second, many activities should include active participation and guidance of teachers. Third, small group and individual activities with teachers provide children with the greatest opportunity to receive high-quality interactions with adults (Layzer & Goodson, 2006).

Quality of Teacher-Child Interactions and Child Outcomes

Preschool experiences are often children's first exposure to group learning experiences, setting the stage for children's future success or failure in school (Dobbs & Arnold, 2009). Teacher-child relationships in preschool and elementary settings are a very influential in children's academic and social success. Preschool teachers take on the role of educators and caregivers, and their interactions with children have been found to be related to children's academic, behavioral, and social success in school (Baker, 2006; Howes et al., 2008; Burchinal et al., 2008; Hamre & Pianta, 2005; O'Connor & McCartney, 2007). In elementary school, high quality teacher-child relationships have been found to be related to higher academic achievement and social competency than children with low quality relationships with teachers (Pianta & Stuhlman, 2004). High-quality teacher-child interactions are especially valuable for children considered at-risk for school failure (Hamre & Pianta, 2005). Furthermore, the impact of high-quality teacher-child interactions may affect boys and girls differently (Baker, 2006). Although results are somewhat mixed, researchers have generally concluded that there are positive social or academic gains associated with positive teacher-child interaction (Howes et al., 2008; Baker, 2006; Pianta & Stuhlman, 2004).

Howes et al. (2008) investigated the relationship between preschool structural and process quality and children's growth in academic and social skills over the course of one pre-school year. The sample included 2800 children from approximately 700 randomly selected, state funded preschool programs in eleven states. Results revealed that children showed greater academic gains when they experienced higher-quality instruction or more responsive and sensitive teacher-child interactions. However, neither high-quality

instruction nor high-quality teacher-child interaction was predictive of gains in social outcomes (Howes et al., 2008).

Pianta and Stuhlman (2004) evaluated the association between teacher-child relationships and children' first grade social and academic skills. The sample consisted of 490 children and their families. Sixteen percent of families were below the poverty line. The closeness and conflict of teacher-child relationships were assessed in preschool, kindergarten, and first grade through teacher ratings. Children's social competence was assessed through observations and teacher ratings in preschool and first grade. Children's academic skills and cognitive development were assessed in preschool and first grade using teacher-rated achievement and an assessment of vocabulary development. Teacher rated conflict and closeness in their relationships with students significantly predicted teacher ratings of first grade student achievement. Specifically, first grade teachers rated achievement higher for children with whom they reported having a closer relationship, and lower for children with whom they felt more conflict. Kindergarten and first grade teacher reports of relationship conflict with children were associated with lower social competence among children. Teacher ratings of more closeness with children were related to higher teacher-rated levels of social competence among children. Furthermore, first grade teacher perceptions of more closeness in their relationships with children predicted higher observer ratings of children's social competence in first grade (Pianta & Stuhlman, 2004).

Burchinal et al. (2008) examined the relationship between teacher-child interaction quality in preschool and children's language, academic, and social outcomes. Although the sample was very diverse in socioeconomic status, the majority of children

were from low-income families (56%). Results demonstrated that while preschool teachers were generally responsive and sensitive toward children, they were not as successful in engaging children in academic tasks. High-quality teacher-child interaction and certain aspects of high-quality instruction predicted language acquisition, as well as pre-academic, language, and social skills through the end of kindergarten (Burchinal et al., 2008).

Baker (2006) investigated the extent to which teacher-child relationships contributed to school adjustment for 1310 elementary school-aged students and the degree to which those relationships were moderated by child characteristics. The sample of students included children from kindergarten through fifth grade who attended school in a small city in the Southeastern United States. The racial composition of the sample included 57% African American, 29% Caucasian, 4% Other, and 10% Hispanic. The general school district population consisted of a large percentage of students living in public housing units, 70% participating in the free or reduced cost lunch program, and less than a 50% on-time high school graduation rate. Close teacher-child relationships appeared to act as a buffer for children with social and behavior problems. These children benefitted significantly from close relationships with their teachers relative to similar peers who did not have close relationships with their teachers. For example, children with high degrees of behavior problems and close relationships with their teachers performed significantly higher in reading than children with similar behavioral issues and poor relationships with their teachers (Baker, 2006). Children with internalizing problems also benefitted from close relationships with their teachers. For example, students with high levels of internalizing stress and high quality relationships with their teachers performed

at or above average on the measured outcomes. Students with similar levels of internalizing problems and poor relationships with their teachers did not perform as highly (Baker, 2006). Unfortunately, Baker (2006) discovered that strong positive teacher-child relationships were not significantly associated with increased achievement for students with significant learning problems. Teacher-child relationships were found to have a low moderate association with children's reading grades and positive work habits (Baker, 2006).

Furthermore, Baker (2006) concluded that girls experienced more closeness and less conflict with their teachers than boys. The association between quality of teacher-child relationships and student outcomes were stronger for girls than for boys. Specifically, girls who had positive relationships with their teachers demonstrated better outcomes than boys with similar quality relationships. However, the magnitude of these effects was small (Baker, 2006).

Cadima, Leal, and Burchinal (2010) investigated the association between the quality of teacher-child interactions and first graders academic and adaptive behavior outcomes, while considering family risk factors and previous skills. The sample included 106 Portuguese students in 64 first grade classrooms. Children's vocabulary, knowledge of print concepts, math, and adaptive classroom behaviors were assessed both at the end of preschool and in first grade. The quality of teacher-child interactions was assessed using the Portuguese version of the CLASS observation (Pianta, La Paro, & Hamre, 2006) in the spring of first grade. Results demonstrated that the quality of teacher-child interactions was positively associated with children's first grade vocabulary and print concepts, after controlling for family risk factors and preschool vocabulary and print

concept skills. Additionally, the relationship between teacher-child interaction quality and children's number identification skills differed depending on child skills prior to starting elementary school. Children with lower math skills in preschool appeared to benefit more from higher-quality teacher-child interactions. These findings suggest the impact of the quality of teacher-child interactions on the academic skills of first grade students.

Researchers have discovered that children's interactions with adults in pre-kindergarten and early elementary school settings have an impact on children's achievement and social competence (Baker, 2006; Howes et al., 2008; Burchinal et al., 2008; Hamre & Pianta, 2005; Pianta & Stuhlman, 2004). Positive effects of high-quality teacher-child interaction have also been found to have long-term benefits into elementary school for children at risk of school-failure (Hamre & Pianta, 2005). The present study is an effort to expand on research of teacher-child interaction and child outcomes by exploring the impact of specific components of teacher-child interactions on children's social and language outcomes. The quality of emotional support, classroom organization, and instructional support, as assessed by the CLASS, will be explored in relation to children's outcomes (Pianta et al., 2008).

Emotional support. Within the CLASS assessment, the domain of Emotional Support consists of several dimensions, including Positive Climate (PC), Negative Climate (NC), and Teacher Sensitivity (TS) (Pianta et al., 2008). According to Hamre and Pianta (2005), NICHD ECCRN (2002) defines emotional support as classroom warmth, negativity, child-centeredness as well as teachers' sensitivity and responsiveness toward specific children. Furthermore, Gazelle (2006) defines *classroom emotional*

climate as the classroom atmosphere and the degree to which the classroom environment as a whole functions smoothly and harmoniously, without frequent conflict. A positive emotional climate is characterized by interactions that are positive in tone, while a negative emotional climate is plagued with frequent disruption, conflict, and disorganization. According to Curby, Rimm-Kaufman, and Ponitz (2009), teachers provide an emotionally supportive classroom environment when they foster positive classroom climate, minimize negative climate, are attentive and responsive too children's needs, adapt lesson plans when necessary, and support children's independence, interests, and individual expression.

High quality emotional support has been linked with increased achievement levels and fewer behavior problems among children (Curby et al., 2009; Howes, 2000). Furthermore, researchers have generally concluded that exposure to positive classroom climate and teacher sensitivity is related to increased self-regulatory skills for elementary and middle-school students (Skinner et al., 1998), as well as increased teacher-rated social competence (Burchinal et al., 2005; Howes, 2000; Pianta et al., 2002).

Evaluation of the emotional climate of a classroom consists of more than examination of individuals, but of overall group functioning, including teacher behavior, students' responses to their teacher, teacher responses to students, and interactions among students. Evidence suggests that negative emotional climate leads to poorer psychosocial outcomes for children. For example, a study by NICHD ECCRN (2003) found that children in classrooms with negative emotional climates from 54 months to the end of first grade were rated by their mothers as having more internalizing problems than children exposed to positive classroom climate and teacher sensitivity.

Hamre and Pianta (2005) followed children identified as at-risk of school failure in kindergarten and examined whether the quality of teachers' instructional and emotional support in first grade moderated these risks by the end of first grade. Children were identified as at-risk at ages 5-6 years based on several variables reported by their kindergarten teachers, including behavioral, academic, attention, and social difficulties. Results indicated that by the end of first grade, at-risk children with strong instructional and emotional support demonstrated academic achievement and teacher-child relationships that were similar to their low-risk peers. At-risk students in classrooms with less instructional and emotional support had lower achievement and more conflict with teachers (Hamre & Pianta, 2005).

Curby et al., (2009) investigated the extent to which the quality of teacher-child interactions and children's kindergarten achievement were associated with children's achievement trajectories in word reading, phonological awareness, and mathematics. The sample consisted of 147 rural kindergarten students who were followed through first grade. Teacher-child interaction quality was assessed using the CLASS (Pianta et al., 2008). Curby et al. (2009) found that first grade instructional and emotional support moderated the link between initial achievement and growth in word reading. First-grade teachers' strong emotional support was related to growth in phonological awareness. Finally, kindergarten classroom organization was found to moderate the relationship between initial achievement and growth in mathematics (Curby et al., 2009).

Howes (2000) examined the effect of preschool social-emotional classroom climate, early teacher-child relationships, and children's behavior problems on children's social competence with peers in second grade. Howes (2000) studied teacher-child

relationships and children's social-emotional competence over a five-year period, with 307 children having complete second grade data on peer social competence. Howes (2000) discovered that children's social competence with peers in second grade was predicted by the social-emotional climate of their preschool classroom, their behavioral problems at four-years-old, and the quality of teacher-child relationships.

Classroom organization. Within the CLASS assessment, the domain of Classroom Organization consists of several dimensions, including Behavior Management (BM), Productivity (PD), and Instructional Learning Formats (ILF) (Pianta et al., 2008). Curby et al. (2009) describe classroom organization as teacher's skills in productive, predictable time management, use of materials that supports children's attention and behavior, and a variety of engaging instructional activities. Teachers who have a high level of classroom organization tend to have classrooms with less conflict because they are proactive in their approach, keeping the flow of the classroom routine going smoothly. When children do misbehave, teachers with strong classroom organization skills are quick in being able to re-establish control and re-engage children.

High quality classroom organization has been found to be related to children's academic achievement and overall classroom productivity. Research by Rimm-Kaufman, Curby, Grimm, Nathanson, and Brock (2009) identified a relationship between high quality classroom organization and high student engagement. High student engagement has in turn been linked to higher academic achievement (Ponitz, Rimm-Kaufman, Grimm, & Curby, 2009). In the study by Curby et al. (2009), kindergarten classroom organization was found to moderate the link between children's initial achievement and their growth in mathematics.

Cameron, Connor, and Morrison (2005) examined the effect of the variation in teacher organization on how time is spent in classrooms, including time spent on instruction, transitions, and child skills. Forty-four first-grade classrooms were observed at three time points over a school year. Observers used timed narratives to record activities. The authors used the term "orient-organize" to refer to time teachers spent familiarizing their students with classroom procedures, organizing the classroom for certain assignments, and clarifying activity objectives for students. Results demonstrated significant variation among classrooms in time spent in organization, transitions, and instructional activities. Classrooms that spent more time early in the year on organization sharply decreased this as the year went on, compared to classrooms with less organization, which spent roughly the same amount of time all year on organization. Hierarchical linear regression analysis revealed that classrooms that spent more time in the fall on organizational practices spent less time in transitions. Furthermore, more time spent on organization in the fall and less in the winter led to an increase in time spent in child-managed activities in the spring, except for classrooms where children tended to have low vocabulary scores. For these classrooms, higher amounts of time spent on organization in both the fall and winter predicted more time spent on child-managed activities in the spring. Child-managed activities refer to times when children were in control of their assignments, working independently or in pairs. Students were in charge of maintaining their own attention to the task in order to complete it. Results of this study demonstrate that it may be most effective for teachers to spend the most time on organization of their classroom in the beginning of the school year, so that less time is

spent on transitions and children may be more likely to spend time managing their own learning (Cameron et al., 2005).

Garrisi (2005) investigated the link between classroom organization and children's early reading skills. The sample consisted of 104 first graders from 44 classrooms in a large Midwestern city. Most of the children (62%) were Caucasian, while 33% were African American. Children's reading skills were assessed using the Peabody Individual Achievement Test-Revised (PIAT-R) in both the fall and spring. Classroom observations were used to assess the level of classroom organization in each room. Similar to research by Cameron et al. (2005), the term "orient-organize" was used as a predictor variable. Classroom variables included time teachers spent in "orient-organize", "non-instructional time" for transitions and disruptions, "management/discipline." Trained observers recorded descriptions of the school day in addition to the amount of time teachers spent on the previously listed activities. Results of a multiple regression analysis demonstrated that teachers' classroom organizational practices were associated with improvements in children's reading scores from fall to spring when controlling for mothers' education levels. Teachers who spent more time in orient-organize activities in the fall had students who demonstrated significantly greater reading growth in the spring than students of teachers who spent less time in orient-organize activities. Furthermore, teachers who spent more time in orient-organize activities spent less time in non-instructional activities including transition and behavior management/discipline.

Instructional support. Within the CLASS assessment, the domain of Instructional Support consists of several dimensions, including Concept Development (CD), Quality of Feedback (QF), and Language Modeling (LM) (Pianta et al., 2008).

According to Curby et al., (2009), high quality instructional support occurs when teachers push children to engage in higher order thinking, provide constructive and relevant feedback, and encourage their use of language. Teachers who provide high quality instructional support make connections between the curriculum content and larger contexts, allowing children to explore how their learning of material fits into the real world. Furthermore, teachers model appropriate interactions and provide in-depth feedback beyond simply telling a child whether he or she gave a correct response (Curby et al., 2009).

High quality instructional support has been linked to higher achievement on math and reading standardized assessments for children in prekindergarten (Mashburn et al., 2008), as well as in teacher-reported achievement in kindergarten and first grade (Pianta et al., 2002; Hamre & Pianta, 2005). Instructional support was found to moderate the link between initial achievement and growth in word reading for first grade children in rural areas (Curby et al., 2009).

In a study by Hamre and Pianta (2005), researchers examined the link between teacher support (instructional and emotional support) and at-risk children's behavioral, attention, academic, and social problems. The sample consisted of 910 children ages 5-6 who were identified at-risk based on demographic characteristics and teacher-reported concerns. By the end of first grade, at-risk students receiving higher quality instructional and emotional support demonstrated achievement scores and student-teacher relationships commensurate with low-risk peers. At-risk students placed in classrooms with less emotional and instructional support had lower achievement and more peer conflict (Hamre & Pianta, 2005).

Center-Based Child Care Quality & Language Development

Vocabulary development and children living in poverty. The early years of development are crucial for children to be prepared for formal schooling. Children living in poverty often have little access to high-quality early childhood experiences, such as high-quality preschool care. This leads to children from poverty entering formal schooling with less preparation and fewer skills than their more affluent peers (Chatterji, 2006; Lee & Burkham, 2002). Researchers have found that important pre-literacy and language skills, such as vocabulary development, develop during the preschool-age years, and therefore children living in poverty often begin kindergarten with fewer pre-literacy skills and language skills than more advantaged children (McCardle, Scarborough, & Catts, 2001; Spira, Bracken, & Fischel, 2005; Storch & Whitehurst, 2003). Therefore, it is crucial that preschool-aged children living in poverty have access to high quality preschool care. When children enter kindergarten with skill levels behind their peers, it is difficult to catch up and research also demonstrates that the achievement gap widens over time (McCardle et al., 2001).

Vocabulary development is an important variable to examine for children living in poverty because it is a key component of successful reading, and children living in poverty are at greater risk of academic difficulties than children not living in poverty (McCardle et al., 2001). For example, Hoff (2003) explored the relationship between socioeconomic status and rates of productive vocabulary development through an examination of children's language-learning experiences in their home environments. Through pre-post observation and transcriptions of mother-child interactions in both high-SES and mid-SES homes, it was discovered that the vocabulary size of two-year-old

children in the high-SES homes grew more than the vocabulary size of two-year-old children in the mid-SES homes (Hoff, 2003). This difference was accounted for by everyday maternal speech characteristics that differed as a function of SES. Specifically, high-SES mothers tended to use more words, more complex grammar, and richer vocabularies in communication with their children, suggesting that the more words children hear, the more words they learn (Hoff, 2003). It should be noted that Hoff (2003) only examined vocabulary development within the context of everyday maternal speech, and not in other contexts of the home environment, such as book reading. Results of this study demonstrate a link between SES and vocabulary development, suggesting that children from different socioeconomic backgrounds develop different levels of vocabulary when they are exposed to different language experiences. For the present study, this type of research demonstrates the need for high quality preschool programs for children living in poverty, and evaluations of the impact of these programs on children's vocabulary development.

