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Emotional support and behavior guidance in early childhood classrooms have important influences on the social and emotional competence of the children within them. Accumulating evidence suggests that a higher percentage of children than ever before are entering early childhood programs prior to kindergarten and are doing so at a younger age. At the same time, research in the field has demonstrated associations between teacher emotional support and behavior guidance and outcomes for children. Many professional characteristics of teachers have been studied as predictors of emotional support and behavior guidance in early childhood classrooms but to date, little attention has been focused on teacher personal characteristics. The current study examined teacher personal characteristics in relation to the emotional support and behavior guidance in toddler and preschool classrooms. Data from the Comparison of Quality Assessment Tools (CQAT) study in North Carolina was used to address this aim with a sample of 135 teachers. Teachers completed questionnaires on personality, negative feelings, education, and professional development activities. A linear relationship between teacher personality characteristics and emotional support and behavior guidance was not evident in the study. However, results indicated relationships among several of the other study variables and found several examples of moderation of relationships by toddler or preschool class type. Results are discussed in terms of implications for future research and practice in early childhood education.

TEACHER PERSONAL AND PROFESSIONAL CHARACTERISTICS: CONTRIBUTIONS TO EMOTIONAL SUPPORT AND BEHAVIOR GUIDANCE IN EARLY CHILDHOOD CLASSROOMS

by

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To Matthew

Your support made this possible.

And to Isabelle and Cooper

You provided me much needed balance.

Much love and thanks to you all.

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CHAPTER I

INTRODUCTION

More young children in the U.S. are spending time in early childhood education (ECE) programs than ever before. Currently, over 1.5 million toddler-aged children in the United States attend center-based early childhood programs on a regular basis. In the U.S., by the time children are 3 years old, 43% of them will attend center-based early childhood programs and before Kindergarten entry approximately 69% of children will have attended a center-based early child care program (U.S. Department of Education, 2009). Economic and familial trends in the U.S. have created an increased need for child care as the number of dual earner families and single-parent families rise (U.S. Bureau of Labor Statistics, 2005). The Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA) of 1996 further increased the demand for child care by imposing limits on welfare and requiring parents living in poverty to return to work or school. Moreover, the field of neuroscience has recently demonstrated the importance of very early experiences for young children to support school readiness skills and optimal development (National Research Council & Institute of Medicine, 2000). This research has also resulted in an increase in the use of center-based early childhood programs including many parents choosing them for their children even if their work schedules do not require it, Head Start programs expanding to include Early Head Start, and the adoption of universal or targeted public preschool programs by many states. Thus, the number of center-based ECE programs has increased significantly in recent years.

Given the increasing number of children attending ECE programs and the resources allocated to these programs, research has focused on how to define quality in these settings and what contributes to early childhood classrooms as effective learning environments. Classroom quality is commonly conceptualized in one of three ways: a) structural quality which includes aspects of materials, curriculum, teacher education and training, b) process quality which includes the daily human interactions that take place in classrooms, and c) global quality that encompasses both structural quality and process quality. Positive correlations between each type and outcomes for young children exist (e.g. Bowman, Donovan, & Burns, 2001; Helburn et al., 1995; Howes et al., 2008; Mashburn et al., 2008).

Teacher-child interactions are an aspect of process quality in ECE classrooms that have recently received more attention in research as a possibly important pathway to children's development within the classroom context. Recent research demonstrates significant associations between teacher-child interactions and outcomes for young children in ECE classrooms (e.g. Howes et al., 2008; Mashburn et al., 2008). The current study focuses on teacher-child interactions in two areas, teacher emotional support and behavior guidance. Emotional support and behavior guidance in early childhood classrooms are important mechanisms for the development of emotional and behavioral self-regulation in young children (Hamre & Pianta, 2005; NICHD ECCRN, 2003; Raver, Garner, & Smith-Donald, 2007), both of which are important for school readiness skills (Blair, 2002; Raver, 2002).

However, the focus of the current study is on the teacher. The teacher is a critical part of any teacher-child interaction and responsible for the emotional support and behavior guidance provided to children in early childhood classrooms. Thus, in theory,

teacher-child interactions may mediate a relationship between characteristics of the teacher and the outcomes for young children (Jennings & Greenberg, 2009). The current study focuses on both describing teacher-child interactions in early childhood classrooms and examining what teacher characteristics may be associated with those interactions in light of research and theory supporting their influence on children's development (Howes et al., 2008; Jennings & Greenberg, 2009; Mashburn et al., 2008).

Teacher characteristics have long been considered important correlates of teacher effectiveness. However, the characteristics that have been studied are limited, focusing mostly on education (including training), experience, and general demographic information. Conclusions from studies of teacher education and quality teacher-child interactions indicate that teacher quality is a complex construct that cannot be determined by education alone. Most research conducted on teacher education demonstrates a consistent association between more education and higher quality in ECE classrooms (Bowman et al., 2001; de Kruif, McWilliam, Ridley, & Wakely, 2000; Helburn et al., 1995; see Whitebook, 2003 for a review). However, some studies have not found this association (Early et al., 2006; Early et al., 2007). Thus, there may not be a linear pathway between more education of the teacher and higher quality in classrooms as previous studies have suggested. Early et al. (2007) suggest that "teachers' education must be considered as part of a system of factors that contribute to teacher quality" (p. 577). The challenge to the field is to determine what other factors are salient parts of that system.

The major contribution of the current study to the ECE literature is its focus on personal characteristics of teachers, such as personality and negative feelings, as variables that may contribute to teacher-child interactions related to emotional support

and behavior guidance in ECE classrooms. Recently, ECE scholars have been calling for more research on teacher emotional characteristics including personality, depression, and overall mental health as the importance of teacher-child interactions continues to be demonstrated in the literature (Decker and Rimm-Kaufman, 2008; Hamre & Pianta, 2004; Jennings & Greenberg, 2009; Li Grining et al., 2010). Hamre and Pianta (2004) suggest that "recognizing the emotional and psychological health of child-care providers is an important, yet often overlooked, component to the provision of high quality child care" (p. 315). The current research takes important steps towards responding to this need by studying teacher personal characteristics as predictors of teacher-child interactions in the areas of emotional support and behavior guidance in ECE classrooms.

In regard to personality in particular, there is reason to believe that teachers may differ somewhat in personality characteristics compared to the average population (Decker & Rimm-Kaufman, 2008; Sears, Kennedy, & Kale, 1997). For example, Decker and Rimm-Kaufman assessed personality in a group of early childhood pre-service teachers and found that teacher personality characteristics in this sample were unique in comparison to a normed national sample. Specifically, these pre-service teachers scored significantly higher on measures of five common domains of personality: neuroticism, extraversion, agreeableness, conscientiousness, and openness to new experiences than the average population (Costa & McCrae, 1992). Studying and recognizing these differences in teachers can help researchers and educators better understand who is attracted to the teaching profession and contribute to discourse about the best approaches to effectively educate pre-service and in-service teachers.

Most of the research conducted on teacher personality in an educational setting took place prior to the 1970's. However, inadequate measures of personality and teaching behavior led to inconsistent findings (Rushton, Morgan, & Richard, 2007). Research on teacher personality since then has taken place most commonly in secondary schools and higher education settings (e.g. Feldman, 1986; Fisher & Kent, 1998; Sparks & Lipka, 1992; Sprague, 1997; Zhang, 2007). This research has most often focused on identifying prevalent personality traits among effective teachers and has indicated a moderate to strong association between teacher personality and their behaviors in the classroom.

Another contribution of the current study is that the design of the study addresses the complexity in assessing and understanding teacher quality (Pianta, 1999). This complexity is reflected in two ways. First, in order to connect findings on teacher personal characteristics and teaching behaviors with the current literature, it is important to study how these characteristics are related to established predictors of teacher-child interactions. The current study includes both teacher personal and professional characteristics, including education level and professional development activities, as possible predictors of emotional support and behavior guidance in ECE classrooms.

Second, the current study compares the differences in characteristics between toddler and preschool teachers and examines how these differences may differentially predict emotional support and behavior guidance for these two age groups. Toddler and preschool aged children are developmentally different from one another so it is also possible that the teachers attracted to working with them also differ due to the skills and interaction styles needed to work with the different groups. Differences are also highlighted when considering societal images of toddler and preschool teachers, with the

latter often given more respect as “real teachers”. Moreover, studies indicate that the variables that are associated with classroom structural and process quality may differ between toddler and preschool classrooms (NICHD ECCRN, 2000a; Phillips, Mekos, Scarr, McCartney, & Abbott-Shim, 2000). Thus, further investigation into how quality varies between these two types of classrooms is warranted.

Thus, based on previous research and limitations within these studies, the aims of the current study were: a) to examine teacher-child interactions, particularly in relation to emotional support and behavior guidance, in toddler and preschool early childhood classrooms; b) to examine the associations among teacher personal characteristics (neuroticism, openness to new experiences, extraversion, agreeableness, conscientiousness, negative feelings about work, negative feelings about life in general), professional characteristics (education level, professional development activities), and classroom emotional support and behavior guidance in ECE classrooms; c) to predict teacher-child interactions related to emotional support and behavior guidance from these teacher characteristics; d) to examine if teacher personal characteristics predict the quality of their interactions with children above and beyond their professional characteristics; and e) to examine if the predictive relationships vary based on classroom type (toddler or preschool).

CHAPTER II

THEORETICAL PERSPECTIVE

The proposed study is guided by Bronfenbrenner's bio-ecological perspective (2001). This theory suggests that human development across the life span is fueled by the complex inter-relationships among characteristics of people, the contexts they are situated in, the processes that take place within those contexts, and the historical and life course time in which the development is taking place. Bronfenbrenner referred to these inter-relationships as the Process-Person-Context-Time (PPCT) model. The current study focuses on three aspects of the PPCT model, process, context, and person.

Bronfenbrenner (2001) referred to the processes within the PPCT model as proximal processes. He theorized that proximal processes were the "primary engines of development" (p. 6) and thus the most influential human experience for their development. Proximal processes are defined as "processes of progressively more complex reciprocal interaction between an active, evolving biopsychological human organism and the persons, objects, and symbols in its immediate external environment" (p. 6). They are interactions within people's everyday environments and can include most everything that takes place in their lives as they interact with the world. These interactions occur between developing humans and other people, symbols (such as spoken or written language), or objects within the immediate environment. In order for proximal processes to influence development, they must occur on a regular basis, over an extended period of time, be reciprocal in nature, and be increasingly complex

(instead of repetitive). Thus, a one-time encounter with a person, object, or environment is unlikely to change a developmental trajectory.

The current study conceptualizes proximal processes as teacher-child interactions and includes two additional components of the PPCT model, person and context. Bronfenbrenner (2001) theorized that person characteristics and context are indirectly related to development by influencing the proximal processes that a person experiences. The person in Bronfenbrenner's PPCT model is the developing person. According to Bronfenbrenner and Morris (1998), characteristics of people are influential to their development because they influence the proximal processes they experience. The characteristics of people that can influence or evoke differing proximal processes are multiple but include genes, reactivity, temperament, birth weight, disabilities, level of curiosity, personality, mental health, ability to delay gratification, among others. These characteristics affect what objects and people one will interact with as well as the nature of those interactions.

Bronfenbrenner and Morris (1998) further separate person characteristics into three categories: force, resource, and demand characteristics. Force characteristics are dispositions of a person and include two types: developmentally generative and developmentally disruptive. Developmentally generative dispositions are those "behavioral dispositions that can set proximal processes in motion and sustain their operation" (Bronfenbrenner & Morris, 1998; p. 1009) and developmentally disruptive dispositions are behavioral dispositions that "interfere with, retard, or even prevent" proximal processes (p. 1009). According to Bronfenbrenner and Morris (1998), examples of developmentally generative dispositions include curiosity, ability to delay gratification, and extraversion. Examples of developmentally disruptive dispositions include

impulsiveness, distractibility, and aggression. Resource characteristics are biological characteristics such as low birth weight, genetic defects, IQ, or other specific aptitudes. Demand characteristics are referred to as such because of their ability to illicit (demand) responses from the environment. Examples of these characteristics include temperament and physical appearance. The current study includes teacher personality as the person characteristics of interest. Teacher personality most closely aligns with Bronfenbrenner's notion of developmentally generative and developmentally disruptive dispositions.

In addition to person characteristics, bio-ecological theory suggests that contexts also influence the proximal processes that take place within them. Brofenbrenner (1979) emphasized the importance of studying development in context and proposed the concept of nested and interconnected systems to represent what he referred to as the ecological environment in which development takes place. The microsystem is the interconnectedness between individuals and the other people they interact with everyday. The interactions between people and institutions that have a direct effect on the individual, such as the school, are called the mesosystem. The exosystem includes the interactions between individuals and institutions that have an indirect effect on their development such as the political structure and policies in place within it. Finally, the macrosystem is the broadest context that includes culture. Bronfenbrenner (1979) posited that within a larger macrosystem, the other systems work in a similar manner for each of the individuals within it but that between macrosystems the differences can be great. Context in the current study is measured by two aspects of teacher professional characteristics: education level and membership in a professional organization.

One component of the PPCT model, time, is not included in the current study. It is important to note that although Bronfenbrenner (2001) suggested that theoretically all four components of the PPCT model are interrelated and important to development, due to design constraints in research, it is rarely the case in practice for them to all be measured within one study (Tudge, Mokrova, Hatfield, & Karnik, 2009). Bronfenbrenner himself often cited studies to exemplify his theory that did not include all four components of the PPCT model (Bronfenbrenner & Ceci, 1994). The current study excludes time as a variable because of two reasons: 1) the study questions do not necessitate a longitudinal component and 2) it is influenced by Bronfenbrenner's theoretical perspective but does not propose to model it exactly or test it in its entirety. Rather, as it is applied to teaching behavior, the current study proposes to simply draw on concepts from Bronfenbrenner's PPCT model (Tudge et al., 2009).

Application to Teaching Behavior

The implementation of a bio-ecological viewpoint in early childhood education research necessitates the view that teacher-child interactions are critical to the development of children within early childhood classrooms. Additionally, such a viewpoint would suggest that the manner in which teachers interact with children is possibly influenced by their own personal characteristics (e.g. personality, temperament, mental health) and contextual variables (e.g. education level, ethnicity of teachers and children, classroom and center characteristics). Bronfenbrenner (2001) posited that "although proximal processes function as the engines of development, the energy that drives them comes from deeper sources" (p. 9). The current study proposes to measure proximal processes and two aspects of the suggested "deeper sources" that influence

them, person characteristics and context conceptualized as teacher personality and professional characteristics.

Drawing from Bronfenbrenner's ecological systems theory (1979) and General Systems Theory (GST; Ford & Lerner, 1992), Pianta (1999) proposes the application of a systems perspective to teacher-child interactions in classrooms. Similar to the concept of proximal processes, Pianta emphasizes that adult-child relationships are the most influential mechanism in child development and that teacher-child interactions are so critical because they lead to the development of teacher-child relationships. Thus, in terms of Bronfenbrenner's theory, proximal processes lead to the development of relationships among those individuals involved in them. Pianta (1999) describes this process as such:

> Interactions between two people, over time and across many situations, come to be patterned; when they do, these patterns reflect a relationship shared by the two individuals. This relationship, and its qualities, can play a role in shaping the behaviors of the individuals involved-the relationship, through countless interactions, will regulate or constrain the development of the two individuals. (p. 29).

According to Pianta (1999), the systems perspective can be applied to classrooms by viewing the classroom, the children, and the teachers within it all as dynamic systems simultaneously influenced by many external and internal factors including culture, home-life, neighborhood, friends, and the biological and behavioral regulatory systems of the individual. Thus, the classroom is a system belonging to a larger system of the school and made up of several smaller systems of the individual children, dyadic systems of teacher-child relationships, families, and teachers. Also similar to Bronfenbrenner's assertion, this perspective requires a holistic rather than additive approach when studying classrooms, and Pianta recommends a broad unit of

analysis in education research to reflect the complexity of effective classrooms. He asserts that one cannot understand why a teacher uses specific behavior guidance strategies or interacts in a certain way without first knowing more about the individual teacher, the school as a whole, and characteristics of the community in which it is placed.

Of particular relevance to the current study is Pianta's (1999) view of the teacher as a developing system within the classroom. He suggests that adult-child relationships are "asymmetrical" (p. 30). Thus, the adult has more power and weight in determining their nature. Given that teacher-child relationships are an important influence on children's development, the teacher, and characteristics of the teacher, would also be important determinants of that relationship under this perspective. Pianta posits that when studying teacher-effectiveness it is necessary to view the teacher multi-dimensionally and look beyond training and education to other characteristics of the teacher.

In reference to teacher characteristics specifically, Luster and Okagaki (2005) provide a good example of how Bronfenbrenner's theory can be adapted to enhance our understandings of teacher behavior through an ecological model for parenting behavior. They posit that many important questions regarding parenting such as "Why do parents differ markedly in the ways in which they care for their children?" and "What factors contribute to individual differences in parenting behavior?" (p. xi) can be answered by approaching these questions with an ecological framework that examines context, child, and parent characteristics. The current study proposes a similar framework for understanding teaching behaviors in which teacher-child interactions are influenced by teacher characteristics and seeks to begin to answer similar questions about teachers as

those Luster and Okagaki posed about parents. These include broadly “why do teachers differ markedly in the ways in which they interact with children?” and “what factors contribute to individual differences in teaching behavior?”

CHAPTER III

REVIEW OF LITERATURE

The current review of the literature begins discussing emotional support and behavioral guidance. It includes a discussion of several applicable developmental models and examines how teacher-child interactions related to classroom emotional support and behavior guidance are important to social and emotional outcomes for young children in ECE classrooms. Second, a review of teacher characteristics including personality, depressive symptoms, and professional characteristics is offered in relation to teaching behavior. Finally, differences in toddler and preschool classrooms are presented as evidence of how the relations between teacher characteristics and emotional support and behavior guidance may differ between the two settings. It is also important to note that emotional support and behavior guidance are discussed in terms of teacher-child interactions throughout.

Throughout the current review of the literature, evidence from the parenting literature is occasionally presented in addition to the literature on teaching. This is not to suggest an assumption that teaching is the same as parenting or that these mechanisms will operate in a similar way across those two contexts. Teachers are usually short term participants in children's lives as opposed to parents (Howes & Speiker, 2008). However, this does not underplay the importance of teacher behaviors, it only puts them in a different context. Associations between teacher-child interactions and child outcomes have been demonstrated in preschool classrooms in the time frame of one year, the usual amount of time a child spends with the same teacher (Howes et al.,

2008; Mashburn et al., 2008). However, some of the current research is exploratory innature in the context of early childhood classrooms. Thus, the parenting literature is offered as evidence that these associations exist in the context of adult-child interactions for young children.

Emotional Support and Behavior Guidance

The emotional support and behavior guidance strategies used in early childhood classrooms are the pathways in which teacher personal characteristics (such as personality, depression, social and emotional competence) have an impact on social-emotional outcomes for children. Thus, ECE teacher emotional support and behavior guidance are important to study as indicators of both teacher effectiveness and as likely predictors of child outcomes (Jennings & Greenberg, 2009). Definitions of effective emotional support and behavior guidance are difficult because so much of human interaction is subjective and individual based on culture and context. However, currently there is some evidence-based consensus on many aspects of what these interactions should look like in ECE classrooms to support positive outcomes for children. Two developmental models, attachment theory (Bowlby, 1969) and emotion socialization (Eisenberg, Spinrad, & Cumberland, 1998), are especially helpful for defining these interactions and further framing the argument for studying teacher emotional support and behavior guidance as pathways to the development of social and emotional competence in young children. In the current review, social and emotional self-regulation skills in particular are emphasized as important aspects of social and emotional competence in young children because of their association with school readiness skills (Calkins & Williford, 2009).

Emotional and behavioral self-regulation. Self-regulation is one of the most important developmental skills for children to learn prior to kindergarten and is considered one of the key school readiness skills (Blair, 2002; Raver, 2002). Self-regulation can generally be defined as self-control applied across multiple domains. This includes the ability to control emotions, behavior, executive functions, and physiological arousal (Calkins, 2007). Emotional and behavioral self-regulation in particular have been clearly linked to children's success in school (Bell & Wolfe, 2004; Blair, 2002; Raver, 2002). The National Education Goals Panel (NEGP) defines school readiness as including five components for young children including children's physical well-being and motor development, social and emotional development, approaches to learning, language development, cognition and general knowledge. There is also a growing body of research demonstrating the inter-connection between emotion and cognition (Bell & Wolfe, 2004). These links suggest a systems perspective (Fitzgerald, Barnes, & Almerigi, 2007) to self-regulation development in which failure in one part of the system (e.g. emotional or behavioral regulation) contributes to or is related to failure in another part of the system (e.g. school success).

Self-regulation begins in toddlerhood when children use their emerging self-agency to try newly learned strategies (both adaptive and maladaptive) to assist with emotional and behavioral self-regulation (Brownell & Kopp, 2007) and continues developing throughout early childhood. To regulate emotions and behavior, children learn to purposefully divert their own attention away from distressing situations, self-seek solitude, or find a comfort item. These are considered adaptive self-regulation behaviors. An example of a maladaptive self-regulation strategy is to hit or bite others to relieve frustration or tension. Although often accomplishing the task of regulating strong

emotion, this is maladaptive because of its socially unacceptable nature. Thus, effective self-regulation that leads to school readiness involves not only learning self-regulatory skills, but learning *adaptive* self-regulatory skills (Blair, 2002; Kopp, 1989; Raver, 2002).

Attachment theory. Attachment theory offers an explanation for individual differences in social and emotional self-regulation of young children based on their previous interactions with caregivers. Attachment theory was originally studied within the context of mother-child interactions but the framework of attachment theory also provides a basis for the examination of teacher-child interactions (Howes & Spieker, 2008). Children who are cared for by more than one person develop multiple attachment relationships. Thus, a child attending an early childhood program will likely have an attachment relationship with the classroom teachers in addition to family members at home.

Attachment theory suggests that caregiver consistency in warmth, responsiveness, and sensitivity lead to secure attachment. In contrast, caregiver inconsistency in responsiveness, lack of warmth, and intrusiveness during interactions lead to insecure attachment (Ainsworth, Blehar, Waters, & Wall, 1978). Secure attachments to caregivers are associated with the development of positive social and emotional regulation skills in children while insecure attachments often lead to maladaptive development in these areas. Within the context of attachment relationships, children form an internal working model of what to expect from relationships based on the interactions that they have experienced with primary caregivers. Consequently, children learn many self-regulation skills (both adaptive and maladaptive). Less optimal outcomes associated with insecure attachment to caregiver(s) are, in theory, due to negative internal working models of relationships that children form based on the

experiences they have had with primary caregiver(s), which can include both a parent and a teacher. Internal working models of relationships encompass information learned about whether or not they can trust others to meet their needs and also *how* to get others to respond to their needs. Thus, the lack of self-regulation strategies or maladaptive self-regulation strategies may, in part, begin with attachment relationships.

Cassidy (1994) proposes that children's attachment relationships are at least partially responsible for individual differences in emotion and behavioral self-regulation in early childhood. She and others (Thompson, Laible, & Ontai, 2003) suggest that the child's internal working model leads to the use of specific behavioral strategies to maintain closeness and proximity to the attachment figure. This is based on Bowlby's (1969) assertion that attachment relationships are derived from a biological need for security and protection. Behavior and emotion regulation are then adapted to fit the perceived desire of the attachment figure. Within Cassidy's (1994) framework, children who are securely attached to their caregiver will theoretically feel secure enough for "open, flexible emotion expression" (p. 232) expecting that the caregiver will respond in a timely and sensitive manner. Secure children will also feel comfortable exploring their environment and seeking out the help of the attachment figure when in distress (Cassidy, 1994).