The National Academy of Sciences (Snow, Burns, & Griffin, 1998) and the National Early Literacy Panel (2009) identified five factors that are closely related to children's success in learning to read. They are oral language and vocabulary, phonological sensitivity, alphabet knowledge, print exposure, and writing skills. Children's vocabulary development is a key stepping stone toward the development of reading proficiency and comprehension skills (Neuman, Newman, & Dwyer, 2011). Storch and Whitehurst (2003) pointed out that vocabulary helps children to understand what they read as well as the instruction that occurs in their classrooms. Therefore, development of a broad vocabulary is a core component of reading comprehension. To

develop effective reading comprehension skills, children must acquire and store knowledge so as to understand the text they are reading (McCardle et al., 2001).

The present study will include an analysis of children's receptive vocabulary in relation to the quality of their preschool environment. The term "receptive vocabulary" is defined as comprehension of spoken words. During administration of the PPVT-IV, words are read aloud to a child, who is then asked to point to the picture that demonstrates the spoken word. Crow describes "receptive vocabulary knowledge" as "what one needs to know in order to understand a word while reading or listening" (1986, p. 242). Therefore, vocabulary development involves acquiring knowledge of the meaning of words (Nagy, 1997). Teachers can enhance vocabulary skills by using sophisticated vocabulary while engaging in conversations with children. They can also enhance vocabulary skills through shared book reading, which involves reading books to children and discussing new vocabulary words that are read (Wasik & Hindman, 2011).

Language development and child care quality. The quality of center-based child care and children's language development has been investigated and results are somewhat mixed. Burchinal et al. (2000) and Mashburn (2008) identified center-based quality as relating positively to language development, while Goelman and Pence (1988) discovered no significant relationship. Furthermore, some aspects of language development, such as verbal fluency, have been linked more strongly to quality than other language development aspects (Kwan, Sylva, & Reeves, 1998). These mixed findings demonstrate the need for more research in this area to gain a clearer understanding of the link between program quality and children's language development.

Burchinal et al. (2000) studied the association between quality of care and children's cognitive and language development. The sample included 89 African American children ages six to 36 months. Results of this study indicated that higher quality child care, as measured by the ECERS and ITERS (Harms & Clifford, 1980; Harms, Cryer, & Clifford, 1990) was related to higher measures of cognitive development, language development, and communication skills across time, even after adjusting for child and family characteristics of sex, poverty, and the quality of the home environment. Burchinal et al. (2000) also took into account certain quality recommendations being followed, and discovered classrooms that met recommendations regarding adult to child ratios tended to have children with better language skills. In addition, classrooms that met teacher education recommendations tended to have girls with better cognitive and receptive language skills. However, results did not support Burchinal et al.'s (2000) hypotheses that good-quality care buffers children from the negative impact of poverty or that poor-quality care exacerbates the impact of poverty or lessens the positive effect of higher quality home environments. Burchinal et al. (2000) discovered that poverty did not moderate the association between quality of child care and child outcomes. Burchinal et al. (2000) also found that gender did not moderate the association between quality of care and child outcomes.

Kwan et al. (1998) investigated the effects of preschool environments on the language development of 122 pre-school aged children in Singapore over the span of one school year while taking family background into account. Home background questionnaires were used to obtain information including child characteristics, parent child rearing values, maternal education, and reading/homework frequency done in the

home setting. Children's language development was measured in the fall and spring of the school year. Kwan et al. (1998) discovered that the quality of many characteristics of the preschool environment, as measured by the ECERS (Harms & Clifford, 1980), was significantly associated with children's verbal fluency, but that few of those were associated with word reading. When Kwan et al. (1998) examined the link among specific areas of quality and child outcomes, they found that all ECERS subscales except *fine and gross motor activities* were significantly and positively associated with verbal fluency. For word reading, only the ECERS subscales of *personal care routines* and *furnishing/display* were significantly and positively associated with this particular outcome. Personal care routines include but are not limited to the quality meal time, nap time, safety practices, and overall health and sanitary procedures. Furnishings and displays include but are not limited to the quality of furniture for play and relaxation, displays around the room, and the overall room arrangement. Results of the study by Kwan et al. (1998) demonstrated that high quality preschool care led to greater progress in verbal fluency, and the quality of personal care routines, which includes health and sanitary procedures, as well as the quality of a classrooms furnishings and displays, were predictive of word reading (Kwan et al., 1998). Kwan et al. (1998) also found that home background characteristics were not significantly associated with verbal fluency or word reading. However, authors noted that although subsequent analyses were not performed with the child outcome of verbal comprehension, parental values were significantly and positively associated with this outcome. The overall findings of this study indicated that preschool day care center quality as measured by both overall ECERS scores and specific

ECERS subscale scores were positively and significantly related to certain aspects of children's language development (Kwan et al., 1998).

Goelman and Pence (1988) examined the effects of three different types of high and low quality child care, including licensed family day care, unlicensed family day care, and licensed center care on children's language development. Goelman and Pence (1988) discovered that children from families with lower education, socioeconomic status, and occupation levels were enrolled in family day care settings with lowest quality ratings. In these settings, children watched more television, and engaged in fewer reading and informational activities than children in higher quality settings. The quality of home-based day care settings was much more variable than the quality of center-based day care settings (Goelman & Pence, 1988). Results demonstrated that mean language scores for children in high quality day care settings were higher than for children in low quality day care settings. For children in family day care settings, quality of care was found to be a significant predictor of children's scores on both measures of language. However, quality of care was not a significant predictor of scores for children in center-based child care (Goelman & Pence, 1988).

Mashburn (2008) examined the relationship between quality of preschool social and physical environments and children's academic, language, and literacy skill development. Participants included a diverse sample of 540 four-year-olds who attended three types of preschool programs: Head Start, the Georgia Pre-Kindergarten Program, or private preschools. Preschool process quality was measured using three observational tools. When controlling for children's gender, family income, race/ethnicity, preschool program type, and pretest performance, Mashburn (2008) discovered that high quality

social environments were positively related to children's outcomes at the end of preschool. However, higher quality physical environments moderated the negative link between family income and academic development as well as between non-White race/ethnicity and literacy development (Mashburn, 2008).

Center-Based Child Care Quality & Social Development

Social development and children living in poverty. According to Ashiabi (2007), social competence is defined as the ability to integrate cognitive, affective, and behavioral states to achieve goals in a social context. In other words, social competence refers to as how well children get along with others and establish successful relationships (Ashiabi, 2007). Children develop many important socio-emotional skills during the preschool years. These include self-awareness, self-regulation, emotional awareness, identification, and expression, perspective-taking, perceived sense of competence or incompetence, and self-concept (McCabe & Altamura, 2011). In developing these skills, children learn to understand others, understand, express, and regulate their feelings, have empathy for others, develop beliefs about what makes them unique, and identify their preferences for likes/dislikes (McCabe & Altamura, 2011).

Preschool-aged children begin to develop in their ability to adjust their emotional expression based on their surroundings. By age three, children improve their ability to identify other's emotions by examining facial expressions and tone of voice. They are able to develop and maintain friendships through play, cooperation, and reciprocity. They also begin to develop awareness of their strengths and weaknesses and acceptable versus unacceptable behavior through their interactions with others. All of these developmental milestones are important features of social competence (McCabe & Altamura, 2011).

A growing body of research has demonstrated links between neighborhood poverty or low socioeconomic status and a range of child outcomes (Leventhan and Brooks-Gunn, 2011; McCabe & Altamura, 2011; Spritz, Sandberg, Maher, & Zajdel, 2010; Webster-Stratton, Reid, & Hammond, 2001). Specifically, Spritz et al. (2010) discovered a link between low socioeconomic status and low social competence among preschool children. An estimated 20-25% of children enrolled in Head Start demonstrate social and behavioral problems associated with low social competence. These problems include poor social skills, aggressive and oppositional behavior, and dependency (Spritz et al., 2010). Furthermore, children who are raised in environments of poverty and face negative early life events are at greater risk for challenging behaviors as they progress through childhood and adolescence (McCabe & Altamura, 2011; Webster-Stratton et al., 2001). For example, Webster-Stratton et al., (2001) identified a direct link between childhood conduct disorder diagnoses and family risk factors including single parenthood, poverty, depression, life stress, psychiatric illness, parent history of drug abuse, child abuse, and spouse abuse. In addition, Leventhan and Brooks-Gunn (2011) discovered that after covarying for family background, neighborhood poverty and low socioeconomic status was associated with adverse socio-emotional and behavior child outcomes, as well as poorer academic achievement. Results of these research studies emphasize the importance of developing high quality intervention and early childhood programs for at-risk children.

Much of the research on the relationship between poverty and children's social development is based on attachment theory (Bowlby, 1976). According to attachment theory (Bowlby, 1976), attachment between children and their caregivers predict the

quality of their future relationships. Children who develop secure attachments with adults early on in life are more likely to interact effectively and appropriately when they enter school (Jensen, 2009). Socioeconomic status can have a large impact on the early attachment and other life experiences of children, which then impacts their later behavior. For families living in poverty, there tends to be a higher prevalence of adverse factors such as teen motherhood, mental health issues, and inadequate health care (Jensen, 2009). These family stressors often lead to less secure attachments between children and their caregivers, which can later lead to poor school performance and negative behaviors (Jensen, 2009).

Social development and child care quality. Several researchers have investigated the association between center-based child care quality and children's social development. In general, a positive relationship between program quality and preschool children's social behaviors has been identified (Pianta et al., 2002; Peisner-Feinberg et al., 2001). Evidence also suggests that quality may be even more important for the social development of children especially from more at-risk backgrounds (Peisner-Feinberg et al., 2001).

Pianta et al. (2002) sought to examine the relationship between the quality of kindergarten classroom environments, child outcomes, and teacher, school, classroom, and family characteristics. The sample included children from 223 kindergarten classrooms in suburban and rural areas in three states. Results indicated that global ratings of teachers' positive interactions with the target child, classroom instructional climate, and classroom child-centered climate were all lower when the school consisted of a higher concentration of poverty, when the family income of the target child was low,

and when the number of staff in the classroom was low. Furthermore, Pianta et al. (2002) discovered that teacher ratings of children's social and academic competence as well as observed social and on-task behavior were higher when global quality ratings were higher, even after controlling for family background characteristics.

Furthermore, Pinkerton and Scarr (1996) investigated the longitudinal relationship between the quality of both day care centers and home environment, and children's behavioral adjustment. Participants included 141 school-aged children and their employed mothers who had previously utilized full-time child care when their children were toddlers or preschoolers. Participants were largely European-Americans and 73 of the children were female. Four years after day care quality was assessed, child behavioral adjustment was measured using four measures of child behavior. Results demonstrated that home environment and earlier behaviors were predictive of children's behavioral adjustment four years after being in day care, especially for maternal ratings of child behavior. However, day care center quality was found to be unrelated to mother and teacher ratings of children's behavioral adjustment (Pinkerton & Scarr, 1996). These findings, unlike others in the field, suggest that the quality of previous child care experiences may no longer be salient by the time children are in elementary school, but that family influences continue to be important. Mixed findings in this area suggest the need for further investigation into longitudinal effects of preschool quality on elementary aged outcomes.

Hagekull and Bohlin (1995) investigated the effects of day care quality on Swedish children's aggression, emotional expression, internalizing/social withdrawal problems, and ego strength/effectance. Hagekull and Bohlin (1995) examined these

effects in interaction with child and family characteristics, including socioeconomic status, quality of home environment, child gender, and difficult temperament. Hagekull and Bohlin (1995) expected day care experiences to either enhance or negatively impact children's externalizing behaviors and emotional expression, depending on children's background. Child and classroom quality data was collected at two time points, when children were 29 months and at four years. Hagekull and Bohlin (1995) discovered a significant correlation between quality of day care and children's externalizing behaviors and emotional expression. Specifically, high quality day care was related to fewer aggressive behaviors and more positive emotional expressions. High day care quality predicted fewer internalizing/social withdrawal problems and an increase in children's ability to cope effectively with stress (Hagekull & Bohlin, 1995). In addition, Hagekull and Bohlin (1995) discovered that aggressive behaviors of children from homes with lower socioeconomic status were reduced when those children attended high quality day care (Hagekull & Bohlin, 1995).

Hagekull and Bohlin (1995) then sought to determine whether quality of day care in the context of family and child background characteristics was predictive of socioemotional functioning. Hagekull and Bohlin (1995) discovered that for children from homes rated as low-quality, high quality day care contributed to a substantial reduction of aggressive behaviors. For children from homes rated as being high or medium in quality, day care quality explained little variance in externalizing behaviors, demonstrating that quality of day care made little difference in their aggressive behaviors. In addition, boys in high quality day care decreased their internalizing and social withdrawal problems while significantly increasing their ability to cope with stress. This

was not the case for girls. Finally, aggressive behaviors of temperamentally easy children were positively affected by high quality day care, while children with more difficult temperaments did not demonstrate reduced aggression in high quality day care settings (Hagekull & Bohlin, 1995).

Peisner-Feinberg et al. (2001) examined the longitudinal relation among the quality of children's preschool experiences and the cognitive and socioemotional development of 733 children from ages 4 to 8 years old. Four observational measures of the process quality of classroom practices were used. Peisner-Feinberg et al. (2001) discovered that the quality of child care had a modest long-term effect on children's cognitive and socioemotional development through kindergarten, and in some cases through second grade. Specifically, classroom practices were related to children's language and academic skills, and the closeness of the teacher-child relationship was related to both cognitive and social skills. Additionally, Peisner-Feinberg et al. (2001) identified moderating effects of quality for children from more at-risk backgrounds, indicating stronger positive effects of quality for these children. These findings support the notion that the quality of child care environments has long-term impacts on children's cognitive and social skills through the elementary school years, as well as stronger positive effects for more at-risk children (Peisner-Feinberg et al., 2001).

Initiative. Authors of the DECA-C described initiative as children's ability to engage in independent thought and action to meet his or her needs (LeBuffe & Naglieri, 1999). Other researchers have defined the construct of initiative as having an interest in a variety of topics and activities, an eagerness to learn, creativeness in the approach to activities, and independence in learning. Children demonstrate initiative in learning when

they make independent choices, follow-through with new ideas, initiate play with others, or grow in their eagerness to learn about a new topic (Channel et al., 2007). In a study by Peisner-Feinberg et al. (2001), the quality of teacher-child relationships in preschool was significantly and positively related to social factors, including children's level of independence. This finding continued to exist through second grade (Peisner-Feinberg et al., 2001).

Self-control. Authors of the DECA-C described self-control as children's ability to experience a range of feelings and express those feelings using words and actions that are considered appropriate by society (LeBuffe & Naglieri, 1999). Other researchers have defined self-control or self-regulation as a set of behaviors including attention, working memory, and inhibitory control (Skibbe, Connor, Morrison, & Jewkes, 2011). Self-control has been identified as a key variable in preparing young children for school (Skibbe et al., 2011). Teachers focus on building self-control by practicing skills such as following directions, paying attention, standing in line, sitting properly, and maintaining classroom routines (Skibbe et al., 2011).

Several studies have demonstrated that classroom quality is linked with greater self-control (Birch & Ladd, 1998; Pianta, 1999; Rimm-Kaufman et al., 2009). For example, Rimm-Kaufman et al., 2009 examined the extent to which kindergarten children's self-regulatory skills were linked with classroom quality. The quality of teachers' classroom management skills were found to be related to children's improved behavioral and cognitive self-control (Rimm-Kaufman et al., 2009).

Attachment. Authors of the DECA-C described attachment as children's strong and long-lasting relationships with significant adults such as teachers, parents, or other

family members (LeBuffe & Naglieri, 1999). Bowlby (1980) described a person with a secure attachment as "likely to possess a representational model of attachment figure(s) as being available, responsive, and helpful, and a complementary model of himself as at least a potentially lovable and valuable person" (p. 242). Bowlby (1973) described a securely attached child as more likely to "approach the world with confidence and, when faced with potentially alarming situations, is likely to tackle them effectively or to seek help in doing so" (p. 208).

As previously stated, researchers have identified a positive link between quality of teacher-child relationships and preschool children outcomes (Baker, 2006; Howes et al., 2008; Burchinal et al., 2008; Hamre & Pianta, 2005; O'Connor & McCartney, 2007). For example, O'Connor and McCartney (2007) found that high quality teacher-child relationships were significantly related to preschool achievement, and that the relationships buffered children from the negative effects of insecure maternal attachment on their achievement.