In contrast to the secure children, Cassidy (1994) theorizes that the insecure children will adapt to regulating their emotions in one of two ways. Children who have an insecure/avoidant attachment relationship with their caregiver are likely to minimize their emotional expressions. These children have likely experienced consistent rejection of their attachment behaviors (e.g. crying, seeking caregiver for help and comfort) and emotional expressions from their attachment figure and have determined that to maintain

the attachment relationship, they must minimize their emotional displays. This does not give the child an opportunity to experiment with the expression of emotion and receive appropriate feedback on regulation strategies from the attachment figure.

Children who are classified as having an insecure/ambivalent attachment relationship are likely to heighten their emotional displays. These children have likely experienced inconsistent responsiveness from their caregivers and have learned that in order to get the attention they need they must heighten their emotional responses or act out behaviorally. This heightened emotional or behavioral response then serves to maintain the relationship with the attachment figure for protection and security. In theory, this attachment relationship may affect the child's ability to learn effective emotional and behavioral self-regulation due to their continually heightened displays in the presence of the attachment figure and internalized model that close relationships must be maintained in this manner (Cassidy, 1994). Particularly for children spending large amounts of time in early childhood programs or for at-risk children who may be lacking secure attachment figures in their home, teacher emotional support and behavior guidance can have important influence on children's development of self-regulation, and later school success.

Emotion socialization. The next developmental model that frames the argument for studying teacher emotional support and behavior guidance as a pathway to self-regulation for young children is emotion socialization. Emotion socialization includes three aspects of adult-child interactions: adult reaction to children's emotions, adult discussion of emotions with children, and adult emotional expression in the presence of children (Ahn, 2005a; Eisenberg, Spinrad, & Cumberland, 1998). Like attachment theory, emotion socialization has also been studied most often in the context of parent-

child interactions. There is a large body of research to support the theorized link between parental emotion socialization and emotional and social competence for young children (e.g. Berlin & Cassidy, 2003; Denham & Auerbach, 1995; Denham, 1997; Morris, Silk, Steinberg, Myers, & Robinson, 2007; Spinrad, Stifter, Donelan-McCall, & Turner, 2004).

However, young children attending early childhood programs will experience the same three processes of emotion socialization described by Eisenberg et al. (1998) from their teachers. The majority of existing work on emotion socialization in child care is qualitative and/or descriptive in nature (Ahn, 2005a, 2005b; Ahn & Stifter, 2006; Leavitt, 1994; Leavitt & Power, 1989). Within this small body of work, consistent teacher emotion socialization strategies have emerged that fit within Eisenberg et al.'s (1998) framework. Overall, observed teacher emotion socialization strategies within these studies were interpreted by the researchers to be more negative than positive. Teacher reactions to child emotion in early childhood classrooms often consisted of ignoring, denial of legitimacy, or responding with their own negativity through anger, sarcasm, punishment, or ridicule (Leavitt, 1994). Ahn (2005a; 2005b) observed a mix of positive and negative teacher emotion socialization strategies in early childhood programs. Positive strategies included displays of empathy, encouraging empathic responses between peers, physical comfort, and teaching constructive ways to express emotion. However, teachers in these studies still displayed a strong preference for positive emotions through verbal feedback to minimize negative emotions. Thus, the emotional support provided in early childhood classrooms will also often be a kind of emotion socialization that will in turn impact emotion-regulation development children.

Finally, in addition to theoretical links, recent empirical evidence has linked teacher emotional support and behavior guidance to children's success in school (Calkins & Williford, 2009; Hamre & Pianta, 2005; Howes et al., 2008; Mashburn et al., 2008; NICHD ECCRN, 2003; Raver et al., 2007). For example, Hamre and Pianta demonstrated that children identified as at-risk for behavioral and social problems made significant improvements in these skills when placed in classrooms that offered strong teacher emotional support including high teacher sensitivity and positive affect, low teacher negativity, and strong encouragement of children's independence and autonomy. Additionally, the NICHD ECCRN found that children who experienced more emotional support in their early childhood classrooms had less parent-reported internalizing behaviors. Thus, the study of the emotional support and behavior guidance that occur daily in classrooms is important as one pathway in which teacher characteristics have an impact on child development.

Teacher Personal Characteristics

Personality. Teaching is a demanding profession in which teachers must navigate emotionally charged situations daily. In addition to their previous professional development, teachers must rely on their own social and emotional competence and personal characteristics such as personality in these situations to help guide their behavior. Teachers bring characteristics of their personalities into the interactions they have with children every day in early childhood classrooms. The underlying theoretical proposition that guides research on personality and adult-child interactions is that to interact with children in a skilled and healthy manner, adults must be psychologically healthy, able to regulate their emotions, take other's perspectives, and not be controlling, detached, or impulsive (Belsky & Barends, 2002).

Teacher personality has been an area of interest in educational and psychological research for over 65 years as a possibly salient factor in effective classrooms. As early as 1943, researchers were asking questions such as “what are the personality traits of a successful teacher?” (Dodge, p. 325). In 1962, Bowers and Soar reported significant associations between aspects of teacher personality and the emotional support and frequency of teacher-child interactions in classrooms. Specifically, teachers in this study who were immature, cold, and constrained were less likely to provide emotional support and frequent interactions in the classroom. However, by 1970, interest in the subject had waned. This was largely due to inconsistent findings stemming from disorganization in methodology, inconsistency in the definition of teacher effectiveness, and a lack of reliable tools for assessing teacher personality, classroom environment, teacher-child interactions, and teacher effectiveness (Rushton et al., 2007; Soar, 1964).

Over the last many years, most of the research interest in personality has stemmed from the field of psychology. Indeed, since its inception (Allport, 1937), defining and studying personality has been primarily an endeavor of those in the field of psychology. Early interest in the field was mostly focused on identifying and explicating different personality traits. However, as developmental psychologists gained interest in personality, they focused their interest on how these defined personality traits influence human development and behavior (Winter & Barenbaum, 1999). However, while there were many in the field who pursued an interest in the predictive power of personality on human behavior, study results were mixed and some psychological researchers suggested that it was not an area where their energies should be focused (Winter & Barenbaum, 1999). Nevertheless, the study of personality has endured within the field of

psychology and there is a large of empirical evidence that demonstrates that it is related to human behavior (see Barrick & Mount, 2005 for a review). Personality research has also expanded to fields beyond psychology such as education and human resources. Personality assessments have become increasingly popular in workplace settings as a tool for learning more about their employees as well as trying to predict employee job performance (e.g. Hurtz & Donovan, 2000; Le et al., 2010).

Within the educational context, the last several decades have brought only sporadic research on teacher personality, most often in secondary or higher education (Fisher & Kent, 1998; Sparks & Lipka, 1992). Virtually no work has been done on the subject to date in the context of early childhood education. However, educational researchers have more recently regained interest in teacher personality as a mechanism for teacher behavior and some work has began to focus on younger school settings (Decker & Rimm-Kaufman, 2008; Rushton et al., 2007). This renewed interest is most likely due to the introduction of several reliable tools for the assessment of personality and increased interest in classroom climate and teacher-child interactions as important aspects of classroom quality.

The five domains.

Personality, like many constructs, is defined in multiple ways in the literature. However, there is some consensus around what has been termed “The Big Five” personality traits (Costa & McCrae, 1992). The big five is made up of the traits of neuroticism (sometimes termed emotional stability), extraversion, agreeableness, conscientiousness, and openness to new experiences. The five traits are generally conceptualized in a continuum rather than a simple low/high format. Neuroticism encompasses a person’s level of emotional instability. People scoring high on this trait

are insecure, worry frequently, have high anxiety levels, are prone to depression, and are often nervous, whereas people scoring low are more secure, relaxed, and calm. Within the parenting literature, indicators of neuroticism are often conceptualized as negative affectivity (Belsky & Barends, 2002). Parental negative affectivity is positively associated with parental intrusive behavior and negatively associated with parental sensitivity for parents of toddlers (Goldstein, Diener, & Mangelsdorf, 1996; NICHD ECCRN, 2000b).

Extraversion encompasses a person's intensity of interaction and activity. People scoring high on this trait are talkative, affectionate, and sociable. In contrast, people scoring low on this trait are quiet and reserved. The parenting literature indicates that parents scoring higher on extraversion tend to be more sensitive, emotionally engaged, stimulating, and responsive with their children (Belsky & Barends, 2002). Research on teaching suggests that higher levels of extraversion are associated with more teacher effectiveness (Rushton et al., 2007). Some studies report that the majority of teachers score lower on this scale, suggesting a more introverted orientation (Fairhurst & Fairhurst, 1995) while others report more extraversion among teachers (Decker & Rimm-Kaufmann, 2008). People who are more extraverted tend to need more social interaction. Interacting with their students might be sufficient for teachers with older students. However, for early childhood teachers who are extraverted, particularly those working in isolation with pre-verbal children, a lack of social interaction daily with other adults might lead to psychological distress.

Agreeableness encompasses the amount of compassion versus antagonism in a person's orientation towards others. A person scoring high on this trait is good-natured, soft-hearted, empathetic, and trusting whereas a person scoring low on this trait is

uncooperative, cynical, apathetic, and manipulative. Belsky, Crnic, and Woodworth (1995) demonstrated that higher levels of maternal agreeableness are associated with more sensitivity and lower levels of intrusiveness in parent-toddler interactions. Research on personality in teaching suggests that higher agreeableness can be a protective factor against the daily stressors that teachers experience and help with the prevention of teacher burnout (Cano-Garcia, Padilla-Munoz, & Carrasco-Ortiz, 2005).

Openness to new experiences is well-defined by its name. A person scoring high on openness to new experiences has broad interests and enjoys new experiences and trying new things whereas a person scoring low on this trait is fairly practical and set in their ways. Openness to new experiences has rarely been studied as a factor in the parenting literature but evidence from the teaching literature suggests that it may be relevant to teacher-child interactions. For example, teachers scoring higher on a scale of openness to change had beliefs about teaching that were more innovative, less-traditionalist, enjoyed unpredictability, and were more willing to make changes when necessary in their classrooms (Martin, Baldwin, & Yin, 1995). Additionally, a sample of pre-service teachers had higher levels of this personality trait than a normed sample of the population suggesting that it may be a relevant characteristic for teachers (Decker & Rimm-Kaufman, 2008). Certainly, the stressors and changes that early childhood teachers are faced with everyday require some amount of openness to new experience to cope in a healthy manner.

Conscientiousness encompasses a person's level of easygoingness versus planning orientation. A person scoring high on this trait has high standards, is organized, and goal-oriented whereas a person scoring low on this trait is easygoing, somewhat disorganized, and prefers not to make strict plans (Belsky & Barends, 2002). Mothers of

both toddlers and young children up to age eight who are more conscientious tend to be more supportive parents, less negative, more responsive, and less power assertive (Clark, Kochanska, & Ready, 2000; Losoya, Callor, Rowe, & Goldsmith, 1997). Although conscientiousness has been rarely studied as a teacher characteristic, Decker and Rimm-Kaufman (2008) recently completed a study of the prevalence of the big five personality traits among pre-service teachers. They found a higher incidence of all five traits in the pre-service teachers as compared to a normed sample. Given these findings, the current research examines the logical next step of assessing the personality characteristics of in-service teachers, many of whom have not gone to college or went through in a non-traditional manner, to see if the findings are similar to the pre-service sample.

Personality in education.

Although recent research linking personality with specific teacher-child interactions is rare, there is some research to support the associations examined in the current study within secondary teachers. Zhang (2007) found that the five factors of personality as described above predicted the teaching styles of Chinese secondary teachers above and beyond their education level, gender, and beliefs about their students. Additionally, there is research to support associations between teacher personality and other constructs that are established predictors of teacher-child interactions. For example, Cano-Garcia et al., (2005) found that teacher neuroticism and agreeableness were both significant predictors of teacher burnout in the elementary school setting. Prior research has also found links between early childhood pre-service teacher personality and teachers' ideas and beliefs about children (Decker & Rimm-Kaufman, 2008). A group of highly effective teachers in Florida demonstrated prevalence

for extraversion, intuition, positivism, openness, and innovation in their personality characteristics (Rushton et al., 2007). Thus, this literature needs to be extended to include studies of the relations between teacher personality and their effectiveness with young children in the classroom, particularly given that the unique context of the early childhood profession requires teachers who are able to be calm, good-natured, and flexible.

Finally, teacher personality has sometimes been excluded from education research because of the view that it is unchangeable. Most research in early childhood education is applied research that seeks to create positive change in the lives of young children and their teachers. Thus, it is important to further consider, if associations between teacher personality and their teaching behaviors do exist, how this information might be applied to teacher professional development to increase quality in early childhood classrooms. There are at least two possibilities for how improved understanding of teacher personality may be useful in teacher professional development: 1) to inform professional development for teachers focused on understanding how their own personality may be related to their interactions with children and 2) to inform the individualization of professional development for teachers focused on teacher-child interactions.

First, Rushton et al. (2007) make the claim that “it is imperative that individuals (teachers) be aware and conscious of their personality type so that they may make the necessary changes to adapt and persevere” (p. 440). This supports the claim that teachers’ awareness of how their personality characteristics influence their teaching behavior is critical. Providing further support is research on adult learning that demonstrates that growth and learning will not occur in adults until they personally desire

and initiate the growth and change (Wlodkowski, 2008). Thus, personality research offers an opportunity for teachers to better understand themselves and their roles in classroom interactions which may offer incentive for change and adaptation.

Second, formal professional development for teachers could be informed by knowledge of individual teacher's personalities. Research on professional development for teachers currently indicates that on-going, individualization through mentoring or coaching is the most effective strategy for changing and improving teacher behaviors (Landry, Anthony, Swank, & Monesque-Bailey, 2009; Horm-Wingerd, Caruso, Gomes-Atwood, & Golas, 1997; Pianta, Mashburn, Downer, Hamre, & Justice, 2008; Ramey & Ramey, 2008; Raver et al., 2008). Landry et al. (2009) posit that the main advantage of a mentoring approach is "the ability to individualize professional development to the needs of the learner" (p. 449). Up to this point, "the needs of the learner" in research on professional development have most often consisted of prior knowledge base or skill base. However, personality could also be included as providing information towards understanding the needs of the learner so that mentoring could be individualized to the learner's unique personality.

Finally, there is very little evidence in the literature that personality is actually static or that all aspects of personality are static (McCrae & Costa, 1994; Rothbart & Ahadi, 1994). Rothbart and Ahadi posit that "a complete understanding of personality should be a developmental one" (p. 55). Drawing from a systems perspective, they suggest that personality is part of a developing human system that can be changed and influenced as other parts of the system develop. For example, additional education will affect other aspects of the human system and could possibly change personality characteristics. Additionally, many personality characteristics are related to overall

mental health status. Thus, improvement in mental health, such as recovering from depressive symptoms, could also change some personality characteristics. Overall, more attention to teacher personality and the mental health status of teachers is needed.

Depressive Symptoms. Depressive symptoms typically include loss of interest in typical activities, persistent sadness, feelings of hopelessness, a negative outlook, fatigue, difficulty concentrating, and sleep and appetite changes (Hamre & Pianta, 2004). Depression in parents has been consistently associated with the quality of their parenting behaviors (e.g. Dietz, Jennings, & Abrew, 2005; Jameson, Gelfand, Kulcsar, & Teti, 1997; NICHD ECCRN, 1999; Marchand, Schedler, & Wagstaff, 2004; Zahn-Waxler, Iannotti, Cummings, & Denham, 1990). For example, Dietz et al. found that toddlers with depressed mothers were significantly less likely to be skillful in self-assertion and to be more defiant than toddlers who did not have depressed mothers. Jameson et al., found that the interactions between mothers who were depressed and their toddlers were shorter and less interactively coordinated (they were less likely to work together to achieve joint goals). In a sample of 6 to 8 year old children, parental depressive symptoms were associated with both externalizing and internalizing behaviors in the children (Marchand et al.)

Depression has been more frequently assessed in teachers than personality in recent years, although by no means has it been done so exhaustively (e.g. Goldsmith & Rogoff, 1995; Hamre & Pianta, 2004; Hamre, Pianta, Downer, & Mashburn, 2007; Pianta et al., 2005). Using the NICHD ECCRN data, Hamre and Pianta found associations between the self reported depressive symptoms of child care teachers and the quality of their interactions with toddlers aged 15-36 months. Specifically, teachers with more depressive symptoms were less sensitive in their interactions with children. For slightly

older children, Pianta et al. demonstrated a negative relationship between teacher depressive symptoms and the emotional support in pre-kindergarten classrooms. Moreover, Hamre et al., (2007) found that preschool teachers who self-reported higher levels of depressive symptoms reported higher levels of conflict with their students than teachers who reported less depressive symptoms. This relationship existed even after controlling for problem behaviors, indicating that depressed teachers may even report conflict with children who do not exhibit high levels of problem behavior. Thus, taken together with the parenting literature, there is preliminary evidence that both teacher personality and depressive symptoms may be salient constructs for predicting teacher behaviors.

Teacher Professional Characteristics

Teacher education. Teacher education is a commonly studied predictor of quality in early childhood classrooms and it has been consistently associated with teacher effectiveness in early childhood classrooms (Bowman et al., 2001; de Kruif et al., 2000; Helburn et al., 1995; see Whitebook, 2003 for a review). Higher levels of teacher education have also been related to early childhood teacher emotional support and behavior guidance specifically (de Kruif et al., 2000; Pianta et al., 2005). In light of these findings, educational requirements for early childhood teachers have risen considerably over the last several years and many states now include teacher education as a component of their child care quality rating and improvement systems (National Child Care Information and Technical Assistance Center, n.d). Additionally, the most recent Head Start reauthorization occurring in 2007 included an increase in requirements for staff education. All Head Start and Early Head Start teachers must now have at least a Child Development Associate (CDA) by September 2010 and an

Associate's degree by October 2011. The reauthorization also requires that fifty percent of program teachers have a bachelor's degree by 2013 (Administration of Children and Families, Office of Head Start, n.d.). Finally, as more states add publicly funded pre-kindergarten programs to their school systems, debates about teacher educational requirements for these programs are common (Bueno, Darling-Hammond, & Gonzales, 2010; Whitebook, 2003).

There are two common debates regarding requirements for teacher education in early childhood classrooms. The first concerns whether or not teachers need to have specialized training in early childhood education versus just more education in any field. This continues to be an issue as it has proved difficult in research to compile and compare the variety of trainings and professional development activities, both formal and informal, that early childhood teachers experience (Whitebook, 2003). However, even though *type* of education/training is currently an issue, the debate of *if* teacher education matters for quality is also still unresolved. There is no dispute that there is empirical evidence linking teacher education to quality in early childhood classrooms. However, the dispute is focused on whether or not there is a linear pathway and causal relationship between more education of the teacher and more effectiveness in the classroom or if the association is actually more complicated than that.

More recent reviews of the literature have demonstrated that a linear link is not necessarily the case (Early et al., 2006; Early et al., 2007). For example, Early et al. (2007) reviewed and re-analyzed data from seven major studies of early childhood classroom quality and found almost no evidence for a direct link between teacher education and classroom quality. The authors noted that teacher education is often related to quality in simple analyses but when tested in more complex models in which

many additional variables are added, the relationship is no longer significant. Early et al. (2007) speculate that teacher education is likely correlated with many other stronger predictors of classroom quality. Thus, as the debates continue, the challenge to the field is to examine other variables that may be related to teacher education.

Professional development activities. “Formal” education as discussed in the previous section is an important aspect of professional development. However, there are many other more “informal” kinds of professional development activities that ECE teachers engage in regularly that can also influence their teaching behaviors. These activities may include membership in a professional organization, attending workshops and trainings, staff meetings, mentoring, and performance reviews with supervisors, among others. Many states include these more informal professional development activities in their state-required licensing requirements for early childhood programs in addition to requirements for their optional quality rating and improvement systems (National Child Care Information and Technical Assistance Center, n.d).

While the debate concerning the importance of formal education for early childhood teachers continues, determining other pathways to teacher effectiveness, such as informal professional development activities, is necessary (Sheridan, Edwards, Marvin, & Knoche, 2009). In a meta-analysis of studies on teacher training, Fukkink and Lont (2007) found that in-service training as a professional development activity was an effective tool for improving teaching behaviors as well as child outcomes in early childhood classrooms. Additionally, in a study of 30 toddler child care classrooms, Thomason and La Paro (2009) found moderate to high correlations between teacher membership in a professional organization and classroom emotional support and behavior guidance. Additional research focusing on more informal kinds of teacher

professional development activities have also shown similar results (e.g. Fuligni, Howes, Lara-Cinisomo, & Karoly, 2009; Pianta, Mashburn et al., 2008; Rhodes & Hennessy, 2000; Slider, Noell, & Williams, 2006).

Although these links exist, a common issue with research on teacher professional development is that distinctions between the “formal” and “informal” professional development activities are not always explicated within study findings (Sheridan et al., 2009). Thus, it is often difficult to determine how more informal professional development activities may influence teacher effectiveness beyond formal education. Overall, because of its many forms, teacher professional development is a complex construct that needs further investigation to determine in what ways professional development activities may be related to early childhood teaching behavior.

Toddler and Preschool Teachers

Many differences exist between toddler and preschool early childhood classrooms. Thus, research in one setting may not be easily transferable to another. The most obvious difference between the two is the age and developmental levels among the children within them. These differences can be quite pronounced and consideration of them is important when designing studies that include both types of classrooms. Child development scholars and theorists have been studying and writing about developmental differences in young children for many years now, asserting that young children from toddlerhood through age 5 are qualitatively different developmentally from one another with respect to both social-emotional (Erikson, 1950) and cognitive development (Piaget, 1952). Moreover, recommended practice in early childhood education is grounded in the assertion that an understanding of children’s developmental level is crucial for effective teaching (Copple & Bredekamp, 2009).

Also of note in the current research on early childhood classroom quality is the minimal amount of research focusing on the quality of classrooms serving toddlers in comparison to the breadth of research on preschool classroom quality. However, among the research that does separate the two, differences among the quality level within the classrooms has emerged. For example, research consistently demonstrates that toddler classrooms are, on average, of lower quality than preschool classrooms (e.g. Ahn, 2005a, 2005b; Helburn et al., 1995; Howes, Phillips, & Whitebook, 1992). However, these studies are often not answering current questions, focus on global quality rather than teacher-child interactions, group infants and toddlers together, are on a small scale, and/or are qualitative in nature. Thus, the theorized importance of teacher-child interactions related to emotional support and behavior guidance to optimal development for both toddler and preschoolers warrants an examination of the differences in quality between the two types of classrooms as well as how antecedents of effective classrooms may vary between them. These understandings could lead to targeted quality improvement initiatives in early childhood programs.

There is some research to suggest that the variables related to quality may be different between toddler and preschool classrooms (NICHD ECCRN, 2000a; Phillips et al., 2000; Thomason & La Paro, 2010). The NICHD ECCRN (2000a) found differences in what predicted quality between samples of infant and toddler classrooms and preschool classrooms. Specifically, teacher-child ratio and group size were most predictive of process quality in infant and toddler classrooms with teacher characteristics, such as education level, not adding significant predictive value. However, by the time that the children were in preschool, teacher education level, experience, and beliefs were predictive of process quality while teacher-child ratio and group size were not.

Phillips et al. demonstrated that a wider variety of structural characteristics including teacher training, teacher income, classroom ratio and group size, were related to global quality in infant and toddler classrooms than in preschool classrooms and the authors suggested that “there are many avenues to quality for these youngest age groups” (p. 493). Specific to classroom interactions, using data from the NICHD Study of Early Child Care, Thomason and La Paro (2010) found that the opposite was true. A wider variety of teacher characteristics including education level, years of experience, job satisfaction, and professional organization membership predicted quality teacher-child interactions for preschool classrooms while only professional organization membership predicted quality for toddler classrooms. Thus, findings from these studies combined with understandings of developmental differences between toddler and preschool children support an argument for the salience of further investigation into how the complexity of process quality, and teacher-child interactions specifically, may differ between the two age groups.