Center-Based Child Care Quality & Other Child Outcomes

In a study by Chin-Quee and Scarr (1994), researchers sought to determine whether there were longitudinal effects of child care quality on social and academic outcomes of elementary school students, including peer relations, cooperative behavior, and academic achievement in reading comprehension, mathematics, music, art, language and communication skills, science, social studies, and physical education. The sample included 127 children ages 5 through 8 years from the island of Bermuda. The use of hierarchical regression analyses revealed that the quality of the child care environment, as measured by the ECERS (Harms & Clifford, 1980), was not a significant predictor of

children's social or academic outcomes. Instead, researchers found that the family background characteristics of parental values, maternal education, and maternal IQ were predictive of children's outcomes at ages 5-9.

Cunningham (2010) explored the relationship between literacy environment quality and the literacy development of public school preschool children, as well as the relationship between general environment quality and children's literacy development. Furthermore, the differences between economically at-risk children's literacy skills and those of children not considered to be economically at-risk were also examined. Participants included prekindergarten students from a large urban, Midwestern school district in which 80% of the sample qualified for free and reduced lunch, and 74% of students were African American. Cunningham (2010) discovered that as global quality of the classroom environments increased, literacy environment quality proportionately increased. There was also a moderately significant link between the quality of the literacy environment and children's literacy achievement. Specifically, as the quality of the literacy environment increased, teacher ratings of children's literacy skills also increased. Furthermore, Cunningham (2010) noted a significant difference between literacy scores of children identified as economically at-risk and those not identified as economically at-risk. According to Cunningham (2010), this indicated that influences from living in a low-income environment have a negative impact on children's literacy development.

The Cost, Quality, and Child Outcomes Study (1995) was the largest and most widely-read piece of child care research in the 1990s. Results of the study have been used to promote spending increases for improving child care, to create more stringent licensing regulations, and to increase teacher compensation (Glantz & Layzer, 2000). The Cost,

Quality, and Child Outcomes Study team (1995) examined the relationships between the cost of child care, the quality of child care, and cognitive and socio-emotional outcomes of children in child care. Participants included preschool-aged children from child care centers in four states: California, Colorado, Connecticut, and North Carolina. These states were chosen because they are the states in which the researchers reside. The sample included 100 for-profit and nonprofit child care centers. Quality data was collected at the classroom level using the ECERS and ITERS. Cost data was collected at the center level. Two classrooms were randomly selected from each center to represent each program. Each center was then assigned a mean quality rating score. Children's developmental outcomes were assessed once per year for four years using individual child tests, teacher ratings, and parent reports. Parent interviews were used to gather information on the family environment.

Results of the Cost, Quality, and Child Outcomes Study (1995) demonstrated that child care in most of the centers was rated poor to mediocre. Researchers concluded that children's cognitive and social development was positively related to child care quality. Furthermore, it was discovered that quality of child care was related to staff-child ratios, staff education and wages, and administrator experience. In regard to program cost, it was discovered that high-quality child care services cost more but not significantly more than low-quality services. The Cost, Quality, and Child Outcomes Study (1995) also identified a relation between higher licensing standards and higher center quality. Finally, the Cost, Quality, and Child Outcomes Study (1995) revealed that children who attended higher-quality child care centers demonstrated better cognitive and social skills lasting from preschool into their early elementary school years.

Summary

In some studies, the quality of center-based child care has been found to moderate the relationship between family income and child functioning, suggesting stronger positive effects of quality on children from more at-risk backgrounds (Mashburn, 2008; Peisner-Feinberg et al., 2001). Magnuson and Shager (2010) sum this conclusion stating that "…the promise of early education to remediate disadvantaged children's achievement rests on its ability to provide enriching social and academic environments that compensate for the range of disadvantages that low-income children face" (p. 1187). For this reason, there is a need to emphasize and enhance the quality of preschool classroom environments, especially for preschools serving at-risk children and families. The present study is an effort to further understand the relationship between preschool quality and children's language and social outcomes for children from families of low-income.

The following research questions are addressed in the present study:

1) *What are the effects of overall preschool classroom quality on children's language and social development after controlling for child and teacher gender, teacher level of education, children's dominant language, and children's initial performance on measures of receptive language and social development?*
2) *What are the effects of the quality of teacher-child interactions on children's language and social development after controlling for child and teacher gender, teacher level of education, children's dominant language, and children's initial performance on measures of receptive language and social development?*

a. *What is the effect of Emotional Support on children's language and social development after controlling for child and teacher gender, teacher level of education, children's dominant language, and children's initial performance on measures of receptive language and social development?*
b. *What is the effect of Classroom Organization on children's language and social development after controlling for child and teacher gender, teacher level of education, children's dominant language, and children's initial performance on measures of receptive language and social development?*
c. *What is the effect of Instructional Support on children's language and social development after controlling for child and teacher gender, teacher level of education, children's dominant language, and children's initial performance on measures of receptive language and social development?*

CHAPTER THREE:

Methodology

The present study examined the link between child care classroom quality and children's language and social outcomes. The sample was drawn from a specific model of high quality child care education centers called Educare. Educare centers are located in urban areas throughout the United States. Survey, child assessment, and observation data used in the present study are part of a larger study known as the Educare Learning Network Implementation Study. The Implementation Study is a partnership between the Ounce of Prevention Fund and Frank Porter Graham Child Development Institute at the University of North Carolina. Principal investigators for the Educare Learning Network Implementation Study are Noreen Yazejian and Donna Bryant. Evaluation results from

the Implementation Study are used to help researchers determine how to best use components of the Educare model to maximize school readiness for children in Educare programs.

The extant data used for the present study were collected over the previous two school years (2009-2010 and 2010-2011). The data include preschool assessment measures, teacher rating scales, and structured classroom observation data. Child assessment and teacher rating scale data were collected in the fall and spring of the 2009/10 and 2010/11 school years. Observation data were collected in the winter of each school year. This chapter describes the participants, procedures, measures, and data analyses used to examine the research questions.

Participants

The present study included children aged three to five enrolled in Educare centers throughout the country. Children enrolled in Educare's preschool program for one school year (2009-2010 or 2010-2011) were included in the study. The present study explored the relationship between preschool classroom quality and child language and social outcomes for this particular cohort of children. A total of 10 Educare programs with 59 classrooms participated in 2009-2010, and 10 Educare programs with 37 classrooms participated in 2010-2011. All children with consent were included in the data collection process, including children with identified disabilities and Individualized Education Plans (IEPs).

For the present study, a statistical power analysis was conducted using Optimal Design Software (Version 2.0), which calculates power for multilevel models (Spybrook, Raudenbush, Congdon, et al., 2009). The design used was a cluster randomized trial

(treatment at level 2) with person-level outcomes. Using the average intraclass correlation coefficient (ρ = .23), average class size (n = 15), and number of teachers (J = 79) in the data set, results demonstrate this study has 80% power to detect an effect size of d = .34. This suggests power to detect a small effect size in the population. Therefore, the sample size for this study provides sufficient power to detect the expected effects, given conservative estimates of effect size.

Table 1 presents demographic data for child participants in the current study. The sample size for this study included 1,151 children aged three to five years from Educare sites in urban areas throughout the country. Child gender included 51.8% male and 48.2% female. Child race consisted of 40.2% African-American students, 37.7% Hispanic/Latino, 11.2% Caucasian, and 9.2% of some other race. A majority of children (66.5%) spoke English, while 30% spoke Spanish and 3.6% spoke another language as their primary language. Finally, 51 children in the sample (4.4%) received special education services and had an IEP.

Table 1

*Demographic Characteristics of Child Participants (*N*=1,151)*

Characteristic	N	%
Gender		
Male	596	51.8
Female	555	48.2
Race		
White	259	22.5
Black	465	40.4
Asian	12	1.0

American Indian/Alaska Native	30	2.6
Native Hawaiian/Pacific Islander	6	0.5
Biracial/Multiracial	72	6.3
Other Race	214	18.6
Unspecified Race	25	2.2
Language		
English	765	66.5
Spanish	345	30
Other	41	3.6
Special Education		
Children with an IEP	51	4.4

Table 2 presents demographic data for teacher participants in the current study. A total of 79 teachers participated in the study. Teacher gender included 5.6% male, 74.5% female, and 19.9% unreported. Teacher race consisted of 61.3% white, 8.5% black, 2.1% Asian, 2.9% American Indian/Alaska Native, 1.1% biracial or multi-racial, 1.4% other/not Hispanic, and 22.7% unreported. A majority of teachers (72.6%) hold a bachelor's degree or higher, while 7.5% hold less than a bachelor's degree and 19.9% did not report their level of education.

Table 2

*Demographic Characteristics of Teacher Participants (*N*=79)*

Characteristic	N	%
Gender		
Male	4	5.6

Female	59	74.5
Unknown	16	19.9
Race		
White	48	61.3
Black	7	8.5
Asian	2	2.1
American Indian/Alaska Native	2	2.9
Biracial/Multiracial	1	1.1
Other/Not Hispanic	1	1.4
Unknown	18	22.7
Teacher Education		
Less than bachelor's	6	7.5
Bachelor's and above	57	72.6
Unknown	16	19.9

Table 3 presents descriptive information about Educare staff and child presence in classrooms during ECERS-R and CLASS observations, as well as child attendance for each year. The number of staff and children present for each measurement occasion is provided, as well as statistics demonstrating how many days children attended each school year, and how many possible days they could have attended. Information regarding the number of staff and children present during observations was collected during ECERS-R and CLASS observations. CLASS observations are broken into six cycles, and statistics are reported for each cycle. The number of classrooms is provided

for each variable. Children attended an average of 79.5% of possible school days in year one, and an average of 85.5% of possible school days in year two.

Table 3

Demographic Characteristics of Classroom Staff & Children

	Year One				Year Two			
Variable	*N*	*Min*	*Max*	*M (SD)*	*N*	*Min*	*Max*	*M(SD)*
Child Attendance-Days	738	0	231	154.50(45.52)	343	3	227	154.66(53.72)
Child Attendance-Possible Days	738	3	296	194.36(46.82)	343	7	230	180.92(54.82)
ECERS-R Staff Present	59	2	4	2.75 (0.46)	37	2	4	3.00(0.38)
ECERS-R Children Present	59	6	18	13.32(3.24)	37	6	18	13.75(3.20)
CLASS Cycle 1 Staff	49	1	4	2.31(0.61)	33	2	5	2.67(0.73)
CLASS Cycle 2 Staff	49	2	4	2.47(0.58)	33	2	5	2.82(0.80)
CLASS Cycle 3 Staff	49	2	4	2.73(0.56)	33	2	4	2.76(0.61)
CLASS Cycle 4 Staff	49	2	3	2.65(0.48)	33	2	5	2.76(0.70)
CLASS Cycle 5 Staff	8	3	3	3.00(0.00)	8	2	4	2.75(0.70)
CLASS Cycle 6 Staff	8	2	3	2.88(0.35)	4	2	3	2.75(0.50)
CLASS Cycle 1 Children	49	3	17	10.78(3.69)	33	4	18	11.97(3.39)
CLASS Cycle 2 Children	49	5	17	12.86(2.74)	33	5	18	13.45(2.98)

CLASS Cycle 3 Children	49	5	17	13.69(2.41)	33	4	18	13.55(3.21)
CLASS Cycle 4 Children	49	5	17	13.80(2.50)	33	6	18	13.76(2.90)
CLASS Cycle 5 Children	8	9	16	13.25(2.60)	8	8	16	13.75(2.86)
CLASS Cycle 6 Children	8	9	16	13.25(2.60)	4	8	15	12.25(3.09)

Features of Educare centers. Educare centers are unique in their ability to provide high quality care serving at-risk children and families. The provision of high quality services is made possible through several funding sources, strategic planning, and a strong mission to help children from disadvantaged backgrounds. Educare is funded through a combination of Head Start monies, state and local education funds, Title I, child care money, and private funding.

All Educare facilities have been built in low-income neighborhoods. Educare centers are Head Start affiliated and have the same enrollment requirements as regular Head Start preschools. Therefore, children and families enrolled in Educare all qualify for the Head Start program, which means that the sample for the proposed study are largely from low socioeconomic backgrounds.

Educare's development is based on research and best practices regarding what at-risk children need in order to be successful in school. Educare's mission is to help young children grow up safe, healthy, and eager to learn through creating, providing, and promoting the highest quality outcome-based learning environments (Taylor, Marshall, & McConville, 2011; http://www.educareschools.org/home/index.php). Taylor et al. (2011) described the following as core features of the Educare model:

- On-site family support specialists
- High staff qualifications (Lead teachers have bachelor degrees, family support staff have masters degrees)
- Intensive staff development (teacher-coaches)
- Care for children age birth to five in full day, year-round programs
- Small class sizes and high staff to child ratios (three staff members for 17 children in classrooms ages three to five)
- Continuity of care to help children develop secure relationships (children are with the same teaching staff from birth to age three, and then again from ages three to five)
- Implementation of reflective practice & supervision
- Interdisciplinary work
- Language & literacy
- Social-emotional development
- Numeracy & problem-solving
- Integration of the arts
- Start early: Emphasis on prenatal services
- Data collection and analysis
- Unique public-private partnership in the community (e.g. outcome data shared frequently with the public)

History of Educare centers. The first Educare site was opened in Chicago's south side in 2000. The Ounce of Prevention Fund in Chicago was the originator of the Educare model. There are currently 12 Educare programs throughout the United States, and six new sites under construction. In the beginning, the Ounce of Prevention Fund did not plan on replicating the first Educare site in Chicago. However, the Buffett Early Childhood Fund provided money for Omaha to create a site, and soon private and public funds were provided for other cities to develop Educare programs as well. The Ounce of

Prevention provides technical assistance, guidance toward community partnership agreements, and architectural planning.

Measures

Predictor Variables

Broad Program Quality

The Early Childhood Environment Rating Scale – Revised (ECERS-R; Harms et al., 1998) was used to measure the quality of the classroom environment. The scale was originally developed as a tool that centers could use for self-assessment to target areas in need of improvement (Layzer & Goodson, 2006). Its scope is broad, covering aspects of the environment that measure both structural and process quality. For example, items in the subscale of Personal Care Routines are almost solely a measure of structural quality indicators, while items in the Interaction subscale are process quality indicators (Donabedian, 1980).

The revised ECERS consists of 43 items organized into seven subscales. The six items which make up the subscale Provisions of Parents and Staff were not assessed as part of the Educare Implementation Study, and therefore were not included in the present study. A measure of the overall quality in each preschool classroom was computed as the average rating for the 37 items included in the present study. The present study utilized the mean of 37 items from the following subscales of the ECERS-R: Space and Furnishings (8 items), Personal Care Routines (6 items), Language-Reasoning (4 items), Activities (10 items), Interaction (5 items), Program Structure (4 items), and a total score. Each item was scored on a 7-point scale ranging from *inadequate* to *excellent*. Sample items from the Space and Furnishings subscale include “Indoor Space” and “Furniture for

routine care, play and learning." Sample items from the Personal Care Routines subscale include "Greeting/departing" and "Meals/snacks." Sample items from the Language-Reasoning subscale include "Books and pictures" and "Encouraging children to communicate." Sample items from the Activities subscale include "Fine motor" and "Art." Sample items from Interaction include "Supervision of gross motor activities" and "General supervision of children (other than gross motor)." Finally, sample items from Program Structure include "Schedule" and "Free play" (Harms et al., 1998). All items are made available in Appendix A.

An observer chose a rating on a scale that is anchored at 1 (inadequate quality), 3 (minimal quality), 5 (good quality), and 7 (excellent quality), and an average score was computed for each subscale and for an indicator of overall quality. Each subscale was equally weighted in the calculation of the total score (Layzer & Goodson, 2006). Information on training and inter-observer reliability will be provided later in the document.

The developers of the ECERS-R reported that the measure has demonstrated good predictive validity. Interrater internal consistency reliability coefficients are moderate to high for the ECERS-R subscales (.71 to .88) and high for the total score (.92) (Harms et al., 1998). The ECERS-R has been the most commonly used observation measure of program quality in studies examining the quality of preschool environments (Mashburn, 2008).

The present study analyzed the relationship between ECERS-R scores and children's outcomes. The overall average scores were used as indicators of overall quality for each classroom. The average scores were examined as predictors of children's

language and social development. Training and reliability information is provided later in the document.