Research Questions

RQ1. What is the quality level of observed dimensions of emotional support and behavior management in toddler and preschool early childhood classrooms? How do observed dimensions of emotional support and behavior management differ between toddler classrooms and preschool classrooms?

RQ2. What are the relationships among teacher personal characteristics, professional characteristics, and observed dimensions of emotional support and behavior management in ECE classrooms?

RQ3. Are teacher personal characteristics and professional characteristics predictive of observed emotional support dimensions and behavior management in ECE classrooms?

RQ4. a) Do the professional characteristics that predict observed dimensions of emotional support and behavior management vary by classroom type (toddler or preschool)?

b) Do teacher personality characteristics predict observed dimensions of emotional support and behavior management above and beyond teacher professional characteristics for ECE teachers and do they vary by classroom type (toddler or preschool)?

CHAPTER IV

METHODOLOGY

The aims of the current study were: a) to examine teacher-child interactions, particularly in relation to dimensions of emotional support and behavior management, in toddler and preschool early childhood classrooms; b) to examine the associations among teacher personality characteristics (neuroticism, openness, extraversion, agreeableness, conscientiousness), professional characteristics (education level, professional development activities), and classroom emotional support and behavior management in ECE classrooms; c) to predict early childhood classroom emotional support and behavior management from these teacher characteristics; d) to examine if teacher personality characteristics predict the quality of teacher-child interactions within the areas of emotional support and behavior management above and beyond professional characteristics; and e) to examine if the predictive relationships vary based on classroom type (toddler or preschool).

The current study uses data from the Comparison of Quality Assessment Tools (CQAT) research project at the University of North Carolina at Greensboro to address these aims. Data for this project were collected from April 2009 to March 2010 from 101 child care programs participating in the CQAT. The CQAT data was well-suited to address the above aims because the sample size was adequate, the necessary measures needed to address the research questions were present, and similar data were collected across toddler and preschool classrooms. Additionally, this sample included multiple methods of observational and questionnaire data.

Recruitment of Sites

The full CQAT database includes a sample of 192 early childhood education teachers, including 94 toddler teachers and 98 preschool teachers employed by North Carolina center-based child care programs. Programs were recruited for the CQAT study from a list of centers participating in the North Carolina Rated License system (NCRL) using a stratified random sampling procedure. The initial sampling frame included all center-based licensed child care programs in North Carolina listed through the Division of Child Development. At the time of the CQAT study, there were 4779 center-based licensed child care programs in the state of North Carolina (North Carolina Division of Child Development, 2010). Licensed child care centers can voluntarily participate in the NCRL to be assigned a star-rating of one to five stars. To ensure adequate representation in the study from each of the five star-rating categories, the sample was stratified based on the star rating. See measures section for further information on how the star ratings are assigned.

Employees of the CQAT study recruited centers from five lists of center-based licensed child care programs obtained from the North Carolina Division of Child Development, one for each star-level rating. This sampling method was chosen to reduce selection bias by ensuring that centers with lower quality were included in the sample. The goal for stratification was to obtain roughly 20% of the total goal sample (20 centers) from each star level. Programs were considered ineligible if they were in a public school or did not have at least one toddler classroom (defined as children aged 15-36 months) and one preschool classroom (defined as children aged 3-5 years). Ineligible programs based on these criteria were removed from each list. There were a total of 1749 centers removed. Each list of eligible programs, by star level, was then

randomized and centers were contacted in random order to determine further eligibility and their interest in participation in the CQAT study.

The total final sample of eligible programs that could be contacted for recruitment was 3,030: 736 five-star programs, 1131 four-star programs, 814 three-star programs, 168 two-star programs, and 181 one-star programs. Of this total, 323 were contacted. 117 centers agreed to participate in the study. 16 initially agreeing to participate later cancelled the observation visit. The final sample included 101 total centers consisting of twenty-four 5-star centers, twenty-two 4-star centers, twenty-five 3-star centers, thirteen 2-star centers, and seventeen 1-star centers. Total response rate was 36.2% of the eligible centers contacted agreed to participate in the study. This included 64.29% of the 5-star programs, 37.7% of the 4-star programs, 39.2% of the 3-star programs, 18.3% of the 2-star programs, and 39.6% of the 1-star programs.

Center directors were first contacted through a postcard mailing that described the study and advised them that they would be contacted by phone to assess their interest in participation. Center directors agreed to have their programs participate in the study by phone. If center directors were interested in participation in the study their center had to meet additional eligibility requirements which were having more than 50 children enrolled and not requiring a bilingual observer for completion of the study measures. As part of the recruitment, participating centers were entered into a drawing for 2 gift cards in the amount of $250.

Selection of Teachers

If participating centers had more than one toddler or preschool classroom, the focus classrooms were randomly selected by the scheduler of the observation. This was done by putting the names of the lead teachers from those classrooms in a cup and

randomly pulling one out. The lead teachers were then recruited for participation in the study by the data collectors who would explain the project and ask for informed consent. If the teacher declined to participate, another classroom was randomly selected. However, this rarely occurred. In order to be eligible to participate, teachers were required to have been with the children in the classroom for at least one month to ensure that there had been adequate time for teacher-child relationships to develop. Teachers in classrooms chosen for participation were asked to complete informed consent forms that were included in an initial packet sent to the center and were offered a $35 gift card for their participation in the study. In the event that there was not a lead teacher in the classroom (i.e., co-teachers) and both were eligible to participate, one teacher was randomly selected to participate. Random selection occurred by the observer blindly choosing one of the teacher's consent forms. Additionally, at the end of the study, participating teachers were entered into a drawing for 3 gift cards in the amounts of $250, $150, and $100.

Teacher Characteristics

The teacher participants in the current study reported a mean average teaching experience in ECE of 10 years (range of 0-35 years). Their average birth year was 1974 (range of 1945 to 1992), suggesting that at the time the data was collected the average age was 35. The sample also reflected ethnic diversity with the largest percentage of teachers self-reporting as African-American (46.2%), followed by European-American (40.2%), Native American (9.8%), Hispanic/Latino (2.3%), and other (1.5%).

Overview of Data Collection

Study questionnaires and forms were sent to participating centers in a packet prior to the observation days. The packets included letters to the director and to the

teachers to be observed, teacher consent forms, parent letters, parent consent forms for child assessments, a classroom roster for each classroom to be observed, a personality questionnaire for the participating classroom teachers, and instructions to the teachers for completing an additional online survey. Teachers participating in the study were asked to send home parent letters and consent forms for participation in the study by children in their class. Parents who consented for their child to participate returned the consent forms to their child's teacher. The goal for participation was five children per classroom, in the event that more than five children's parents consented, the five children to participate were chosen by target selection by the observer to include diversity in the sample including a mix of gender and ethnicities.

Observational data for the CQAT study was collected over a two-day period. The two days of data collection occurred within in 2 weeks of each other. On both days of observation, observers spent 3 to 5 hours in the classroom arriving around breakfast time. On day one, observers first collected all consent forms and distributed child questionnaires for participating children to the teachers. All measures were completed by trained observers. Toddler classrooms were observed using the Infant/Toddler Environment Rating Scale – Revised edition (ITERS-R; Harms, Clifford, & Cryer, 2003) and the Comfort and Contentedness of Children in Child Care (C5; Cassidy, 2009). These two scales were simultaneously completed. Preschool classrooms were observed using the Early Childhood Environment Rating Scale – Revised edition (ECERS-R; Harms, Clifford, & Cryer, 2005), the C5, and the Early Childhood Environment Rating Scale – Extension (ECERS-E; Sylva, Siraj-Blatchford, & Taggart, 2003). Notes for all scales and running records were taken simultaneously and measures were scored in an ongoing manner. The day one measures took, on average, 4 hours to complete.

Between the first and second day of data collection, teachers were asked to complete all study questionnaires, including an online survey. On data collection day 2, all teacher questionnaires were collected by observers. Toddler classrooms were then observed with the Classroom Assessment Scoring System, Toddler Version (*CLASS*; Pianta, La Paro, & Hamre, 2009). Observations were approximately 3 hours in length to complete this measure. On day 2, preschool classrooms were observed with the *CLASS*, PreK version (Pianta, La Paro, & Hamre, 2008) and the Preschool Outdoor Environment Measurement Scale (POEMS; DeBord, Hestenes, Moore, Cosco, & McGinnis, 2005). Trained data collectors observed using the *CLASS* while the children were in the classroom, the POEMS when the children went outside, and then completed the *CLASS* measure when the children returned to the classroom from outside. These two measures took, on average, 4 hours to complete. In the afternoon of day 2, the observer conducted child measures with the study children. Variations of this schedule were used as necessary due to scheduling conflicts. Gift cards were given to the teachers upon completion of all observational measures by an observer, receipt of the completed teacher questionnaires, and confirmation that the teachers had completed the online survey.

Measures

Emotional support and behavior management. The quality of teacher-child interactions in the areas of emotional support and behavioral guidance were measured with the Classroom Assessment Scoring System Toddler (*CLASS*; Pianta et al., 2009) and CLASS Pre-K (Pianta et al., 2008). The *CLASS*, Toddler Version, assesses 7 dimensions of teacher-child interactions: Positive Climate, Negative Climate, Teacher Sensitivity, Regard for Child Perspective, Behavior Guidance, Facilitation of Learning

and Development, and Language Modeling. The *CLASS*, Pre-K version, assesses 10 dimensions of teacher-child interactions: Positive Climate, Negative Climate, Teacher Sensitivity, Regard for Student Perspectives, Behavior Management, Productivity, Instructional Learning Formats, Concept Development, Quality of Feedback, and Language Modeling. “Emotional Support” as defined in the current study is comprised of the first four dimensions in each scale: Positive Climate, Negative Climate, Teacher Sensitivity, and Regard for Student Perspectives (within the *CLASS* framework, this is defined as the Emotional Support domain). The fifth dimension in each scale, Behavior Management, is used to measure that construct in the current study. While there are some differences in how these constructs are defined within the Toddler and Pre-K version of the *CLASS*, the main components of the dimension that are measured remain the same. The definition for each dimension is described below and any key distinctions between the Toddler and Pre-K versions are highlighted. For consistency, each dimension is referred to by its name in the Pre-K version of the *CLASS* and the following dimension definitions are paraphrased from the *CLASS* Pre-K manual (Pianta et al. 2008).

Positive Climate encompasses the emotional connection between the teachers and children. Classrooms scoring high on this construct have demonstrated evidence of teacher-child relationships, teacher positive affect and communication, and teacher respect for the children. Negative Climate encompasses the amount and intensity of expressed negativity in the classroom. Classrooms scoring high on this construct have demonstrated evidence of teacher negative affect, punitive control, sarcasm/disrespect, and child negativity. Teacher Sensitivity encompasses teacher responsiveness to children and awareness of child developmental and individual needs. Classrooms

scoring high on this construct have demonstrated evidence of teacher awareness, responsiveness, teachers' addressing problems, and high levels of child comfort in the classroom environment. Teacher Regard for Student Perspectives encompasses the degree to which classroom activities and interactions reflect the interests of the children and encourage child autonomy. Classrooms scoring high on this construct have demonstrated evidence of teacher flexibility and following children's lead, teacher support of child autonomy, teacher support of child expression, and do not restrict children's movement. Behavior Management encompasses the teacher's use of effective methods to prevent and redirect problem behavior. Classrooms scoring high on Behavior Management have demonstrated evidence of clear behavior expectations, proactive strategies of problem behavior prevention, attention to positive behavior, and redirection of problem behavior. One difference exists between the Toddler and Pre-K versions for Behavior Management. The Pre-K version observes and includes student behavior (i.e. frequent compliance) while the Toddler version does not.

For both versions of the *CLASS*, coding is completed using a cycle of 20-minutes observing and 10-minutes coding. A minimum of four observation cycles was required per classroom to be included in the current study. Each dimension is rated on a continuous scale from 1 (low) to 7 (high) based on behaviors observed across the 20-minute segment. Dimension scores are then averaged across the cycles to yield a classroom score for each dimension. The *CLASS*, Pre-K version has been used in multiple studies to observe teacher-child interactions in child care settings (e.g. Howes et al., 2008; Mashburn et al., 2008; Raver et al., 2008) with reliability estimates (Cronbach's alpha) ranging from .79 to .91 for preschool samples. The CLASS, Toddler version is a recently developed adaptation of the Pre-K version. Pilot data from this

version demonstrates similar reliability estimates (α = .88) (Thomason & La Paro, 2009). Reliability estimates from the current study sample ranged from .74 to .90 for the preschool sample and .80 to .88 for the toddler sample demonstrating consistency with prior samples.

Teacher personal characteristics.

Personality. To assess teacher personality, teachers were asked to complete the NEO Five Factor Inventory (FFI; Costa & McCrae, 1992). Five constructs were assessed: Neuroticism, Extraversion, Agreeableness, Conscientiousness, and Openness to New Experiences. The measure has a total of 60 items, twelve items for each subscale. Teachers rate themselves from 1 (strongly disagree) to 5 (strongly agree) on items such as “I often feel inferior to others” (neuroticism) and “I try to be courteous to everyone I meet” (agreeableness). The NEO FFI has been successfully used in previous studies of teacher personality (e.g. Decker & Rimm-Kaufman, 2008) and in large studies measuring parent personality (e.g. NICHD ECCRN, 2000b). Intraclass correlations reported by the authors of the instrument range from .75 to .89 (Costa & McCrae, 1992). For each of the five constructs, a standardized score was calculated from the NEO inventory and compared to a normed sample (Costa & McCrae, 1992) to assess the typicality of the distributions of the variables for teachers. Reliability estimates (Cronbach’s alpha) for the current sample ranged from .58 to .83 which is consistent with previous studies (Egan, Deary, & Austin, 2000; Costa & McCrae, 1992).

Negative feelings. Teacher negative feelings about work and negative feelings about life were measured by the Teacher Satisfaction Inventory (TSI; Cassidy, 2009). The TSI is a new measure and was piloted in the CQAT study. It was designed by researchers at the University of North Carolina at Greensboro to assess several areas of

teacher health and satisfaction with their jobs including the support they receive from coworkers and administrators, their physical health, income, emotional health, and professional development and preparation for their position. The TSI is separated into 7 sections representing the focus areas of the measure: “work environment and relationships”, “professional development”, “your center”, “your job/classroom”, “health”, “finances”, and “personal demographics”. It consists of a variety of question types including Likert-type questions scaled from 1 to 5, “check all that apply”, “check one”, and yes/no questions. It was administered to participants in one of two ways. Participants could choose to complete a paper copy of the questionnaire or complete it online through the Survey Monkey website. Of the total sample, approximately 30% chose to complete the paper questionnaire instead of the online survey.

Two series of questions from the “health” portion of the TSI were used. A composite of teacher negative feelings about work was calculated from teachers’ ratings (ranging from 1 to 5) on the extent they feel happy, frustrated, inspired, stressed, tired, and anxious when they come to work. A composite of teacher negative feelings about life were calculated from score of teachers’ ratings of their feelings about life in general (ranging from 1 to 5) on the extent they feel satisfied, happy, depressed, anxious, that they have a purpose, content, and stressed. Cronbach’s alpha for both composites was high, .88 and .75 respectively.

Teacher professional characteristics.

Education level. Teacher education level was assessed with the Teacher Satisfaction Inventory (TSI). Teachers were asked to report their highest level of education acquired from 11 options: “did not complete high school”, “high school diploma”, “NC early childhood credential/CDA”, “some college (<30 credit hours)”, “1 yr.

community college diploma", "2 yr. AA degree", "2 year AAS degree", "4 yr. EC/CD degree", "4 yr. degree in related field (education, psych.)", "some graduate coursework", and "graduate degree". Due to small numbers in some of the categories, they were further collapsed into four categories for teacher education level for the purposes of the current study. The four collapsed categories were 1) no college degree (N = 41), 2) NC early childhood credential or 1-year community college diploma (N = 39), 3) 2-year AA or AAS degree (N = 31), and 4) 4-year or beyond degree (N = 24).

Professional development activities. The variable of teacher professional development activities was a composite of related variables also measured by the Teacher Satisfaction Inventory (TSI; Cassidy, 2009). There were five variables used to create this composite: 1) "Are you a member of an early childhood professional organization where you meet other teachers?" (yes or no); 2) "Is there a written plan for your professional development activities that you and your director jointly develop each year?" (yes or no); 3) "How often do you receive a job performance review or evaluation?" (every 3 months, every 6 months, once a year, never, other); 4) "How many staff meetings were held in the last year?" (open response); and 5) "How many workshops did you attend in the last year?" (open response). These five variables were composited together by trichotomizing them so that that each had equal weight and reflected some variability. Variables 1 and 2 were yes/no questions and they were assigned 0 for no and 2 for yes. For variables 3 – 5, frequencies were run to determine the best way to re-code them into 3 categories. Variable 3 was a five-point rating scale and it was recoded into a three-point scale such that "never", "don't know", and "other" were coded as 0, "once a year" was coded as 1 and "quarterly or twice a year" was coded as a 2. Variable 4 was recoded so that 0 was less than one staff meeting per

month in the past year, 1 represented 1 staff meeting per month, and 2 represented 2 or more staff meetings per month. Finally, variable 5 was recoded so that 0 represented 0 to 2 workshops in the past year, 1 represented 3 to 5, and 2 represented 6 or more. The recoded variables were then summed for a total possible scale of 0-10 for professional development activities.

Control.

Center star level. Center star level was included as a control variable in the analyses for two reasons. First, it was significantly related to all of the outcome variables at the $p < .01$ level. Second, it was included to help ensure that any differences in teacher characteristics and outcomes found were related to the independent variables and not the "quality" of the center overall. The state quality star level rating is designed to reflect the overall quality of an early childhood center on a five point scale with a score of 1 representing the lowest quality and a score of 5 representing the highest quality based on a point system assigned to participating centers. The star-rating is derived from a 15 point system designed to evaluate quality in two main categories of program standards (7 points) and education standards (7 points). One additional "quality point" can also be earned to make a total of 15 possible points. The additional quality point is earned through achieving an educational or program standard above and beyond those required to earn the seven points for that category. Star-ratings are assigned based on the number of points a program earns (1 star = 1–3 points, 2 stars = 4–6 points, 3 stars = 7–9 points, 4 stars = 10–12 points, 5 stars = 13–15 points). Centers that choose not to participate in the quality assessments are assigned a rating of one star if they are a state licensed facility.

Data Preparation, Management, and Analysis

CQAT data were entered into SPSS from questionnaires by a team of research assistants. Online survey data was downloaded to an Excel spreadsheet and transferred electronically to SPSS. To clean the data sets after data was entered, a randomly selected twenty percent of the data were double entered and compared to the original data base to identify and correct any errors. Data cleaning helps ensure that data is accurately entered into the database and helps to prevent false analysis conclusions from incorrectly entered data. A different research assistant from the one who originally entered the data completed the data cleaning. Across all measures, less than 10% of the data had discrepancies discovered in the cleaning process. Any discrepancies were addressed by comparison to the original questionnaire or data form. Missing data was assessed and dealt with by measure before the data was merged. Details of how missing data was handled by measure are described below. The final sample for the current study was reduced from the original 192 teachers to a final sample of 135 teachers (63 toddler; 72 preschool) through the data preparation process. The process is discussed below. Data was originally managed and analyzed in separate databases by measure before being merged for study analyses.

Classroom Assessment Scoring System. The *CLASS* (Pianta, La Paro, & Hamre, 2008, 2009) data was prepared first. In order to be included in the current study, classrooms needed at least four usable cycles of *CLASS* scores. Per the manual, *CLASS* cycles were considered usable if they were between 10 and 20 minutes in length. Additionally, classrooms had to have at least four completed cycles to be included. Due to the observational and highly inferential nature of the *CLASS*, missing data was not imputed. For the *CLASS*, Toddler Version, seven cases were deleted

because they had cycle length out of the range, two were deleted for having less than four usable cycles, and three were deleted because of missing data. The remaining number of toddler classrooms for the study was 82. For the *CLASS*, PreK version, six cases were deleted because they had cycle length out of the range, two were deleted for having less than four usable cycles, and three were deleted because of missing data. The remaining number of toddler classrooms for the study was 87. *CLASS* dimension means for Positive Climate, Negative Climate, Teacher Sensitivity, Regard for Student Perspectives, and Behavior Management were computed across cycles the first four cycles for all cases.

One toddler classroom and one preschool classroom were observed from each participating center making it necessary to determine that there was not a dependency between these classrooms that may inflate findings. To test for this dependency, intraclass correlations were run between *CLASS* dimension scores from toddler and preschool classrooms within the same center. If dependency was determined to exist, then a significance level of $p < .01$ would be used to aid in determining relationships in the data that are systematic rather than due to chance (Shackman, 2001). If results from the intraclass correlations demonstrated that two classrooms from the same center are no different than two classrooms from different centers, it would be determined that dependency does not exist and a significance level of $p < .05$ will be used for analyses. Intraclass correlations for Positive Climate demonstrated that 13% (the intraclass correlation) of the variability occurred between centers while 87% occurred within centers. Negative Climate showed 0%, Teacher Sensitivity 19%, Regard for Student Perspective 34%, and Behavior Management 5% of variability between centers. According to Bickel (2007), none of these intraclass correlations are too high as to

suggest dependency although the correlation for Regard for Student Perspectives is approaching a level that could suggest bias. Due to the relatively low chance of dependency, $p < .05$ was used as the significance level.

NEO Five Factor Inventory. Four teachers out of the 192 sample did not complete the NEO personality assessment. Thus, the initial sample of completed NEO questionnaires was 188. Per the NEO user's manual (Costa & McCrae, 1992), missing data was assessed to see if any cases had 9 or more responses missing. If so, then these cases were unusable. However, none of the cases had more than nine missing responses. Less than 5% of the cases had missing data. Also per the NEO user's manual, remaining missing responses were filled in with the response of "3" or neutral. Sum scores were then computed for the five NEO domains of Neuroticism, Extraversion, Openness to New Experiences, Agreeableness, and Conscientiousness. Finally, NEO scores were converted to T scores using the cut-off guidelines in the NEO user's manual.

Teacher Satisfaction Inventory. The TSI was used to measure teacher education level, teacher professional development activities, teacher negative feelings about work, and teacher negative feelings about life. Thirty-two participants (17%) did not complete the TSI. Thus, the initial starting sample for this measure was 160 (78 toddler, 82 preschool). Out of those 160, 4 had more than 20% data missing on the 19 total variables used from this measure (including those used for the composites). These four cases were deleted leaving a total of 156. Two teachers were missing education level data. This information was transferred from the classroom roster. The missing data for the remaining 18 variables was imputed with estimated means using the values from teacher education level and years of experience to predict missing values (Rencher,

2002). For the current study, self-report questionnaire missing data was imputed while classroom observational data was not due to the highly inferential nature of the classroom measure as described above. All of the variables that had data imputed had 5% or less missing data with the exception of number of staff meetings (13% missing) and number of workshops (11% missing). Both of these variables were used for the professional development activities composite.

Finally, all of the data was merged into one database using teacher ID as the constant. The final N with full data after the merge was 135 teachers (63 toddler, 72 preschool).