Interaction Quality

The second observational measure of preschool classroom quality used in the present study is the Classroom Assessment Scoring System (CLASS; Pianta et al., 2008). For the present study, the CLASS observation tool was used to assess the quality of relationships and interactions in the preschool classrooms. The scale measures interaction quality along three primary domains (Emotional Support, Instructional Support, and Classroom Management) and ten dimensions (Positive Climate, Negative Climate, Teacher Sensitivity, Regard for Student Perspective, Behavior Management, Productivity, Concept Development, Instructional Learning Formats, Quality of Feedback, and Language Modeling) (Pianta et al., 2008). Example items within the Positive Climate dimension include "Relationships" and "Positive Affect." Example items from Negative Climate include "Negative Affect" and "Punitive Control." Example items from Teacher Sensitivity include "Awareness" and "Responsiveness." Example items from Regard for Student Perspectives include "Flexibility and Student Focus" and "Support for Autonomy and Leadership." Example items from Behavior Management include "Clear Behavior Expectations" and "Proactive." Example items from Productivity include "Maximizing Learning Time" and "Routines." Example items from Instructional Learning Formats include "Effective Facilitation" and "Variety of Modalities and Materials." Example items from Concept Development include "Analysis and Reasoning" and "Creating." Example items from Quality of Feedback include "Scaffolding" and "Feedback Loops." Finally, example items from Language Modeling

include “Frequent Conversation” and “Open-Ended Questions.” The measure is available in Appendix B.

The theoretical framework underlying the development of the CLASS suggests that teacher-child interactions are the primary mechanism through which children learn in the classroom. Therefore, the CLASS observation tool measures different types of interactions within classrooms, including social and instructional features. Social aspects of teacher-child interactions include features such as teacher sensitivity and responsiveness to children’s cues and needs, while instructional aspects include features relating to the way in which teacher behaviors promote concept development or scaffolding of children’s skills (Mashburn et al., 2008).

Scoring of the CLASS is based solely on interactions between teachers and children, and not on the presence of materials, the physical environment of the room, or the type of curriculum being implemented. The focus of the CLASS is an assessment of what teachers do with the materials they have in the classroom and on their interactions with children (Pianta, 2003). The domain of emotional support is focused on classroom climate, teacher sensitivity, and regard for student perspectives. The domain of classroom organization assesses behavior management, productivity, and instructional learning formats. Finally, the domain of instructional support is focused on concept development, quality of feedback, and language modeling. The instructional support domain is different on the CLASS protocol for pre-k and lower elementary versus upper elementary and secondary. The protocol for younger grade levels assesses language modeling, and the protocol for older grade levels assesses content understanding, analysis and problem solving, and instructional dialogue (Pianta et al., 2008).

Items on the CLASS are rated on a 7-point scale ranging from *low quality* (1 or 2) to *mid-range quality* (3-5) to *high quality* (6-7). Psychometric information on the CLASS has been reported. Inter-rater reliability has been found to be high (.87) when reliability is defined as scores within one scale point of each other (Pianta et al., 2008). The CLASS has also demonstrated high predictive and construct validity (Pianta et al., 2008; Hamre et al., 2007).

The present study analyzed the relationship between individual CLASS subtest scores and children's outcomes. Specifically, *emotional support, classroom organization,* and *instructional support* were each examined separately in relation to children's language and social development. Again, training and reliability information is provided later in the document.

Outcome Variables

Language Development

The Peabody Picture Vocabulary Test – Fourth Edition (PPVT-IV; Dunn et al., 2006) was used to assess children's receptive vocabulary skills. The PPVT-IV is an individually administered, standardized measure that is used with children and adults between two years six months and 90 years of age. It is useful when selecting the level and content of instruction for a child, as well as to measure the learning of a child. The measure contains a broad sampling of words, representing various content areas (e.g. tools, vegetables, animals) and parts of speech (e.g. verbs, nouns, adjectives) across all levels of difficulty (Dunn et al., 2006). Example items are not made available in the paper or in an appendix due to copyright law.

The PPVT-IV is a norm-referenced measure in which raw scores are converted into standardized scores (M = 100, SD = 15) that were normed according to each child's age. The instrument has demonstrated acceptable levels of test-retest reliability and split-half reliability, and has been shown to be strongly correlated with other measures of receptive language, achievement, and intelligence (Mashburn, 2008). The test-retest reliability of the PPVT-IV is high (.91-.94). Internal consistency is also high (.91-.97) (Crais, 2011). In addition, the PPVT-IV is concurrent (.81-.84) with the Expressive Vocabulary Test, Second Addition (Williams, 2007), demonstrating validity of the measure (Crais, 2011). Furthermore, norming samples of the measure were designed to closely match the 2004 Census demographic data, therefore representing diverse populations. Specifically, the age norm sample included 536 African American subjects, 546 Hispanic subjects, 2,244 White subjects, and 214 subjects of another race. Those subjects called "Other" consisted of the following races: American Indian, Alaska Native, Asian American, Pacific Islander, and all other groups not classified as African American, Hispanic, or White (Dunn et al., 2006).

During administration of the PPVT-IV, a child is shown a card with four pictures. The assessor then reads a word that corresponds with one of the pictures, and the child is asked to point to the picture that he or she believes best represents the word. A raw score is obtained, and a standard score is then calculated to demonstrate the child's ability level in receptive vocabulary (Dunn et al., 2006). For the present study, children's spring standard scores were used as outcome variables and fall scores were used as covariates.

Social Development

The Devereux Early Childhood Assessment – Clinical for children ages two through five years (DECA-C) rating scale was used to assess children's social competence (LeBuffe & Naglieri, 1999). Educare preschool teachers completed the DECA-C for each child in their class in the fall and spring of each school year. The DECA-C is a standardized, norm-referenced behavior rating scale grounded in resilience theory. The rating scale evaluates within-child protective factors and behavioral concerns in preschool children ages two through five years. The measure counts the frequency of positive behaviors and allows the assessor to identify children with low protective factors and/or behavioral concerns. The DECA-C was created to address the needs of professionals who requested a more thorough assessment of behavioral difficulties. The three scales related to within-child protective factors (initiative, self-control, and attachment) are the same as those in the original DECA. However, the DECA-C contains a Behavioral Concern scale, which measures attention problems, aggression, emotional control problems, and withdrawal/depression (LeBuffe & Naglieri, 1999). The measure is made available in Appendix C.

There are three scales related to within-child protective factors (initiative, self-control, and attachment), a total protective factors score (TPF), and a behavioral concerns scale (BC). Initiative measures a child's ability to use independent thought and action to meet his or her needs. Sample items include "do things for himself/herself" and "keep trying when unsuccessful." Self-control assesses a child's ability to experience a range of feelings and express them using the words and actions that society considers appropriate. Sample items include "control his/her anger" and "cooperate with others." Attachment is a measure of a mutual, strong, and long-lasting relationship between a child and

significant adult(s). Sample items include “show affection for familiar adults” and “seek help from children/adults when necessary.” The Behavioral Concern scale measures the frequency of problem behavior in the classroom, including attention problems, aggression, emotional control problems, and withdrawal/depression. Aggression refers to hostile or destructive acts directed at other persons or things. Emotional control problems refer to difficulties in modifying the overt expression of negative emotions. Withdrawal/depression is related to emotional and social withdrawal in which the child is self-absorbed and often attends to his or her own thoughts or play instead of interacting with others. Withdrawal/depression also refers to feelings of sadness and the inability to enjoy activities and social interactions. Sample items include “have difficulty following a routine,” “fight with other children,” “show little or no emotion,” and “get overly upset if he/she made a mistake” (LeBuffe & Naglieri, 1999). For the present study, children’s spring T-scores were used as outcome variables and fall scores were used as covariates.

The standardization sample of the within-child protective factor scales are based on the original DECA norming sample. The original DECA was developed over a two-year period (1996-98). The standardization sample closely approximated the population of the United States, and was normed on a sample of children that accurately reflected the diversity of preschool children in the country. The sample consisted of 69.4% White, 17.2% Black, 3.5% Asian/Pacific Islander, 1.0% Native American, and 9.0% Other. Children of Hispanic ethnicity made up 10.7% of the standardization sample. Norming samples were updated for the DECA-C Behavioral Concerns scale. The sample is similar to the population of the United States in terms of gender, region, race, ethnicity, and socioeconomic status. Norming samples of the DECA-C Behavioral Concerns scale were

designed to closely match the 2000 Census demographic data of children under the age of five, therefore representing diverse populations. Specifically, the age norm sample included 806 White, 172 Black, 21 Asian or Pacific Islander, 10 American Indian, and 90 of another race. Hispanic ethnicity representation included 97 Hispanic and 954 Non-Hispanic subjects. From the standardization sample, internal reliability for teacher raters on the TPF was .94 and on the BC was .80. The developers describe high content-related validity as they conducted a thorough review of the literature and focus groups of parents and teachers. Criterion-related validity was demonstrated as an identified sample and community sample scored significantly different ($p < .01$) on the TPF and BC with large effect sizes (.89 and 1.08, respectively). A comparison between the ratings of European American students and African American students found the differences to be negligible to small, with an overall effect size of .25 (LeBuffe & Naglieri, 1999).

Procedures

As previously stated, data used for the present study were part of a larger extant set of data collected over the course of two school years (2009-10 and 2010-11) by Yazejian and Bryant in conjunction with research aimed at evaluating Educare Centers in the Educare Learning Network. After receiving approval from researchers at Frank Porter Graham Child Development Institute, these data were acquired in March of 2012. Student and teacher confidentiality were protected through the use of non-meaningful ID numbers. Child PPVT-IV and DECA-C scores were provided as standard scores. Classroom ECERS-R scores were provided as overall averages of all subscale scores, and CLASS scores were provided as domain averages (Emotional Support, Classroom Organization, and Instructional Support). Upon receiving the secured classroom and child

databases from Frank Porter Graham, the data were merged into a final database that combined all classroom, child, and teacher data.

Individual child data were collected in the fall and spring of the 2009-10 and 2010-11 school years. Observation data were collected in the winter of each school year. For the present study, two years of data were examined (2009-2010 and 2010-2011 school years), but only children in their first year of Head Start at Educare were included in the analysis, and therefore only one year of child data were included for each child. All children in the final sample for the present study were assessed in both fall and spring using the PPVT-IV and DECA-C.

Observer training. As part of the Educare Implementation Study, graduate or bachelor-level student research assistants were trained and observed classrooms for two to three hours in the winter of each school year to complete the ECERS-R. Ten Educare sites were involved in the data collection, with one to three research assistants who conducted observations at each site. Forty-seven ECERS-R observations were conducted in 2009-2010, and 26 were conducted in 2010-2011. Three professionals involved in the Educare Implementation Study were trained by the authors of the ECERS-R (Harms et al., 1998). Their training involved one day of lecture and three days of classroom observations and reliability testing. The three trained professionals then visited each Educare site on an annual basis for several days to train or conduct reliability with research assistants. At the end of each visit, interobserver agreement was determined between trainers and observers for at least one observation per research assistant. The Educare Implementation Study required trainers and observers to have an interobserver agreement of r = .85 or better in order for observers to complete observations

independently. It should be noted that although interrater reliability is obtained annually for at least one observation per observer, much of this data were not made available for the present study. For the present study, interrater reliability data were available for only seven out of 73 observations that were conducted over the two school years, and therefore reliability statistics were not reported.

Observers who were part of the data collection team for the Educare Implementation Study were also trained on the CLASS measure and interobserver agreement was determined annually. Observers were required to view a series of online videos provided by Pianta et al. (2008), developers of the CLASS. Videos and other certification information are made available through Teachstone (http://www.teachstone.org/certification/). Teachstone was founded by Robert Pianta and Bridget Hamre as a method of training observers on how to use the CLASS. In order to use the CLASS, observers were required to become certified through Teachstone by going through training and a reliability test once per year. During the reliability test, observers watched and coded five videos that were 15-20 minutes each. Observers were given three opportunities to pass the reliability test. To pass, 80% of coding was required to be within one point of the master code, and two out of five codes within each dimension were required to be within one point of the master code. Certification is valid for one year from the date of passing the reliability test. An annual recertification test is required to maintain observer status.

Upon successful observer certification, certified trainers and observers conducted at least one observation together at each Educare site. Forty-eight CLASS observations were conducted in 2009-2010, and 27 were conducted in 2010-2011. As previously

stated, the Educare Implementation Study required trainers and observers to have an interobserver agreement of r = .85 or better in order for observers to complete observations independently. For the present study, interrater reliability data was available for only three out of 75 observations that were conducted over the two school years, and therefore interrater reliability statistics were not reported.

Interassessor reliability. Graduate and bachelor-level research assistants involved in the Educare Implementation Study were trained on the PPVT-IV measure by other research assistants who had passed reliability checks earlier that year. In order to ensure assessment integrity, each research assistant was required to submit one videotape and scored protocol annually from an assessment session with the PPVT-IV. Videos and protocols were turned in to Frank Porter Graham (FPG) Child Development Institute in order to be checked for reliability. Data collector evaluation protocols were developed by researchers at FPG Child Development Institute and were used to rate each assessment videotape and protocol, and to certify data collectors. Questions on the evaluation protocols were centered on test administration and include items such as "The easel is positioned so that the examiner can see both sides of the easel while the examinee can only see one side" and "Accepts the final choice, even if the change is from the correct response to an incorrect one." Items on evaluation protocols were scored "Yes" or "No." For the present study, if an assessor somehow invalidated the assessment, they were asked to redo the assessment and send a new video and protocol. However, if the assessor made only minor mistakes, the team at FPG Child Development Institute commented on the mistakes and provided suggestions for future assessments. Assessors could not begin the assessment process until they were deemed reliable in their test administration.

Data collection. The PPVT-IV was administered by trained assessors, usually research assistants, at two time points during the year; in the fall and spring of the 2009-2010 and 2010-2011 school years. The assessment was conducted on a one-on-one basis with the children, and each session took approximately 15 minutes to complete.

DECA-C rating scale forms for children aged two through five years were completed by their classroom teachers in the fall and spring of each school year. Reference handouts created by trained research assistants were given to teachers in order to provide them with information on how to complete the DECA-C form. Any questions were directed to research assistants who were on site 20 hours per week. Protocols were collected and scored by research assistants. Protocols were checked two additional times for reliability purposes, once by a research assistant at each preschool site, and once by primary researchers of the larger implementation study at FPG Child Development Institute.

To assess the quality of the classroom environment using the ECERS-R, trained research assistants observed each classroom for approximately three hours in the winter of the 2009-10 and 2010-11 school years. Observers recorded notes on specific behaviors or environmental characteristics and then scored each item. For items that could not be scored during the three hour observation, observers interviewed the lead teacher of each classroom in order to score those items. The ECERS-R manual provided detailed information to help observers determine the specific scores.

To assess the quality of teacher-child interactions using the CLASS, trained observers participated in four cycles of observation that added up to two total hours of assessment and rating for each classroom. Each cycle consisted of 20 minutes of

observation followed by ten minutes of rating. Observations took place in the winter of the 2009-10 and 2010-11 school years.

Classroom observation data and individual child data were made available for the current study by Yazejian and Bryant, principal researchers for the Educare Implementation Study. As previously stated, child data were collected in the fall and spring of the 2009-2010 and 2010-2011 school years, and observation data were collected in the winter of the 2009-2010 and 2010-2011 school years. All data used for the present study were collected as part of the larger implementation study.

Teacher demographic data were collected in the spring of each school year through teacher surveys. Child demographic data were collected through a review of school records at each Educare site.

Data Analyses

Preliminary data analyses. Preliminary data analysis included an examination of the distributional properties (minimum, maximum, mean, standard deviation) of the ECERS-R and CLASS scores for Educare classrooms included in the present study. Distributional properties of the ECERS-R scores were based on averages of items 1-37 for all classrooms. Distributional properties of the CLASS were based on average domain scores, which are made up of dimension scores. Average Emotional Support scores were calculated using the average of the following dimension scores: *Positive Climate, Negative Climate, Teacher Sensitivity,* and *Regard for Student Perspectives*. Average Classroom Organization scores were calculated by taking the average of the following dimension scores: *Behavior Management, Productivity,* and *Instructional Learning Formats*. Finally, average Instructional Support scores were calculated by averaging the

following dimension scores: *Concept Development, Quality of Feedback,* and *Language Modeling*. Minimum, maximum, and mean scores were reported. The number of classrooms was also reported. Results for each quality measure were examined separately for each of the two school years.

Data analysis strategies. Statistical Analysis Software (SAS 9.2) was used to conduct statistical analyses for the present study. Hierarchical linear modeling (HLM) was used to examine the relationship between classroom quality and children's performance in social competence and receptive vocabulary skills. HLM procedures were selected for multiple reasons. First, more information can be salvaged when some data are missing because cases are not deleted listwise as in simple linear regression. Second, HLM procedures were selected due to the nested nature of the data (i.e., children within classrooms), which is accommodated by HLM techniques (Raudenbush & Bryk, 2002). When participants are clustered, the regression assumption of independence of cases is violated and parameter estimates may be biased. HLM accounts for the dependence by estimating variability in scores at the classroom level, resulting in more accurate parameter estimates and standard errors.

The relationship between the quality of center-based child care and children's language and social developmental outcomes were examined in a series of hierarchical linear models. The hierarchical linear model can be used to estimate the degree of association among variables that are measured at different levels (Bryk & Raudenbush, 1987; Jennrich & Schluchter, 1986). Data were collected at three levels: child, classroom, and site. Multiple children were included within each classroom, and classrooms were nested within different Educare sites around the country. However, site was not included

in the HLM models due to the small amount of variance in language and social competence outcomes across Educare sites (average ICC = .045).

Level-one variables included children's receptive vocabulary (PPVT-IV) and social competency (DECA-C) pre-scores, as well as the control variables of child gender, children's initial performance on the PPVT-IV and DECA-C, and children's dominant language. Children's PPVT-IV and DECA-C pre-scores were used as predictor variables, or covariates, while post-scores were used as outcome variables. PPVT-IV and DECA-C scores were collected in the fall and spring of each school year. Student scores were included for each child's first year in Educare. Fall scores, therefore, were considered baseline or pre-scores.

Some students (n=67) enrolled in Educare in the spring of 2010 and continued on for the following full school year. Considering their second-year fall scores as baseline scores may bias results because their scores could have been affected by the additional semester of instruction. Therefore, for the current study, the scores of children who enrolled in spring semester were excluded from the analysis in order to reduce the possibility of a confounding effect of extra time in Educare.

Level two included classroom and teacher variables. Classroom variables were the predictor variables of overall classroom quality (ECERS-R), and the quality of Emotional Support (CLASS), Classroom Organization (CLASS), and Instructional Support (CLASS). The quality of preschool care was assessed using the ECERS-R and CLASS for each classroom once per school year. Teacher gender and level of education were also level-two variables.

Children's PPVT-IV and DECA-C scores were modeled separately because these developmental outcomes were measured by both a child assessment instrument (PPVT-IV) as well as several subscales of a teacher rating scale (DECA-C). In the original dataset, some children (n=302) were taught by the same teacher (n=30) in both the 2009-10 and 2010-11 school years. These teachers had different ECERS-R and CLASS scores across the school years, which created a dependence of time within teachers. In order to create a more manageable nesting structure of children within teachers, children enrolled in the 2010-11 school year were excluded from the dataset if they had the same teachers in both 2009-10 and 2010-11.

CHAPTER FOUR:

Results

The following are results from the present study. Results are organized as follows: (1) preliminary analyses (descriptive statistics); (2) hierarchical linear regressions for research questions 1, 2a, 2b, and 2c.

Preliminary Analyses

Preliminary analyses included descriptive data about the sample, classrooms, and sites, including child gender, race, language, and special education status. Descriptive analyses were used to describe the quality of care observed in Educare classrooms, based on averages of items 1-37 on the ECERS-R, and average domain scores for the CLASS. Distributional properties of the ECERS-R and CLASS scales are summarized in Table 4. Results were examined separately for each of the two school years.

As previously stated, each item on the ECERS-R is scored on a 7-point scale ranging from *inadequate* to *excellent*. An observer chooses a rating on a scale that is

anchored at 1 (inadequate quality), 3 (minimal quality), 5 (good quality), and 7 (excellent quality), and an average score can be computed for each subscale and for an indicator of overall quality. Each subscale carries the same weight in the total score (Layzer & Goodson, 2006).

Table 4

Demographic Characteristics of Classroom Quality

	Year One				Year Two			
Variable	*N*	*Min*	*Max*	*M (SD)*	*N*	*Min*	*Max*	*M(SD)*
ECERS-R Total Score	50	3.32	6.70	5.69(0.82)	36	3.32	6.59	5.35(0.86)
CLASS Emotional Support	49	3.31	6.94	5.90(0.72)	33	4.25	7.00	6.00(0.76)
CLASS Classroom Organization	49	3.42	6.83	5.17(0.91)	33	3.67	6.75	5.48(0.75)
CLASS Instructional Support	49	2.00	6.33	3.47(1.04)	33	2.00	5.87	3.26(0.94)

Correlations among the CLASS domains of emotional support, classroom organization, and instructional support were examined and found to be high. Teachers who had high quality classroom organization also tended to have high emotional support (r=.774) and high quality instructional support (r=.442). Also, teachers with high quality emotional support tended to have high quality instructional support (r=.337). All correlations were significant at the .01 level.

Intraclass correlation coefficients (ICC's) were calculated for each dependent variable using an unconditional means model, which includes only the intercept (no predictors), in order to assess the variability in the outcomes across clusters. ICC refers to the proportion of variance in dependent variables that is attributable to clustering. In other words, ICC describes how strongly variables in the same cluster or group resemble one another. This is important to determine in the present study because students are clustered in classrooms and sites. If the variance in children's language and social competence is in large part due to children having the same teacher or being enrolled in the same Educare site, then that particular cluster variable (e.g. teacher, site) must remain in the model in order for results to be reliable.

In order to determine whether to include Educare site as a level of analysis in the hierarchical linear regression, intraclass correlation coefficients were calculated across teachers and sites for each dependent variable. Results of the analyses reveal a small amount of variability in language and social competence outcomes across Educare sites. Site-level ICC's ranged from .01 to .11, and tests of the site-level intercept variances were not significant in five out of the six dependent variables. The site-level ICC was .11 for the PPVT-IV, which had the only significant site-level intercept variance. Teacher-level ICC's, once the site level was removed from the model, ranged from .13 to .35 and teacher-level variances were all highly significant (p<.001). This provides justification for the conclusion that "site" can be excluded from the model. The variable of "teacher" was kept in the model because the present study is using teacher-level predictors and the teacher-level variances were highly significant.

In order to determine the importance of the relationship between amount of time in the Educare program and child outcomes, a correlation analysis was conducted. Correlation analysis was completed in order to determine the amount of variance in children's PPVT-IV and DECA-C outcomes that were due to their length of time enrolled in Educare. Correlations between time in Educare and children's fall PPVT-V and DECA-C scores ranged from .009 to .083. Results of the correlation analysis demonstrated small effects (r<.1), providing evidence that time in Educare accounts for only a small amount of variance in outcomes. Therefore, time in Educare was not used as a control variable in the present study.

Hypothesis One

Hypothesis one posed that overall quality of the classroom environment would be significant in positively predicting children's outcomes in receptive language ability and social development (increased initiative, self-control, attachment behaviors, total protective factors, and fewer behavioral concerns), after adjusting for child and teacher gender, teacher level of education, children's dominant language, and children's initial performance on measures of receptive language and social development. Table 5-10 displays results from the analyses. The hypothesis was not supported. Results demonstrate that ECERS-R scores were not significantly predictive of children's spring PPVT-IV scores or DECA-C initiative, self-control, attachment, protective factors, and behavior concerns scores.

Table 5 presents results from the hierarchical linear modeling analysis that examined the relationship between overall ECERS-R quality scores and children's

performance on the PPVT-IV. Results demonstrate that ECERS-R scores were not significantly predictive of children's spring PPVT-IV scores (B = -0.56, p = .316).

Table 5

Summary of Hierarchical Linear Modeling Analysis ECERS-R Predicting PPVT-IV

	Model				
Parameter	Estimate	SE	df	*t*-value	*p*-value
Fixed Effects:					
Main Effect of ECERS-R on PPVT-IV	-0.56	0.56	445	-1.00	.316
Initial PPVT-IV Scores	0.74	0.03	445	26.52	<.001
Child Gender	0.58	0.79	445	0.73	.463
Teacher Gender	0.77	1.87	445	0.41	.679
Teacher Education	-0.91	1.46	445	-0.63	.531
Child Language	-1.05	1.04	445	-1.00	.316
Covariance Parameter Estimates				*z*-value	
Intercept Variance	2.34	2.50		0.93	.175
Residual Variance	75.03	5.08		14.78	<.001

Table 6 presents results from the hierarchical linear modeling analysis that examined the relationship between overall ECERS-R quality scores and children's initiative, as rated by teachers. Results demonstrate that ECERS-R scores were not significantly predictive of children's initiative, as rated on the DECA-C (B = -1.60, p = .020).

Table 6

Summary of Hierarchical Linear Modeling Analysis ECERS-R Predicting Initiative

	Model				
Parameter	Estimate	SE	df	*t*-value	*p*-value
Fixed Effects:					
Main Effect of ECERS-R on Initiative	-1.60	0.69	547	-2.32	.020
Initial Initiative Scores	0.604	0.30	547	19.90	<.001
Child Gender	2.42	0.55	547	4.38	<.001
Teacher Gender	-2.90	2.35	547	-1.23	.219
Teacher Education	1.68	2.12	547	0.79	.429

Child Language	1.18	0.73	547	1.63	.103
Covariance Parameter Estimates				*z*-value	
Intercept Variance	12.02	3.26		3.68	<.001
Residual Variance	41.19	2.49		16.56	<.001

Table 7 presents results from the hierarchical linear modeling analysis that examined the relationship between overall ECERS-R quality scores and children's self-control, as rated by teachers. Results demonstrate that ECERS-R scores were not significantly predictive of children's self-control, as rated on the DECA-C (B = -0.72, p = .278).

Table 7

Summary of Hierarchical Linear Modeling Analysis ECERS-R Predicting Self-Control

	Model				
Parameter	Estimate	SE	df	*t*-value	*p*-value
Fixed Effects:					
Main Effect of ECERS-R on Self-Control	-0.72	0.66	547	-1.08	.278
Initial Self-Control Scores	0.59	0.03	547	19.31	<.001
Child Gender	1.51	0.57	547	2.67	.007
Teacher Gender	-1.09	2.25	547	-0.49	.627
Teacher Education	2.50	2.03	547	1.23	.218
Child Language	2.31	0.75	547	3.09	.002
Covariance Parameter Estimates				*z*-value	
Intercept Variance	10.34	3.00		3.44	<.001
Residual Variance	44.90	2.71		16.56	<.001

Table 8 presents results from the hierarchical linear modeling analysis that examined the relationship between overall ECERS-R quality scores and children's level of attachment, as rated by teachers. Results demonstrate that ECERS-R scores were not

significantly predictive of children's attachment, as rated on the DECA-C (*B* = -1.86, *p* = .046).

Table 8

Summary of Hierarchical Linear Modeling Analysis ECERS-R Predicting Attachment

	Model				
Parameter	Estimate	SE	df	*t*-value	*p*-value
Fixed Effects:					
Main Effect of ECERS-R on Attachment	-1.86	0.86	547	-2.17	.046
Initial Attachment Score	0.42	0.03	547	12.12	<.001
Child Gender	2.11	0.55	547	3.82	<.001
Teacher Gender	-4.53	2.95	547	-1.53	.126
Teacher Education	1.25	2.63	547	0.47	.635
Child Language	0.91	0.76	547	-2.17	.030
Covariance Parameter Estimates				*z*-value	
Intercept Variance	20.74	5.11		4.06	<.001
Residual Variance	42.11	2.54		16.55	<.001

Table 9 presents results from the hierarchical linear modeling analysis that examined the relationship between overall ECERS-R quality scores and children's protective factors, as rated by teachers. Results demonstrate that ECERS-R scores were not significantly predictive of children's protective factors, as rated on the DECA-C (*B* = -1.55, *p* = .043).

Table 9

Summary of Hierarchical Linear Modeling Analysis ECERS-R Predicting Protective Factors

	Model				
Parameter	Estimate	SE	df	*t*-value	*p*-value
Fixed Effects:					
Main Effect of ECERS-R on Protective Factors	-1.55	0.76	547	-2.02	.043
Initial Protective Factors Scores	0.56	0.03	547	18.17	<.001
Child Gender	2.26	0.53	547	4.26	<.001
Teacher Gender	-3.01	2.62	547	-1.15	.250

Teacher Education	1.94	2.34	547	0.83	.408
Child Language	1.64	0.71	547	2.30	.022
Covariance Parameter Estimates				*z*-value	
Intercept Variance	15.95	4.02		3.97	<.001
Residual Variance	38.19	2.31		16.56	<.001

Table 10 presents results from the hierarchical linear modeling analysis that examined the relationship between overall ECERS-R quality scores and children's behavior concerns, as rated by teachers. Results demonstrate that ECERS-R scores were not significantly predictive of children's behavior concerns, as rated on the DECA-C (B = 0.35, p = .618).

Table 10
Summary of Hierarchical Linear Modeling Analysis ECERS-R Predicting Behavior Concerns

	Model				
Parameter	Estimate	SE	df	*t*-value	*p*-value
Fixed Effects:					
Main Effect of ECERS-R on Behavior Concerns	0.35	0.70	544	0.50	.618
Initial Behavior Concerns Scores	0.58	0.03	544	17.93	<.001
Child Gender	-1.70	0.57	544	-3.00	.002
Teacher Gender	3.13	2.40	544	1.30	.193
Teacher Education	-3.43	2.16	544	-1.59	.113
Child Language	-1.60	0.75	544	-2.14	.033
Covariance Parameter Estimates				*z*-value	
Intercept Variance	12.46	3.39		3.68	<.001
Residual Variance	43.50	2.63		16.53	<.001

Hypothesis Two

Hypothesis (2a) was that the quality of emotional support in the classroom, as assessed using the CLASS, would have a significant, positive relationship with children's

receptive language ability and social development (increased initiative, self-control, attachment behaviors, total protective factors, and fewer behavioral concerns) after adjusting for child and teacher gender, teacher level of education, children's dominant language, and children's initial performance on measures of receptive language and social development. The hypothesis was partially supported.

Results demonstrate that the quality of the emotional support in a classroom was not significantly predictive of children's performance on the PPVT-IV or children's level of initiative, self-control, attachment, and total protective factors as rated by teachers on the DECA-C. Tables 11-15 display results from the analyses.

Table 11

Summary of Hierarchical Linear Modeling Analysis Emotional Support Predicting PPVT-IV

	Model				
Parameter	Estimate	SE	df	*t*-value	*p*-value
Fixed Effects:					
Main Effect of Emotional Support on PPVT-IV	1.01	0.69	500	1.45	.147
Initial PPVT-IV Scores	0.73	0.03	500	28.00	<.001
Child Gender	0.32	0.73	500	0.44	.658
Teacher Gender	-0.42	1.63	500	-0.26	.796
Teacher Education	0.28	1.32	500	0.21	.831
Child Language	-0.92	0.95	500	-0.96	.336
Covariance Parameter Estimates				*z*-value	
Intercept Variance	1.79	2.22		0.81	.209
Residual Variance	74.10	4.74		15.65	<.001

Table 12

Summary of Hierarchical Linear Modeling Analysis Emotional Support Predicting Initiative

	Model				
Parameter	Estimate	SE	df	*t*-value	*p*-value
Fixed Effects:					
Main Effect of Emotional Support on Initiative	1.39	0.95	626	1.46	.145

Initial Emotional Support Scores	0.57	0.03	626	19.84	<.001
Child Gender	2.76	0.53	626	5.17	<.001
Teacher Gender	-2.71	2.29	626	-1.18	.236
Teacher Education	1.89	2.11	626	0.90	.370
Child Language	1.15	0.68	626	1.69	.091
Covariance Parameter Estimates				*z*-value	
Intercept Variance	14.55	3.59		4.05	<.001
Residual Variance	43.90	2.48		17.73	<.001

Table 13

Summary of Hierarchical Linear Modeling Analysis Emotional Support Predicting Self-Control

	Model				
Parameter	Estimate	SE	df	*t*-value	*p*-value
Fixed Effects:					
Main Effect of Emotional Support on Self-Control	2.07	0.84	626	2.46	.014
Initial Self-Control Scores	0.61	0.03	626	21.23	<.001
Child Gender	1.83	0.54	626	3.40	<.001
Teacher Gender	-1.19	2.02	626	-0.59	.556
Teacher Education	3.19	1.87	626	1.70	.089
Child Language	2.30	0.68	626	3.41	<.001
Covariance Parameter Estimates				*z*-value	
Intercept Variance	10.27	2.79		3.69	<.001
Residual Variance	45.51	2.57		17.74	<.001

Table 14

Summary of Hierarchical Linear Modeling Analysis Emotional Support Predicting Attachment

	Model				
Parameter	Estimate	SE	df	*t*-value	*p*-value
Fixed Effects:					
Main Effect of Emotional Support on Attachment	1.16	1.16	626	0.99	.321
Initial Attachment Scores	0.44	0.03	626	13.10	<.001
Child Gender	2.38	0.53	626	4.46	<.001
Teacher Gender	-4.62	2.81	626	-1.64	.100

Teacher Education	1.90	2.58	626	0.74	.461
Child Language	0.61	0.70	626	0.87	.387
Covariance Parameter Estimates				*z*-value	
Intercept Variance	23.95	5.55		4.32	<.001
Residual Variance	44.55	2.52		17.69	<.001

Table 15
Summary of Hierarchical Linear Modeling Analysis Emotional Support Predicting Protective Factors

	Model				
Parameter	Estimate	SE	df	*t*-value	*p*-value
Fixed Effects:					
Main Effect of Emotional Support on Protective Factors	1.70	1.03	626	1.65	.098
Initial Protective Factors Scores	0.55	0.03	626	18.74	<.001
Child Gender	2.66	0.51	626	5.19	<.001
Teacher Gender	-3.02	2.48	626	-1.22	.224
Teacher Education	2.48	2.28	626	1.08	.278
Child Language	1.56	0.66	626	1.65	.098
Covariance Parameter Estimates				*z*-value	
Intercept Variance	18.19	4.26		4.27	<.001
Residual Variance	40.16	2.27		17.72	<.001

Results demonstrate a significant relationship between the quality of emotional support in the classroom and children's behavioral concerns (B = -2.67, p < .001). On the DECA-C protocol, items in the Behavioral Concerns subscale are reverse-coded. The negative parameter estimate indicates that the higher the quality of teachers' emotional support, the fewer student behavioral problems occur in the classroom. Table 16 displays results from this analysis.