CHAPTER V

RESULTS

The primary aim of this study was to examine the associations among teacher personal and professional characteristics and the quality of Emotional Support and Behavior Management teachers provide in their interactions with children in early childhood classrooms. The current study sought to further contribute to the literature by considering characteristics of teachers not typically studied as salient factors contributing to the effectiveness of early childhood classrooms including aspects of teachers' personal characteristics. For this study, personal characteristics include the personality domains of Neuroticism, Extraversion, Openness to New Experience s, Agreeableness, and Conscientiousness. Teachers' reported negative feelings about their work and life in general were included as exploratory variables. Further, this studied explored the hypothesis that teacher personality characteristics may contribute to teacher-child interactions above and beyond education and participation in professional development activities.

Preliminary Analyses

Preliminary analyses consisted mostly of measure specific analyses. Internal consistencies for each study measure are reported in the Methods section. Dependent variable (*CLASS* variable) means are included in research question 1. However, the means for the teacher specific variables measured by the NEO and TSI are illustrated in Tables 2 and 3. Interestingly, in terms of comparison to a normed sample of the general population (Costa & McCrae, 1992), the teachers in this study were significantly less

neurotic (t = -8.019, p = .000) and less open to new experiences (t = -3.516, p = .001). Study teachers were also significantly more extraverted (t = 5.860, p = .000), more agreeable (t = 5.929, p = .000), and more conscientious (t = 4.448, p = .000) than the normed sample included in the Costa & McCrae study. Thus, study teachers were significantly different than the normed sample on all NEO personality domains. The TSI is a new measure so comparisons of this sample mean to a normed sample mean was not possible for the teacher negative feelings about work and negative feelings about life composites. Means, standard deviations, and range for NEO and TSI variables are reported in Table 3.

Emotional Support Dimensions and Behavior Management

The first research question was descriptive in nature and examined the level of Emotional Support and Behavior Management observed in toddler and preschool early childhood classrooms participating in the CQAT study. Specifically, the level of Positive Climate, Negative Climate, Teacher Sensitivity, Regard for Student Perspectives, and Behavior Management as measured by the *CLASS* Pre-K (Pianta et al., 2008) and *CLASS* Toddler (Pianta et al., 2009) were assessed in both preschool and toddler classrooms, individually and combined.

Table 1 displays the means, standard deviations, and range for the five dimensions of Positive Climate, Negative Climate, Teacher Sensitivity, Regard for Student Perspective, and Behavior Management within the full sample and by toddler and preschool classroom subsamples. Positive Climate, Teacher Sensitivity, Regard for Student Perspectives, and Behavior Management were all observed using the average range of the scale (2.25 – 7.00, 2.00 – 6.80, 1.50 – 6.50, 1.75 – 7.00, respectively) while Negative Climate was observed in a more restricted range (1.00 – 4.25). Variable means

and ranges are similar to previous studies using the *CLASS* measures (La Paro, Pianta, & Stuhlman, 2004; Thomason & La Paro, 2009).

Using one-way ANOVA to compare toddler and preschool means on the *CLASS* variables, significant differences between the two types of classrooms were found (Table 4). Specifically, preschool classrooms were observed to have significantly higher means on the dimensions of Teacher Sensitivity (F = 4.633, p = .033) and Behavior Management (F = 14.427, p = .000) and a significantly lower mean on Negative Climate (F = 5.609, p = .019) than toddler classrooms. Figure 1 illustrates toddler and preschool *CLASS* mean scores.

Correlations Among Study Variables

The second research question was also descriptive in nature and examined the relationships among teacher personal characteristics (Neuroticism, Openness to New Experience, Extraversion, Agreeableness, Conscientiousness, teacher negative feelings about work and teacher negative feelings about life), professional characteristics (education level and professional development activities), Emotional Support dimensions and Behavior Management in ECE classrooms (Positive Climate, Negative Climate, Teacher Sensitivity, Regard for Student Perspective, Behavior Management). The full sample of ECE teachers (N = 135) was included in the correlation matrix to assess initial relationships among the variables. The moderating effects of classroom age-level were assessed in later analyses.

The center star level was also included in the correlation matrix to determine if it should be included as a control variable in the regression analyses. As described in the Measures section, the star level rating for child care centers in North Carolina are based on indices of quality. Thus, it would be expected that the scores would be positively

correlated with other indices of quality such as the *CLASS* scores used as dependent variables in this study. Table 5 displays the results of bivariate correlations among all of the study variables. Center star level was significantly related to all of the outcome variables at the $p < .01$ level. Thus, this variable was used as a control variable for all subsequent predictive analyses (Tabachnick & Fidell, 2001).

The *CLASS* variables used in this study were also all significantly correlated with each other at expected levels given their measurement of related constructs within the Emotional Support domain (Table 5). Although Behavior Management within the *CLASS* measure factors in the *CLASS* Classroom Organization domain, it is frequently correlated with Emotional Support dimensions (e.g. La Paro et al, 2004). The NEO personality variables were significantly related to each other at the $p < .01$ level with the exception of Openness to New Experiences which was not significantly related to Agreeableness or Conscientiousness. Based on previous research using the NEO, significant correlations among NEO personality characteristics were expected (Costa & McCrae, 1992).

Teacher education level was correlated with some of the Emotional Support dimensions including Teacher Sensitivity ($r = .208$, $p < .05$) and Regard for Student Perspectives ($r = .233$, $p < .01$) and was also significantly correlated with Behavior Management ($r = .296$, $p < .01$). The professional development composite did not produce significant correlations with any of the dependent variables. Also of note, teacher education level was not significantly correlated with the center star level as was expected while the teacher professional development composite was significantly correlated with center star level ($r = .196$, $p < .05$).

There were also a few interesting and unexpected correlations between the personality variables and professional variables of note. First, as teachers education and professional development activities increased, their level of Neuroticism significantly decreased ($r = -.172$, $p < .05$). Additionally, teachers who had more education were significantly more Conscientious than those teachers with less education ($r = .179$, $p < .05$).

Interestingly, none of the hypothesized correlations between teacher personality characteristics and teacher-child interaction variables were significant. Teachers' reported Negative Feelings about Work and Negative Feelings about Life were also not significantly correlated with any of the *CLASS* Emotional Support dimensions or Behavior Management. However, these two variables were significantly correlated with all of the NEO personality variables at the $p < .01$ level with the exception of Openness to New Experiences which was not significantly correlated with Negative Feelings about Work. In terms of their relations to other study variables, Negative Feelings about Work and Negative Feelings about Life were significantly correlated with the teacher professional development composite ($r = -.232$, $p < .01$ and $r = -.251$, $p < .01$, respectively) but not teacher education level.

Prediction of Emotional Support and Behavior Management

Multivariate multiple regression. The third and fourth research questions are predictive in nature and are concerned with predicting the Emotional Support dimension scores and Behavior Management scores using teacher personal and professional characteristics. Additionally, center star level was included as a control variable as described above. Given the multiple dependent variables, multivariate multiple regression was used to assess initial predictive relationships. Multivariate multiple

regression uses the General Linear Model to predict multiple dependent variables (Y1, Y2, etc) from two or more independent variables (X1, X2, etc). It allows for the prediction of one variable from another while simultaneously controlling for how they are influenced by the other study variables. The five types of teacher-child interactions used as dependent variables, Positive Climate, Negative Climate, Teacher Sensitivity, Regard for Student Perspective, and Behavior Management, are all moderately or highly correlated (La Paro et al., 2004; Thomason & La Paro, 2009). Thus, for initial prediction estimates, multivariate multiple regression is useful.

Initial hypotheses were that teacher personal variables would be predictive of the observed teacher-child interactions. However, given the non-significant correlations among the teacher personal characteristics and *CLASS* scores indicated in Table 5, the predictive analyses were not expected to be significant and results indicated that overall the teacher personal and professional characteristics were not very predictive of the Emotional Support dimension scores or Behavior Management scores. The control variable, North Carolina center star level, was significantly predictive of the dependent variables (F = 6.807, p = .000). The only other significant predictors in the multivariate multiple regression included teacher education level (F = 2.927, p = .016), classroom type (F = 6.218, p = .000), and Negative Feelings about Life (F = 2.296, p = .05), which was interesting given that it was not significantly correlated at the bivariate level with the dependent variables. In terms of the between-subjects effects of the full model, the total adjusted r^2 for Positive Climate was .094. For Negative Climate adjusted r^2 = .097; Teacher Sensitivity adjusted r^2 = .146; Regard for Student Perspective adjusted r^2 = .203; and Behavior Management adjusted r^2 = .261. Thus, very little of the variability in

the dependent variable scores was predicted by the study variables, particularly for Positive Climate and Negative Climate.

Given the unexpected finding that Negative Feelings about Life was a significant predictor in the multivariate multiple regression, post-hoc linear univariate regressions were performed using Negative Feelings about Life and Negative Feelings about Work as predictor variables. However, Negative Feelings about Life was not a significant predictor of any of the dependent variables independently, although it approached significance as a predictor of Positive Climate ($p < .07$). And interestingly, the same post-hoc analyses demonstrated the variable Negative Feelings about Work as a significant predictor of Positive Climate (controlling for center star level, education level, and professional development activities), even though this variable was not a significant predictor in the multivariate multiple regression.

Also post-hoc, the multivariate multiple regression was run without the inclusion of the control variable, center star level, to assess if there would be a difference in outcome. In this model, the significant variables did not change from the previous model. However adjusted r^2 were significantly lower for between-subject effects, suggesting that the center star level accounted for most of the prediction of scores. Positive Climate adjusted $r^2 = .029$; Negative Climate adjusted $r^2 = .025$; Teacher Sensitivity adjusted $r^2 = .036$; regard for student perspective adjusted $r^2 = .030$; and Behavior Management adjusted $r^2 = .136$.

Hierarchical regression and moderation. The final two research questions, 4a and 4b, had two foci. The first focus (a) concerned whether or not the professional characteristics were moderated by classroom age-level, toddler or preschool in their prediction of *CLASS* dimension scores. Table 7 displays the results. Hierarchical linear

regressions were calculated to test for the proposed moderation effects with classroom age-level with each dependent variable. To answer question 4a, interaction variables were created between classroom age-level and each of the teacher professional characteristics. Continuous professional characteristics were first centered by subtracting the mean from each of them. In the hierarchical regression analyses, center star level was entered into Block 1 as a control variable. Teacher professional characteristics were entered into Block 2. Block 3 contained the proposed moderator, classroom age-level. Block 4 contained the interaction variables between classroom age-level and teacher education and professional development activities. This method allowed for the differential prediction of the observed Positive Climate, Negative Climate, Teacher Sensitivity, Regard for Student Perspectives, and Behavior Management ratings from the professional characteristics by classroom age-level (Teacher Ed x Class type; Prof Dev. x Class type).

Similar to the findings in the multivariate multiple regression, only center star level and teacher education were significant predictors of any of the outcome variables. Given the hierarchical nature of the analyses, results also suggest that the classroom age-level, toddler or preschool, is predictive of observed Negative Climate ($\beta = -.206$, $p < .05$), Teacher Sensitivity ($\beta = .178$, $p < .05$) and Behavior Management ($\beta = .294$, $p < .001$) above and beyond the center's rated license level, teacher education, and teacher professional development activities.

In terms of moderation, there was a significant interaction between teacher education level and classroom age-level for the dimension of Regard for Student Perspectives ($\beta = .308$, $p < .01$). Classroom age-level, toddler or preschool, moderated this relationship such that in toddler classrooms, teachers with higher education scored

slightly lower on Regard for Student Perspectives while in preschool classrooms, teachers with more education scored higher on this dimension. A graph of the interaction is included in Figure 2.

The second focus of the final research question (b) was to determine whether or not teacher personal characteristics predicted Positive Climate, Negative Climate, Teacher Sensitivity, Regard for Student Perspectives, and Behavior Management above and beyond the professional characteristics of teachers and whether or not the prediction was moderated by class type, toddler or preschool. Table 8 displays the results. To answer question 4b, hierarchical linear regression with interaction terms was also used with one additional hierarchical block of variables. Center star level was entered into Block 1 as a control variable. Teacher professional characteristics were entered into Block 2. Block 3 contained the teacher personal variables. Block 4 contained the proposed moderator, classroom age-level. Block 5 contained the interaction variables between classroom age-level and the five teacher personality variables.