Table 16
Summary of Hierarchical Linear Modeling Analysis Emotional Support Predicting Behavior Concerns

Parameter	Model

	Estimate	SE	df	*t*-value	*p*-value
Fixed Effects:					
Main Effect of Emotional Support on Behavior Concerns	-2.67	0.80	623	-3.35	<.001*
Initial Behavior Concerns Scores	0.59	0.03	623	19.67	<.001
Child Gender	-1.86	0.54	623	-3.45	<.001
Teacher Gender	3.48	1.92	623	1.81	.070
Teacher Education	-4.42	1.79	623	-2.47	.013
Child Language	-1.37	0.67	623	-2.05	.040
Covariance Parameter Estimates				*z*-value	
Intercept Variance	8.99	2.52		3.57	<.001
Residual Variance	44.62	2.52		17.70	<.001

Hypothesis (2b) predicted that the quality of classroom organization in the classroom, as assessed using the CLASS, would have a significant, positive relationship with children's receptive language ability and social development (increased initiative, self-control, attachment behaviors, total protective factors, and fewer behavioral concerns) after controlling for child and teacher gender, teacher level of education, children's dominant language, and children's initial performance on measures of receptive language and social development.

The hypothesis was partially supported. Results demonstrate that the quality of the classroom organization was not significantly predictive of children's performance on the PPVT-IV, and children's level of initiative, self-control, attachment, and protective factors as rated by teachers on the DECA-C. Tables 17-21 display results from these analyses.

Table 17
Summary of Hierarchical Linear Modeling Analysis Classroom Organization Predicting PPVT-IV

	Model				
Parameter	Estimate	SE	df	*t*-value	*p*-value

Fixed Effects:					
Main Effect of Organization on PPVT-IV	0.63	0.50	500	1.26	.208
Initial PPVT-IV Scores	0.73	0.03	500	28.15	<.001
Child Gender	0.37	0.74	500	0.51	.610
Teacher Gender	-0.10	1.67	500	-0.06	.951
Teacher Education	-0.01	1.32	500	-0.01	.994
Child Language	-0.88	0.95	500	-0.93	.354
Covariance Parameter Estimates				*z*-value	
Intercept Variance	2.06	2.22		0.93	.177
Residual Variance	73.96	4.71		15.70	<.001

Table 18
Summary of Hierarchical Linear Modeling Analysis Classroom Organization Predicting Initiative

	Model				
Parameter	Estimate	SE	df	*t*-value	*p*-value
Fixed Effects:					
Main Effect of Organization on Initiative	1.11	0.70	626	1.58	.114
Initial Initiative Scores	0.57	0.03	626	19.85	<.001
Child Gender	2.78	0.53	626	5.22	<.001
Teacher Gender	-2.24	2.29	626	-0.97	.330
Teacher Education	1.59	2.09	626	1.65	.098
Child Language	1.12	0.68	626	1.65	.098
Covariance Parameter Estimates				*z*-value	
Intercept Variance	14.49	3.56		4.06	<.001
Residual Variance	43.88	2.47		17.74	<.001

Table 19
Summary of Hierarchical Linear Modeling Analysis Classroom Organization Predicting Self-Control

	Model				
Parameter	Estimate	SE	df	*t*-value	*p*-value
Fixed Effects:					
Main Effect of Organization on Self-Control	1.54	0.62	626	2.48	.013

Initial Self-Control Scores	0.61	0.03	626	21.18	<.001
Child Gender	1.88	0.54	626	3.51	<.001
Teacher Gender	-0.53	2.03	626	-0.26	.795
Teacher Education	2.70	1.85	626	1.46	.145
Child Language	2.27	0.68	626	3.36	<.001
Covariance Parameter Estimates				*z*-value	
Intercept Variance	10.22	2.77		3.68	<.001
Residual Variance	45.52	2.57		17.74	<.001

Table 20

Summary of Hierarchical Linear Modeling Analysis Classroom Organization Predicting Attachment

	Model				
Parameter	Estimate	SE	df	*t*-value	*p*-value
Fixed Effects:					
Main Effect of Organization on Attachment	1.41	0.85	618	1.65	.098
Initial Attachment Scores					
Child Gender	2.47	0.54	618	4.60	<.001
Teacher Gender	-4.99	2.74	618	-1.82	.069
Teacher Education	-3.43	3.61	618	-0.95	.342
Child Language	0.68	0.86	618	0.80	.426
Covariance Parameter Estimates				*z*-value	
Intercept Variance	20.39	5.12		3.98	<.001
Residual Variance	44.40	2.52		17.58	<.001

Table 21

Summary of Hierarchical Linear Modeling Analysis Classroom Organization Predicting Protective Factors

	Model				
Parameter	Estimate	SE	df	*t*-value	*p*-value
Fixed Effects:					
Main Effect of Organization on Protective Factors	1.69	0.74	618	2.28	.022
Initial Protective Factors Scores					
Child Gender	2.78	0.52	618	5.38	<.001
Teacher Gender	-2.62	2.38	618	-1.10	.273

Teacher Education	-3.50	3.19	618	-1.10	.273
Child Language	1.13	0.81	618	1.38	.167
Covariance Parameter Estimates				*z*-value	
Intercept Variance	14.80	3.79		3.90	<.001
Residual Variance	40.35	2.29		17.62	<.001

However, the quality of classroom organization was found to significantly predict children's behavioral concerns as rated by teachers on the DECA-C. Results reveal a significant relationship between the quality of classroom organization and children's behavioral problems (B = -2.21, p < .001). As previously stated, items in the Behavioral Concerns subscale are reverse-coded. The negative parameter estimate indicates that higher quality classroom organization predicts fewer student behavioral problems. Table 22 displays results from this analysis.

Table 22
Summary of Hierarchical Linear Modeling Analysis Classroom Organization Predicting Behavior Concerns

	Model				
Parameter	Estimate	SE	df	*t*-value	*p*-value
Fixed Effects:					
Main Effect of Organization on Behavior Concerns	-2.21	0.57	623	-3.85	<.001*
Initial Behavior Concerns	0.60	0.03	623	19.84	<.001
Child Gender	-1.93	0.54	623	-3.58	<.001
Teacher Gender	2.53	1.87	623	1.35	.176
Teacher Education	-3.79	1.72	623	-2.21	.027
Child Language	-1.30	0.66	623	-1.97	.049
Covariance Parameter Estimates				*z*-value	
Intercept Variance	7.57	2.45		3.09	.001
Residual Variance	44.57	2.54		17.55	<.001

Hypothesis (2c) predicted that the quality of instructional support in the classroom, as assessed using the CLASS, would have a significant, positive relationship with children's receptive language ability and social development (increased initiative, self-control, attachment behaviors, total protective factors, and fewer behavioral concerns), when controlling for child and teacher gender, teacher level of education, children's dominant language, and children's initial performance on measures of receptive language and social development.

The hypothesis was not supported. Results demonstrate that the quality of instructional support was not significantly predictive of children's performance on the PPVT-IV, children's level of initiative, children's level of self-control, children's attachment, children's behavior concerns, or children's total protective factors as rated by teachers on the DECA-C. Tables 23-28 display results from the analyses.

Table 23

Summary of Hierarchical Linear Modeling Analysis Instructional Support Predicting PPVT-IV

	Model				
Parameter	Estimate	SE	df	*t*-value	*p*-value
Fixed Effects:					
Main Effect of Instructional Support on PPVT-IV	0.33	0.41	500	0.81	.417
Initial PPVT-IV Scores	0.73	0.03	500	28.11	<.001
Child Gender	0.31	0.73	500	0.43	.669
Teacher Gender	-0.11	1.70	500	-0.07	.947
Teacher Education	-0.13	1.35	500	-0.09	.924
Child Language	-0.90	0.97	500	-0.93	.352
Covariance Parameter Estimates				*z*-value	
Intercept Variance	2.33	2.30		1.01	.156
Residual Variance	73.90	4.71		15.68	<.001

Table 24

Summary of Hierarchical Linear Modeling Analysis Instructional Support Predicting

Initiative

	Model				
Parameter	Estimate	SE	df	*t*-value	*p*-value
Fixed Effects:					
Main Effect of Instructional Support on Initiative	0.67	0.57	626	1.17	.244
Initial Initiative Scores	0.57	0.03	626	19.77	<.001
Child Gender	2.77	0.53	626	5.19	<.001
Teacher Gender	-2.15	2.33	626	-0.92	.356
Teacher Education	1.26	2.12	626	0.59	.553
Child Language	1.14	0.68	626	1.68	.094
Covariance Parameter Estimates				*z*-value	
Intercept Variance	14.78	3.64		4.06	<.001
Residual Variance	43.90	2.48		17.73	<.001

Table 25

Summary of Hierarchical Linear Modeling Analysis Instructional Support Predicting Self-Control

	Model				
Parameter	Estimate	SE	df	*t*-value	*p*-value
Fixed Effects:					
Main Effect of Instructional Support on Self-Control	0.66	0.52	626	1.27	.205
Initial Self-Control Scores	0.61	0.03	626	21.04	<.001
Child Gender	1.84	0.54	626	3.43	<.001
Teacher Gender	-0.60	2.13	626	-0.28	.779
Teacher Education	2.33	1.94	626	1.20	.229
Child Language	2.32	0.68	626	3.41	<.001
Covariance Parameter Estimates				*z*-value	
Intercept Variance	11.45	3.02		3.79	<.001
Residual Variance	45.51	2.57		17.73	<.001

Table 26

Summary of Hierarchical Linear Modeling Analysis Instructional Support Predicting Attachment

	Model				
Parameter	Estimate	SE	df	*t*-value	*p*-value

Fixed Effects:					
Main Effect of Instructional Support on Attachment	-0.24	0.71	626	-0.35	.729
Initial Attachment Scores	0.43	0.03	626	13.06	<.001
Child Gender	2.39	0.53	626	4.47	<.001
Teacher Gender	-4.67	2.89	626	-1.62	.106
Teacher Education	1.64	2.60	626	0.63	.528
Child Language	0.62	0.70	626	0.88	.379
Covariance Parameter Estimates				*z*-value	
Intercept Variance	24.85	5.68		4.37	<.001
Residual Variance	44.49	2.51		17.70	<.001

Table 27

Summary of Hierarchical Linear Modeling Analysis Instructional Support Predicting Protective Factors

	Model				
Parameter	Estimate	SE	df	*t*-value	*p*-value
Fixed Effects:					
Main Effect of Instructional Support on Protective Factors	0.52	0.63	626	0.82	.410
Initial Protective Factors Scores	0.55	0.03	626	18.65	<.001
Child Gender	2.67	0.51	626	5.21	<.001
Teacher Gender	-2.53	2.56	626	-0.99	.324
Teacher Education	1.81	2.32	626	0.78	.434
Child Language	1.55	0.66	626	2.35	.019
Covariance Parameter Estimates				*z*-value	
Intercept Variance	19.08	4.43		4.31	<.001
Residual Variance	40.15	2.27		17.72	<.001

Table 28

Summary of Hierarchical Linear Modeling Analysis Instructional Support Predicting Behavior Concerns

	Model				
Parameter	Estimate	SE	df	*t*-value	*p*-value
Fixed Effects:					
Main Effect of Instructional Support on Behavior Concerns	-0.74	0.52	623	-1.43	.154

Initial Behavior Concerns Scores	0.60	0.03	623	19.63	<.001
Child Gender	-1.85	0.54	623	-3.43	<.001
Teacher Gender	2.78	2.10	623	1.32	.186
Teacher Education	-3.36	1.91	623	-1.76	.079
Child Language	-1.41	0.68	623	-1.43	.154
Covariance Parameter Estimates				*z*-value	
Intercept Variance	11.13	2.94		3.78	<.001
Residual Variance	44.62	2.52		17.70	<.001

CHAPTER FIVE: DISCUSSION

This chapter provides a summary discussion of the relevant results of each of the research hypotheses. The purpose of the present investigation was to examine the effect of child care classroom quality on language and social outcomes for economically disadvantaged preschool youth who were enrolled in a high-quality preschool program for one year. Specifically, the present study investigated preschool children's receptive language ability and social competence outcomes as predicted by classroom quality and teacher-child interaction quality, while controlling for child and teacher gender, teacher level of education, children's dominant language, and children's initial performance on measures of receptive language and social development. The sample was drawn from a specific model of high quality child care education centers located in urban areas throughout the United States. Data used in the present study are part of a larger study known as the Educare Learning Network Implementation Study, a partnership between the Ounce of Prevention Fund and Frank Porter Graham Child Development Institute at the University of North Carolina. Child care classroom environmental quality was assessed through the use of the ECERS-R, and the quality of teacher-child interactions was examined through the use of the CLASS. Children's receptive language ability was

assessed through the use of the PPVT-IV, and children's social competency was assessed through the use of the DECA-C.

Several hypotheses were made regarding the present study. First, it was expected that higher preschool classroom quality, when measured as a broad construct of overall environmental classroom quality, would predict better outcomes in children's receptive language ability and social development, after adjusting for child and teacher gender, teacher level of education, children's dominant language, and children's initial performance on measures of receptive language and social development. Second, it was expected that specific aspects of teacher-child interaction, including emotional support, classroom organization, and instructional support, would each be individually predictive of better outcomes in children's receptive language ability and social development, after adjusting for child and teacher gender, teacher level of education, children's dominant language, and children's initial performance on measures of receptive language and social development. Hypothesis two was partially confirmed by the current study. This section will discuss the results of analyses so as to develop meaningful explanations and interpretations based on findings within the present study.

Research Question One

Research question one examined the relation between overall preschool classroom quality and children's receptive vocabulary and social competence, while adjusting for child and teacher gender, teacher level of education, children's dominant language, and children's initial performance on measures of receptive language and social development. Results of the current study suggested that overall preschool classroom quality as measured by ECERS-R scores was not significantly predictive of children's spring

receptive language PPVT-IV scores or DECA-C initiative, self-control, attachment, protective factors, and behavior concerns scores. Researchers have identified mixed results in how quality of the preschool environment impacts child outcomes, especially for children living in poverty. Results demonstrating no significant relationship between ECERS-R scores and DECA-C initiative, self-control, attachment, protective factors, and behavior concerns scores are consistent with those of a study by Burchinal et al. (2000), given that the sample of children in the present study are from low-income families. Burchinal et al. (2000) examined the impact of high quality child care on outcomes for children living in poverty. Based on research by Burchinal et al. (2000), high quality child care may not buffer the negative impact of poverty or low-quality home environments. However, there is extensive research suggesting that classroom structural quality is related to children's cognitive and social outcomes (Friendly et al., 2006; van Liempd, 2005; Proshansky & Fabian, 1987; Moore, 1986). Also a substantial body of research suggests that classroom process quality is related to children's academic, behavioral, and social outcomes (Baker, 2006; Howes et al., 2008; Burchinal et al., 2008; Hamre & Pianta, 2005; O'Connor & McCartney, 2007). Some research demonstrating the link between quality and child outcomes included a sample largely from low-income families (Baker, 2006; Burchinal et al., 2008). However, inconsistent findings in the literature demonstrate a need for further exploration on the impact of classroom quality on children from disadvantaged backgrounds.

Research Question Two

Research question two consisted of three parts. Research question (2a) examined the relation between the quality of Emotional Support and children's receptive

vocabulary and social competence, while controlling for child and teacher gender, teacher level of education, children's dominant language, and children's initial performance on measures of receptive language and social development. Research question (2b) examined the relation between the quality of Classroom Organization and children's receptive vocabulary and social competence, while controlling for child and teacher gender, teacher level of education, children's dominant language, and children's initial performance on measures of receptive language and social development. Research question (2c) examined the relation between the quality of Instructional Support and children's receptive vocabulary and social competence, while controlling for child and teacher gender, teacher level of education, children's dominant language, and children's initial performance on measures of receptive language and social development. Hierarchical linear modeling analyses were utilized for all hypotheses.

Hypothesis two was only partially supported. Results of the present study indicate that the quality of emotional support and classroom organization, as assessed by the CLASS, were significantly predictive of children's behavioral concerns, as measured by the DECA-C. In particular, higher quality emotional support and classroom organization were significantly predictive of fewer student behavioral problems in the classroom. Results indicate that the quality of emotional support and classroom organization were not significantly predictive of children's performance on the PPVT-IV, children's level of initiative, children's level of self-control, children's level of attachment, or children's level of protective factors. These unexpected findings are inconsistent with research that demonstrates a positive relationship between high quality emotional support and classroom organization and child outcomes such as improved independence, engagement,

and pro-social behavior (Cameron et al., 2005; Curby et al., 2009; Howes, 2000; Rimm-Kaufman et al., 2009). Furthermore, the quality of instructional support was not significantly predictive of children's performance on the PPVT-IV, children's level of initiative, children's level of self-control, children's attachment, children's behavior concerns, or children's total protective factors as rated by teachers on the DECA-C. These results are inconsistent with other research in the field. For example, Hamre and Pianta (2005) identified a link between instructional support quality and student behavior. Specifically, they found that at-risk first grade students receiving higher quality instructional support demonstrated achievement scores and student-teacher relationships commensurate with low-risk peers. Furthermore, at-risk students placed in classrooms with less support had lower achievement and more peer conflict (Hamre & Pianta, 2005).

Summary of Findings

Results of the present study indicated that overall classroom quality and the quality of teacher-child interaction were not significantly predictive of children's receptive vocabulary. Receptive vocabulary is an important component of early literacy and language development (Snow et al., 1998; Neuman et al., 2011; Storch & Whitehurst, 2003), although quality of classroom environments has proven to be most commonly associated with children's fluency skills (Kwan et al., 1998). The fact that children's receptive vocabulary was not found to be significantly related to classroom quality or teacher/child interaction quality may be related to the sensitivity of the PPVT-IV and its ability to capture children's early literacy and language development. The PPVT-IV assesses only one component of children's early literacy and language development (receptive vocabulary knowledge), a somewhat restrictive aspect of language and

cognitive functioning (Dunn et al., 2006). However, the instrument has demonstrated acceptable levels of test-retest reliability and split-half reliability, and has been shown to be strongly correlated with other measures of receptive language, achievement, and intelligence (Mashburn, 2008).

Results of the present study also indicated that overall classroom quality and the quality of teacher-child interaction were not significantly predictive of children's levels of initiative, self-control, attachment, and protective factors, as rated by teachers on the DECA-C. It is important to note that the DECA-C is a screening tool and not meant to be used as a diagnostic tool (Hirsh-Pasek, 2005). Researchers have also suggested that the DECA-C may lack sensitivity of cultural differences (Hirsh-Pasek, Kochanoff, Newcombe, & de Villiers, 2005; Squires, 2000). The fact that children's levels of initiative, self-control, attachment, and protective factors were not found to be significantly related to classroom quality or teacher/child interaction quality may be related to the sensitivity of the DECA-C and its ability to capture children's social competencies, especially those of children from diverse cultural backgrounds.

Major findings within this study were that the quality of emotional support and classroom organization, as assessed by the CLASS, were significantly predictive of children's behavioral concerns, as measured by the DECA-C. In particular, higher quality emotional support and classroom organization predicted fewer student behavioral problems in the classroom. Results are discussed below.

Emotional Support

The first major finding within the present study was that higher quality emotional support was negatively predictive of children's behavioral problems in the classroom.

Emotional support has been defined as teacher sensitivity and responsiveness to children's needs, interests, and individual expression, and the degree to which the classroom environment functions smoothly without frequent conflict (NICHD ECCRN, 2002; Gazelle, 2006; Curby et al., 2009). Classrooms with strong emotional support have teachers who are attentive to children's academic and social needs and respond appropriately (Curby et al., 2009). Teachers who are emotionally support also adapt their lesson plans and support children's independence and expression of ideas (Curby et al., 2009). Children feel safe to explore their learning environment in emotionally supportive classrooms (Curby et al., 2009).

There is much research to support that high quality emotional support can lead to fewer student behavioral problems (Curby et al., 2009; Howes, 2000; Hamre & Pianta, 2005). This is likely due to children's feelings of safety and support created by an environment that is sensitive and responsive (Curby et al., 2009). Results of the present study are consistent with conclusions by Hamre and Pianta (2005), who found that at-risk students in classrooms with less emotional and instructional support had lower achievement and more conflict with teachers than at-risk students in classrooms with more instructional and emotional support. Furthermore, Curby et al. (2009) and Howes (2000) identified a link between high quality emotional support and fewer behavior problems among children.

Classroom Organization

The second major finding was that higher quality classroom organization was negatively predictive of children's behavioral problems in the classroom. Classroom organization has been defined as teacher's skills in productive, predictable time

management, use of materials that supports children's attention and behavior, and a variety of engaging instructional activities. Teachers who have a high level of classroom organization tend to have classrooms with less conflict because they are proactive in their approach, keeping the flow of the classroom routine going smoothly. When children do misbehave, teachers with strong classroom organization skills are quick in being able to re-establish control and re-engage children (Curby et al., 2009).

Results of the present study strongly correspond with other research suggesting that higher quality classroom organization can lead to fewer student behavioral problems (Cameron et al., 2005; Garrisi, 2005; Rimm-Kaufman et al., 2009). For example, Rimm-Kaufman et al., (2009) identified a significant positive relationship between the quality of teachers' classroom management skills and children's behavioral and cognitive self-control. Cameron et al. (2005) found that classrooms that spent more time in the fall on organizational practices spent less time in transitions and more time in child-managed learning activities. In addition, Garrisi (2005) identified a link between quality of classroom organization and teacher time spent managing behaviors. Teachers who spent more time in orient-organize activities spent less time in non-instructional activities including transition and behavior management/discipline (Garrisi, 2005).

Implications for Practice

Findings from the present study suggest a number of important considerations for school professionals in preschools serving children from low-income families. Results of the present study can be generalized to preschool children living in poverty, due to the fact that preschool children attending Educare programs all qualify for Head Start. Head Start eligibility requirements include family incomes at or below the federal poverty level

(U.S. Department of Health & Human Services, 2012). Therefore, children and families enrolled in Educare are largely from low socioeconomic backgrounds. The findings from the present study indicate that the intensity of children's behavioral concerns can be positively impacted by high quality emotional support and classroom organization.

The present study demonstrates the need to focus attention on the quality of teacher-child interactions due to the impact that these interactions have on children's problem-behaviors. Researchers have found that teacher education does not place much emphasis on training teachers how to be emotionally responsive to children's needs in ways that are supportive (Swartz & McElwain, 2012). As demonstrated by the present study, it is important that teacher training and professional development place a large emphasis on how to support students academically and emotionally during their preschool years. Training should focus on helping teachers understand the importance of teacher-child relationship quality. It should provide teachers with skills to promote positive relationships and improve negative ones.

Implications for School Psychologists

Practitioners in preschools serving children from low-income families, including teachers and school psychologists, can benefit from the information obtained in the present study. School psychologists may find it useful to assess children's social competencies and the quality of teacher-child interactions in order to provide valuable insight on how to improve children's problem behavior in preschool. It may be beneficial to add an assessment of teacher-child interaction quality, such as the CLASS, to the standard test batteries used by school psychologists in their training and practice. Adding such a tool to evaluations of children with school problems would likely add valuable

information that is not found through the use of traditional child-centered behavior checklists (Pianta & Stuhlman, 2004). Due to their training in assessment, school psychologists may play an integral role in assessing classroom quality and child outcomes.

Furthermore, teachers may benefit from opportunities to develop high quality emotional support practices, as well as methods for developing and maintaining a well-organized classroom. Due to their training in consultation and intervention, school psychologists may be well-suited in working with teachers in these areas. Specifically, school psychologists can play an integral role in helping teachers be sensitive and responsive to children's needs and interests in order to promote high quality emotional support. Moreover, school psychologists may consult with teachers on ways to organize their classroom routine and instructional content in order to maintain children's attention and reduce problem behaviors while providing them with opportunities to be independent learners.

Although educators are limited in what they can do to change the economic hardships of children living in poverty, educators and policy-makers can influence the quality of child care in this country. The present study provides evidence that children living in poverty benefit from high quality emotional support and classroom organization. The school trajectory for children living in poverty is often grim, and is only made worse when they do not have access to high-quality schooling. Their trajectories may be changed if there is an increased effort to enhance the quality of teacher-child interactions in the classroom.

It is important to invest in high quality preschool education for disadvantaged children in order to help close the gap between the school success of students from low-income versus middle and high-income families. Improving the quality of preschool education for disadvantaged children will aid in developing children's social competence, which is critical as children progress through school. Socially competent children are more successful in school. Poor social skills have been linked to academic failure (Webster-Stratton & Reid, 2004). Emotional self-regulation, an important component of social competence, is important for kindergarten readiness and long-term success in school (Skibbe et al., 2011).

As is made evident by the present study, a commitment to high quality teachers who provide strong emotional support and classroom organization may reduce children's problem behaviors, which is important in helping children to develop social competence. By age three, children are developing important skills related to social competence, including emotional self-regulation, awareness of acceptable versus unacceptable behaviors, and the knowledge to develop and maintain friendships (McCabe & Altamura, 2011). The development of social competence is especially important for preschool children living in poverty, who are at greater risk for low social competence and school failure than children from middle- to upper-class families (Spritz et al., 2010). Improving the quality of emotional support and organization in the classroom may help buffer the negative effects of poverty, and improve their chances to be successful in school.

Limitations

There were a number of limitations to the present study, as well as suggestions for future research. First, it is not possible to capture all aspects of children's experiences in

child care settings by using two instruments and two observations in each classroom (Layzer & Goodson, 2006). Activities and interactions may vary greatly from week to week or month to month. Measures such as the ECERS-R and the CLASS provide a mere snapshot of what goes on in the child care environment. Unfortunately, due to logistical issues such as cost of training and administration, it is not common for multiple measures or multiple administrations to be conducted (Layzer & Goodson, 2006).

Furthermore, while instruments such as the CLASS and ECERS-R provide valuable information on children's experiences as a whole, they are not able to capture the individual experiences of each child (Layzer & Goodson, 2006). The inability of these classroom observation tools to capture children's individual experiences is important to note because researchers have found that individual children can have very different experiences within the same classroom environment (Layzer et al., 1993).

Another possible limitation of the present study is that interrater reliability for the ECERS-R and CLASS were not calculated. Trainers and research assistants were required to conduct at least one of each observation together (ECERS-R and CLASS). An interobserver agreement of $r = .85$ or better was required in order for observers to complete observations independently. If raters achieved reliability, they then came to a consensus on final observation scores. Raters typically reported only consensus scores to Frank Porter Graham, and not each of their separate ratings. Therefore, very few observation scores were available to calculate inter-rater reliability for the ECERS and CLASS. Interrater reliability data were available for only seven out of 73 ECERS-R observations, and only three out of 75 CLASS observations. Using such a small amount of scores to conduct the inter-rater reliability would likely be unreliable, and therefore

reliability statistics were not reported. However, rigorous training was conducted for both the ECERS-R and CLASS.

Finally, a possible limitation to the present research study is the lack of variability in quality among preschool classrooms. All Educare programs are held to high standards and are considered to be high-quality programs. A restriction in the range of quality may attenuate the link between quality and outcome (Burchinal et al., 2000; Vandell & Wolfe, 2000). If there is too little variability among quality scores, results of the present study could only be generalized to high quality preschool programs similar to Educare.

Implications for Future Research

Researchers generally agree that process and structural quality of the classroom environment is related to children's cognitive, academic, and behavioral functioning (Friendly et al., 2006; van Liempd, 2005; Proshansky & Fabian, 1987; Moore, 1986; Baker, 2006; Howes et al., 2008; Burchinal et al., 2008; Hamre & Pianta, 2005; O'Connor & McCartney, 2007; Cunningham, 2010). Researchers have begun to examine specific aspects of teacher-child interaction quality, including organization, emotional support, and instructional support (Cadima et al., 2010; Burchinal et al., 2008; Curby et al., 2009; Hamre & Pianta, 2005), although many studies have focused mainly on teacher-child interaction as a broad construct related to teacher warmth and nurturance toward children (Baker, 2006; Howes, 2000; Mashburn, 2008; Wentzel, 2002).

Furthermore, much of the research exploring the effect of specific aspects of classroom quality includes socioeconomically diverse samples (Burchinal et al., 2008; Cadima et al., 2010; Curby et al., 2009). More research is needed in order to identify specific components of classroom quality that support the success of children facing

economic hardship and therefore are more at-risk for academic failure. Children living in poverty are most susceptible to low quality care and lower cognitive, social, and academic development (Goelman & Pence, 1998; Pianta et al., 2002). In order to close the achievement gap between children in poverty and children from middle to upper class families, researchers need to focus on what aspects of classroom quality help to buffer the negative impact of poverty.

Conclusion

Overall, results of the present study indicate that high quality aspects of teacher-child interaction may positively impact children's behavior and ability to develop social competence. Although the classroom and instructional quality was not found to be linked to at-risk young children's receptive vocabulary development, higher quality emotional support and classroom organization in Educare classrooms were found to predict fewer behavioral problems among preschoolers. Educare programs serve children from impoverished backgrounds in cities throughout the country. Results of this study demonstrate the potential benefits of investment in training that promotes strong teacher support and organizational skills in preschools serving disadvantaged children. There is strong research support demonstrating that high quality teacher-child interactions promote positive outcomes for students (Burchinal et al., 2008; Cadima et al., 2010; Cameron et al., 2005; Curby et al., 2009). In order to close the achievement gap and better-prepare children in poverty to succeed in school, we must continue to identify and promote specific components of classroom quality that support the success of children facing economic hardship and the risk of academic failure.

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Appendix A

Early Childhood Environment Rating Scale – Revised

Scores range from 1-7

1 = Inadequate, 3 = Minimal, 5 = Good, 7 = Excellent

Space and Furnishings

1. Indoor Space
2. Furniture for care, play, and learning
3. Furnishings for Relaxing
4. Room arrangement
5. Space for Privacy
6. Child-related display
7. Space for gross motor
8. Gross motor equipment

Personal Care routines

9. Greeting/departing
10. Meals/snacks
11. Nap/rest
12. Toileting/diapering
13. Health Practices
14. Safety Practices

Language – Reasoning

15. Books and Pictures
16. Encouraging children to communicate
17. Using Language to develop reasoning skills
18. Informal use of language

Activities

19. Fine motor
20. Art
21. Music/movement
22. Blocks
23. Sand/Water
24. Dramatic play
25. Nature/Science
26. Math/number
27. Use of TV, video, and/or computers
28. Promoting acceptance of diversity

Interaction

29. Supervision of gross motor activities
30. General supervision of children

31. Discipline
32. Staff-child interactions
33. Interactions among children

Program Structure

34. Schedule
35. Free play
36. Group time
37. Provisions for children with disabilities

Overall average

Appendix B

Classroom Assessment Scoring System

CONTENT (circle all; check majority):			FORMAT (circle all; check majority):		
Lit/Lang Arts	Math	Science	Routine time	Whole group	Individual
Social Studies	Art	Other: _____	Meals/Snacks	Small group	Free choice/centers

Positive Climate (PC) • Relationships • Positive Affect • Positive Communication • Respect	*Notes*	1 2 3 4 5 6 7
Negative Climate (NC) • Negative Affect • Punitive Control • Sarcasm/Disrespect • Severe Negativity	*Notes*	1 2 3 4 5 6 7
Teacher Sensitivity (TS) • Awareness • Responsiveness • Addresses Problems • Student Comfort	*Notes*	1 2 3 4 5 6 7
Regard for Student Perspectives (RSP) • Flexibility and Student Focus • Support for Autonomy and Leadership • Student Expression • Restriction of Movement	*Notes*	1 2 3 4 5 6 7
Behavior Management (BM) • Clear Behavior Expectations • Proactive • Redirection of Misbehavior • Student Behavior	*Notes*	1 2 3 4 5 6 7
Productivity (PD) • Maximizing Learning Time • Routines • Transitions • Preparation	*Notes*	1 2 3 4 5 6 7
Instructional Learning Formats (ILF) • Effective Facilitation • Variety of Modalities and Materials • Student Interest • Clarity of Learning Objectives	*Notes*	1 2 3 4 5 6 7
Concept Development (CD) • Analysis and Reasoning • Creating • Integration • Connections to the Real World	*Notes*	1 2 3 4 5 6 7
Quality of Feedback (QF) • Scaffolding • Feedback Loops • Prompting Thought Processes • Providing Information • Encouragement and Affirmation	*Notes*	1 2 3 4 5 6 7
Language Modeling (LM) • Frequent Conversation • Open-Ended Questions	*Notes*	1 2 3 4 5 6 7

• Repetition and Extension • Self- and Parallel Talk • Advanced Language	

Appendix C

The Devereux Early Childhood Assessment – Clinical

During the past 4 weeks, how often did the child…

		1	2	3	4	5
1.	show little or no emotion?	☐	☐	☐	☐	☐
2.	do things for himself/herself?	☐	☐	☐	☐	☐
3.	withdraw from or avoid children/adults?	☐	☐	☐	☐	☐
4.	choose to do a task that was challenging for her/him?	☐	☐	☐	☐	☐
5.	fail to show joy or gladness at a happy occasion?	☐	☐	☐	☐	☐
6.	participate actively in make-believe play with others?	☐	☐	☐	☐	☐
7.	have temper tantrums?	☐	☐	☐	☐	☐
8.	act overwhelmed or cry when asked to do simple things?	☐	☐	☐	☐	☐
9.	get easily frustrated?	☐	☐	☐	☐	☐
10.	keep trying when unsuccessful (act persistent)?	☐	☐	☐	☐	☐
11.	become upset or emotional if did not get what she/he wanted?	☐	☐	☐	☐	☐
12.	wander around aimlessly?	☐	☐	☐	☐	☐
13.	have no reaction to children/adults?	☐	☐	☐	☐	☐
14.	refuse to speak?	☐	☐	☐	☐	☐
15.	sulk or pout?	☐	☐	☐	☐	☐
16.	try different ways to solve a problem?	☐	☐	☐	☐	☐
17.	try or ask to try new things or activities?	☐	☐	☐	☐	☐
18.	resist or refuse to participate in group or home activities?	☐	☐	☐	☐	☐
19.	start or organize play with other children?	☐	☐	☐	☐	☐
20.	get overly upset if he/she made a mistake?	☐	☐	☐	☐	☐
21.	focus his/her attention or concentrate on a task or activity?	☐	☐	☐	☐	☐
22.	become upset or cry easily?	☐	☐	☐	☐	☐
23.	say positive things about the future (act optimistic)?	☐	☐	☐	☐	☐
24.	have a blank facial expression?	☐	☐	☐	☐	☐
25.	ask other children to play with him/her?	☐	☐	☐	☐	☐
26.	show decreased interest in or enjoyment of play or activities?	☐	☐	☐	☐	☐
27.	make decisions for himself/herself?	☐	☐	☐	☐	☐
28.	overreact to changes in the environment or his/her routine?	☐	☐	☐	☐	☐
29.	set or threaten to set a fire?	☐	☐	☐	☐	☐
30.	say negative or critical things about herself/himself?	☐	☐	☐	☐	☐
31.	threaten or attempt to hurt herself/himself?	☐	☐	☐	☐	☐
32.	hurt or abuse animals?	☐	☐	☐	☐	☐
33.	act in a way that made adults smile or show interest in her/him?	☐	☐	☐	☐	☐
34.	grab things from other children?	☐	☐	☐	☐	☐
35.	have difficulty following a routine?	☐	☐	☐	☐	☐
36.	have difficulty sitting quietly (e.g. when listening to a story)?	☐	☐	☐	☐	☐
37.	tease or bully others?	☐	☐	☐	☐	☐

1 = Never, 2 = Rarely, 3 = Occasionally, 4 = Frequently, 5 = Very Frequently

		1	2	3	4	5
38.	listen to or respect others?	☐	☐	☐	☐	☐
39.	control her/his anger?	☐	☐	☐	☐	☐
40.	squirm or fidget?	☐	☐	☐	☐	☐
41.	respond positively to adult comforting when upset?	☐	☐	☐	☐	☐
42.	show affection for familiar adults?	☐	☐	☐	☐	☐
43.	handle frustration well?	☐	☐	☐	☐	☐
44.	destroy or damage property?	☐	☐	☐	☐	☐
45.	act happy or excited when parent/guardian returned?	☐	☐	☐	☐	☐
46.	blame others for her/his actions?	☐	☐	☐	☐	☐
47.	show patience?	☐	☐	☐	☐	☐
48.	have a short attention span (difficulty concentrating)?	☐	☐	☐	☐	☐
49.	ask adults to play with or read to him/her?	☐	☐	☐	☐	☐
50.	fight with other children?	☐	☐	☐	☐	☐
51.	share with other children?	☐	☐	☐	☐	☐
52.	trust familiar adults and believe what they say?	☐	☐	☐	☐	☐
53.	accept another choice when her/his first choice was unavailable?	☐	☐	☐	☐	☐
54.	seek help from children/adults when necessary?	☐	☐	☐	☐	☐
55.	hurt (hit, bite, kick), push, or physically threaten children/adults?	☐	☐	☐	☐	☐
56.	cooperate with others?	☐	☐	☐	☐	☐
57.	calm herself/himself down when upset?	☐	☐	☐	☐	☐
58.	have difficulty following directions?	☐	☐	☐	☐	☐
59.	fail to show sorrow or regret for wrong things she/he had done?	☐	☐	☐	☐	☐
60.	get easily distracted?	☐	☐	☐	☐	☐
61.	show an interest in what children/adults are doing?	☐	☐	☐	☐	☐
62.	need constant reminders to do things?	☐	☐	☐	☐	☐

1 = Never, 2 = Rarely, 3 = Occasionally, 4 = Frequently, 5 = Very Frequently

CURRICULUM VITAE

Jennifer M. Krzewina
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Appleton, WI 54915
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Education

Ph.D. University of Wisconsin-Milwaukee December 2012
Major: Educational Psychology (School Psychology)
APA/NASP-Accredited School Psychology Program
Dissertation: *Effect of Preschool Classroom Quality on Social and Language Development*

M.S. University of Wisconsin-Milwaukee 2009
Major: School Psychology
Thesis: *The Value of Environmental Protective Factors in the Academic Achievement of At Risk Youth*

B.A. St. Norbert College 2006
Major: English/Secondary Education

Additional Professional Experiences

Brillion School District August 2012-Present
315 South Main Street
Brillion, Wisconsin 54110
Position: Certified School Psychologist, Special Education Coordinator
Responsibilities: Conduct special education evaluations and functional behavioral assessments, consult with teachers and staff, design intervention plans, re-structure school district's special education referral process.

Oshkosh Area School District September 2012-Present
325 South Eagle Street
Oshkosh, WI 54902
Position: Certified School Psychologist
Responsibilities: Conduct special education evaluations and functional behavioral assessments, consult with teachers and staff, design intervention plans.

Maplegrove Treatment Center June 2009-August 2010
521 Westover Avenue
Oconomowoc, Wisconsin 53066
Position: Counselor

Responsibilities: Provided psychotherapeutic services to children and adolescents with Asperger Syndrome and Autism Spectrum Disorders, including cognitive behavioral therapy and rational emotive behavior therapy techniques.

Maplegrove Treatment Center August 2009-May 2010
521 Westover Avenue
Oconomowoc, Wisconsin 53066
Position: Program Director, College Support Program
Responsibilities: Mentored and advocated for UWM student with Asperger Syndrome; helped to ensure college success by consulting with professors, coordinating services, setting up tutors/note takers, scheduling, and monitoring work progress.

West De Pere High School November 2005-January 2006
665 Grant Street
De Pere, Wisconsin 54115
Position: Student Teacher
Responsibilities: Taught English courses, including creative writing, ninth-grade English, and college-level writing for grades nine through twelve; collaborated with other educators and parents; planned and organized curriculum; provided academic tutoring; provided small and large group instruction; differentiated instruction for different types of learning.

St. John the Baptist School August-November 2005
2561 Glendale Avenue
Howard, Wisconsin 54313
Position: Student Teacher
Responsibilities: Taught general curriculum courses for grades six and seven; collaborated with other educators and parents; planned and organized curriculum; provided academic tutoring; provided small and large group instruction, as well as differentiated instruction for different types of learning.

Predoctoral Internship

Sarah Reed Children's Center August 2011-July 2012
Millcreek Township School District
APA/APPIC Accredited Internship
Erie, Pennsylvania Supervisor: Eric Schwartz, PsyD
Responsibilities: (Three days per week in residential treatment services and two days per week in an elementary school.) Conducted psycho-educational evaluations; facilitated IEP meetings; consulted with teachers, principals, and mental health professionals; developed, implemented, and monitored behavioral and academic interventions; provided therapeutic services to children, adolescents, and families; completed treatment plans and progress notes; participated in multi-disciplinary team meetings, weekly supervision seminars, and individual supervision meetings.

Hours: Approximately 40-50 hours per week.

Clinical/School Practicum Experiences

Rogers Memorial Hospital August 2010-June 2011
Child & Adolescent Day Treatment Supervisor: Kristine Kim, PsyD
Brown Deer, Wisconsin
Responsibilities: Conducted psychological evaluations; provided individual, group, and family therapy to children, adolescents, and families, including a trauma-focused group and psycho-educational group; completed treatment plans and progress notes for patients.
Hours: Approximately 16 hours per week.

Family Options Counseling, LLC May 2009-August 2010
Mental Health Outpatient Clinic Supervisor: Kimberley Young, PhD
Milwaukee, Wisconsin
Responsibilities: Conducted intake evaluations; provided counseling services to individual clients, groups and families; groups included: social skills groups for children and adolescents, a multifaceted group for adolescent girls, group for adolescent sexual offenders with cognitive disabilities, and a group for adolescent boys to promote healthy relationships.
Hours: Approximately 20 hours per week.

Violence Prevention Program March 2009-June 2009
Milwaukee Public Schools Supervisor: Beth Herman, EdS
Milwaukee, Wisconsin
Responsibilities: Administered pre- and post-tests for the "Steps to Respect" bullying program; contributed to staff action plan meetings; attended bully prevention school training sessions.
Hours: Approximately 5 hours per week.

Audubon Center Jan. 2009-June 2009
Milwaukee Public Schools Supervisor: Lisa O'Keefe, EdS
Milwaukee, Wisconsin
Responsibilities: Administered norm-referenced standardized assessments; facilitated group intervention programs; conducted individual counseling and academic interventions; monitored student progress; contributed to Individual Education Plans; consulted with school staff; wrote integrated psychological reports.
Hours: Approximately 12 hours per week.

Jeremiah Curtin School Jan. 2009-June 2009
Milwaukee Public Schools Supervisor: Catherine Cruz, EdS
Milwaukee, Wisconsin
Responsibilities: Facilitated group intervention programs; monitored student progress; consulted with school staff.

Hours: Approximately 5 hours per week.

Lady Pitts High School Jan. 2009-February 2009
Milwaukee Public Schools Supervisor: Tiffany Prather, PhD
Milwaukee, Wisconsin
Responsibilities: Facilitated group intervention programs for pregnant and parenting adolescents; consulted with school staff.
Hours: Approximately 8 hours per week.

Whitman Elementary School Sept. 2008-June 2009
Milwaukee Public Schools Supervisor: Christina Monfre, EdS
Milwaukee, Wisconsin
Responsibilities: Administered standardized assessments; facilitated group intervention programs; monitored student progress; conducted individual interventions; contributed to IEP meetings; consulted with school staff.
Hours: Approximately 14 hours per week.

Supervision Experience

Supervision of Practicum Student April 2012-July 2012
Sarah Reed Children's Center
Responsibilities: Provide weekly individual supervision to a PhD level clinical psychology practicum student. Supervision is provided to guide practicum student in conceptualizing and providing therapy to a client at Sarah Reed Children's Center residential treatment program.

Supervision of Practicum Students Sept. 2010-December 2010
University of Wisconsin-Milwaukee
Responsibilities: Provided individual and group supervision to master level school psychology practicum students during planning, implementation, and evaluation of field-based cognitive behavioral therapy intervention projects; utilized psychotherapeutic approach as model of supervision.

Supervision of Research Assistants Sept. 2009-May 2010
University of Wisconsin-Milwaukee
Responsibilities: Provided individual supervision to graduate level research assistants during training phase of assistantship; trained research assistants to administer pre-school level assessment measures.

Research Experiences

A Study of Early Childhood Settings in Multiple Communities
Supervisors: Juin Lui, PhD & Mary McLean, PhD
June 2010-December 2010
Research Assistant, University of Wisconsin-Milwaukee

Responsibilities: Administered standardized cognitive assessments, behavior rating scales, and structured family interviews in home settings in the Milwaukee area.

The Value of Environmental Protective Factors in the Academic Achievement of At Risk Youth April 2009-September 2009
Master's Thesis Research
Responsibilities: Recruited participants; developed survey; collected and analyzed data from participants in six cities nation-wide.

Implementation Study for the Milwaukee Educare Center
Supervisor: Mary McLean, PhD August 2008-July 2011
Research Assistant, University of Wisconsin-Milwaukee
Responsibilities: Administered a variety of standardized tests to preschool youth; entered data; conducted standardized classroom observations, and consulted with teachers.

Exemplary Model of Early Reading Growth & Excellence
Supervisor: Karen Stoiber, PhD August 2007-August 2008
Project Assistant, University of Wisconsin-Milwaukee
Responsibilities: Tutored and administered early literacy tests to preschool youth in Head Start schools around Milwaukee; entered data; organized and communicated with Head Start teachers to promote early literacy development.

Professional Presentations

Huffman, J., & Jones, H. (2011, February). *Early childcare & education: A program comparison of child performance*. Poster presented at the annual meeting of the National Association of School Psychologists, San Francisco, CA.

Jones, H., & Huffman, J. (2011, February). *A model for educating students on diversity*. Poster presented at the annual meeting of the National Association of School Psychologists, San Francisco, CA.

Huffman, J., McLean, M., & Butterbaugh N. (2010, March). *Age of entry matters: The effect of high quality early care and education on a population of young children living in poverty*. Poster presented at the School of Education Research Conference, University of Wisconsin-Milwaukee, Milwaukee, WI.

Liu, J., Taylor, K., Yazejian, N., McBee, M. & Huffman, J. (2010, February). *The impact of risk factors on child outcomes: Can a quality early childhood program help?* Poster presented at the annual Conference on Research Innovations in Early Intervention, San Diego, CA.

Stoiber, K.C., Marsh, C., Brumm, J. & Huffman, J. (2009, March). *Impact of*

individual and school factors in predicting academic achievement for urban youth. Poster presented at the annual meeting of the National Association of School Psychologists, Boston, MA.

Leadership Activities

American Psychological Association of Graduate Students (APAGS)
Advocacy Coordinating Team (2010-2011) – Doctoral Student Representative
Responsibilities: Represented APAGS on campus to school psychology doctoral students; informed students of professional and legislative issues as directed by APAGS; served as mediator to relay student concerns or questions to APAGS.

School Psychology Student Association
University of Wisconsin-Milwaukee
President (2010-2011)
Responsibilities: Provided leadership and direction to SPSA by setting annual goals, leading executive and general assembly meetings, coordinating professional development and social events, and promoting communication among students and faculty members.
Secretary (2008-2009)
Responsibilities: Recorded and communicated minutes from meetings and events; ensured that communication networks amongst executive board members and the general student body were maintained and that information was conveyed clearly and effectively.
Student Member (2007-2008)
Responsibilities: Helped coordinate professional presentations, fundraising events, and community volunteer projects.

Multicultural Connections for School Psychologists (2008-2010) – Collaborative Team Member & Event Coordinator
Responsibilities: Collaborated with other graduate students on multicultural issues and planned multicultural events for students and faculty.

Professional Affiliations

International School Psychology Association (ISPA) (2009-2011) – Student Member

American Psychological Association (2008-Present) – Student Member

National Association for School Psychologists (2007-Present) – Student Member

Sigma Tau Delta-Alpha Chapter English Honor Society (2002-2006) – Student Member

Volunteer Work

St. Rose Family Reunification Program July 2008-Feb 2009
Milwaukee, Wisconsin
Responsibilities: Assisted children in visiting family at local correction facilities; organized and facilitated debriefing group activities after facility visits; participated in department of corrections training; drafted reports based on child-parent meetings.

Boys Hope Girls Hope August 2006-August 2007
AmeriCorps National Volunteer
Phoenix, Arizona
Responsibilities: Provided residential treatment for daily at-risk youth; provided services to youth and families through mentoring, goal-setting, tutoring, and counseling with the mission of providing a stable home-life that fosters social, academic, and emotional growth.

Awards & Scholarships

AmeriCorps Education Award (2007)
Recipient of the education scholarship award after a year of volunteer service.
Dollar Amount: $4,725

St. Norbert College Trustees Distinguished Scholarship (2002-2006)
Highest scholarship awarded by the college.
Dollar Amount: $52,000

St. Norbert College – Magna Cum Laude Honors (May 2006)

St. Norbert College – Distinguished Scholastic Achievement Award (2006)

St. Norbert College Dean's List (2002-2006)

Licenses

School Psychologist
License Type: 20 Initial Educator, Wisconsin
Certified Pre-Kindergarten-Twelfth Grade