Although there was only one direct significant relationship between the teacher personal variables and dependent variables indicated in the multivariate multiple regression, the full model as proposed was run for each dependent variable as a hierarchical regression for exploratory purposes. Of note is that teacher Negative Feelings about Life was a significant positive predictor of Positive Climate scores (β = .361, $p < .05$) when the univariate regressions were run for Positive Climate, Negative Climate, Teacher Sensitivity, Regard for Student Perspectives, and Behavior Management independently. Prediction in the positive direction suggests that teachers who scored higher on Negative Feelings about Life also scored higher on Positive

Climate. This predictive power is significant above and beyond center star level, teacher education, and teacher professional development activities. Classroom age-level (toddler or preschool), was again a significant predictor for Negative Climate, Teacher Sensitivity, and Behavior Management as it was in the question 4a analyses. Also interestingly, teacher education level was a significant predictor of Teacher Sensitivity, Regard for Student Perspectives, and Behavior Management (these were also significantly correlated previously). However, in the 4a analyses, education level did not contribute to the predictive ability of the study variables.

Finally, in terms of moderation for question 4b, there were three interactions that showed significant negative prediction (see Table 8). These include Neuroticism x Classroom-age level ($\beta = -.355$, $p < .05$), Openness to New Experiences x Classroom-age level ($\beta = -.234$, $p < .05$), and Agreeableness x Classroom-age level ($\beta = -.317$, $p < .05$). Classroom age-level, toddler or preschool, moderated the relationship between Neuroticism and Behavior Management such that in toddler classrooms, teachers with higher Neuroticism had higher scores on Behavior Management while in preschool classrooms, teachers with more Neuroticism scored lower on this dimension. A graph of the interaction is included in Figure 3.

Classroom age-level, toddler or preschool, also moderated the relationship between Openness to New Experiences and Behavior Management. This moderation suggests that in preschool classrooms, teachers with higher Openness to New Experiences scored lower on Behavior Management while in toddler classrooms, teacher Openness to New Experiences was not a significant contributor to the Behavior Management score. A graph of the interaction is included in Figure 4. Finally, the relationship between teacher Agreeableness and Behavior Management was also

moderated by classroom age level. For toddler teachers, higher levels of Agreeableness were associated with higher Behavior Management scores. However, for preschool teachers, higher levels for Agreeableness were associated with lower Behavior Management scores. A graph of the interactions is included in Figure 5.

CHAPTER VI

DISCUSSION

In recent years, research on early childhood teachers has increased as the number of children attending early childhood programs in the United States has grown exponentially (Mulligan, 2005; U.S. Department of Education, 2009). Finding teacher characteristics that are predictive of effective early childhood classrooms is important in order to inform the education and professional development of teachers. Education level, specialization, and professional development activities are commonly studied teacher characteristics in relation to classroom quality. However, the majority of studies to date have not included teacher personal characteristics as possible contributors to classroom effectiveness. This is problematic, particularly due to the importance of relationships and quality interactions in effective early childhood classrooms. Recent research supports the importance of quality Emotional Support and Behavior Management for positive child outcomes in the classroom (Howes et al., 2008; Mashburn et al., 2008) and theory suggests that these kinds of adult-child interactions have an influence on child development and learning (Bronfenbrenner, 2001; Pianta, 1999). Thus, personal factors that could contribute to how teachers interact with children should be considered. Identifying teacher characteristics that may contribute to the quality of these interactions may help to improve the effectiveness of early childhood programs overall by aiding in determining where quality improvement efforts should be focused. The primary aim of the current study was to explore the relationships among teacher personal characteristics, professional characteristics, and Emotional Support dimensions and

Behavior Management as measured by the *CLASS* (Pianta et al., 2008) in early childhood classrooms.

Describing ECE Classrooms and Teachers

The first specific aim of the study was to examine Positive Climate, Negative Climate, Teacher Sensitivity, Regard for Student Perspectives, and Behavior Management (as measured by the *CLASS,* Pianta et al., 2008) in toddler and preschool classrooms participating in the CQAT. Consistent with previous research (La Paro et al., 2004; Thomason & La Paro, 2009), observed classroom means for Positive Climate, Teacher Sensitivity, Regard for Student Perspective, and Behavior Management fell within the mid-range of the seven point *CLASS* scale, suggesting that the average quality of classroom interactions in early childhood classrooms in these dimensions is mediocre.

However, also consistent with previous studies, the classroom scores utilized the full possible scales of the *CLASS* measures (Pianta et al., 2008). This suggests a large discrepancy in quality among classrooms with some scoring very high on the Emotional Support dimensions and Behavior Management with others scoring lower on these dimensions. While the goal would be for early childhood classrooms to improve quality and consistently score high, rather than mediocre, on dimensions of quality, the discrepancy in quality among classrooms is of bigger concern to the field. Since this was a stratified sample based on center star level, it would be expected that quality scores would be diverse. However, the large range in quality found within this sample and many other large scale studies of early childhood program quality (e.g. Helburn et al., 1995; LoCasale-Crouch et al., 2007) is problematic.

Additionally, this sample displayed significant differences in scores on three of the quality variables between toddler and preschool classrooms. Toddler classrooms were significantly higher in Negative Climate and scored significantly lower in Teacher Sensitivity and Behavior Management. As described in the Methods, the *CLASS* measures differ somewhat between the toddler and preschool versions. However, they are similar enough that comparison is possible. Additionally, even though the differences were not significant, the toddler classrooms also scored lower than preschool classrooms on average on both Positive Climate and Regard for Student Perspectives. This consistent lower quality on observed Emotional Support dimensions and Behavior Management, particularly the significantly lower quality for Negative Climate, Teacher Sensitivity, and Behavior Management dimensions in toddler classrooms is both consistent with prior research (Helburn et al., 1995; Thomason & La Paro, 2009) and of concern due to developmental characteristics in the toddler period requiring sensitive caregivers and effective and consistent behavior guidance strategies for optimal development (Brownell & Kopp, 2007; Calkins, 2007).

In terms of personality variables (i.e. scores on the NEO), the teachers participating in this study were significantly different than a normed sample (Costa & McCrae, 1992). This difference was also demonstrated in a sample of pre-service teachers recently assessed with the NEO (Decker & Rimm-Kaufmann, 2008). However, in their sample of pre-service teachers, the teachers scored consistently higher on all of the personality domains than the normed sample. This was not the case for the current sample of in-service teachers. Like the pre-service sample, this group of teachers scored significantly higher than the normed sample on Extraversion, Agreeableness, and Conscientiousness. Interestingly, teachers in the current sample scored lower than the

normed sample on two of the personality domains, Neuroticism and Openness to New Experiences.

This current sample of teachers is different from that pre-service sample in a variety of ways. It is more diverse in age, previous experience, education, and ethnicity. These differences likely contribute to the differences on the personality scores of the two samples. However, this finding is important in terms of understanding how teachers may react to proposed feedback from administrators or mentors, in-service training, and programmatic changes. The NEO domain of Openness to New Experiences encompasses a person's enjoyment of new experiences and openness to change. This trait likely has an influence on the ease at which a teacher accepts and assimilates new changes into their classroom. Additionally, it may be the case that Openness to New Experiences helps fuel a person's desire to attend college. Thus, this may be important for administrators to understand in terms of approaching how the change is proposed to college educated vs. non-college educated teachers as well as taken into consideration as many current in-service teachers are being required to return to school to complete a college degree. However, more research is needed on this topic before assumptions are made about the importance of these characteristics in teacher development.

Finally, while initially it may seem like a positive aspect for in-service teachers to be, on average, less neurotic than their pre-service counterparts, further research is also needed in this area to determine if the divide on Neuroticism is between pre-service and in-service teachers or if it is between college educated and non-college educated teachers. If it is the former, prior research would suggest that teachers with lower neuroticism (in-service teachers) would have more work satisfaction and less job-related stress than teachers higher on neuroticism (Sutin and Costa, 2010). If it is the latter,

there may be a positive aspect of higher levels of neuroticism in terms of helping a person persist through college and have the needed skills, such as organization and time management, necessary to do so. In the current sample, teacher education level was significantly negatively correlated to Neuroticism. The negative correlation suggests that as education level increases Neuroticism decreases. However, other research has shown the opposite (see De Raad & Schouwenberg, 1996 for a review). Thus, it is possible that this relationship may be curvilinear in nature and that aspects of the Neuroticism trait somehow serve as positive characteristics in terms of completing a college degree. Further research is needed in this area.

Relationships Among Study Variables

As discussed in the “Theoretical Perspectives” chapter, Pianta (1999) emphasizes the systemic nature of classrooms, suggesting that critical school-related skills such as self-regulation are not owned by a child alone but rather a function of a system. For example, in a classroom, that system consists of a number of variables, including characteristics of the teacher and children, teacher-child interactions and relationships, the administration of the program, the classroom physical environment, and the social and historical time, to name a few. Thus, from this perspective, the relationships among classroom variables are important indicators of how the classroom functions as a system. The second aim of the current study was to examine the associations among teacher personal characteristics, professional characteristics, and observed Emotional Support dimensions and Behavior Management in early childhood classrooms. Of particular interest, was how teacher personal characteristics were related to established predictors of teacher Emotional Support and Behavior Management, such as teacher education level.

The main hypothesized significant relationships between teacher personality characteristics and the observed Emotional Support dimensions and Behavior Management in early childhood classrooms did not emerge in the correlational analyses. Thus, it is possible that there may not be a relationship between these variables for early childhood teachers as has been demonstrated in the parenting literature (Belsky & Barends, 2002) and higher education literature (Zhang, 2007). However, there is evidence that elementary level classrooms are affected by teacher personality characteristics (Rushton et al., 2007), thus it may be that the design of the current study did not capture the relationships that do exist or that there are other covariates that need to be included. Further discussion of potential limitations of the current study is provided in the “Limitations” section below.

Consistent with prior research with the *CLASS* (Pianta et al., 2008), teacher education level was significantly related to their observed Teacher Sensitivity, Regard for Student Perspectives, and Behavior Management interactions in the classroom. Also of interest, Positive Climate and Negative Climate were not related to teacher education suggesting that these may be more influenced by teacher personal characteristics than professional characteristics. However, teacher education level was the only independent variable that was significantly related to any of the observed teacher-child interaction dimensions for the full sample. Thus, the current study provides further support for the importance of teacher education to the effectiveness of teacher-child interactions in early childhood classrooms. Limitations of the way education was measured and collapsed are discussed below. However this finding is important given the current debate about the value of teacher education in ECE.

While there was a lack of significant relationships among the teacher personal characteristics and teacher-child interaction dimensions, there were some interesting relationships that emerged from the data between the teacher professional variables and the personality domains. For example, teacher education level and professional development activities were both negatively correlated with teacher Neuroticism such that as they increased, neuroticism decreased. The professional development activities of teachers were also positively related to Extraversion and Openness to New Experiences and education level was positively related to Agreeableness. While these are interesting correlations, they are difficult to interpret given the limited previous research to draw upon to aid interpretation. However, it is encouraging that more professional development activities is related to higher scores on the Openness to New Experiences domain. This finding is relevant in terms of understanding participation differences among staff in professional development activities.

Finally, significant correlations also emerged between the variables of teacher Negative Feelings about Work and Negative Feelings about Life and several of the personality domains and professional characteristics. First, these two variables were negatively correlated with professional development activities. This indicated that the more professional development activities the teachers participated in, the lower they scored on Negative Feelings about Work and Negative Feelings about Life. This is an encouraging finding that supports the kinds of professional development activities measured such as attending workshops and staff meetings and belonging to a professional organization. It is possible that these kinds of activities may raise self-efficacy, esteem, or confidence in the teachers, thus reducing their experience of negative feelings.

Additionally, both of the variables were significantly correlated with all of the personality domains with the exception of Negative Feelings about Work and teacher Openness to New Experiences. This suggests that these variables may measure similar constructs as the personality domains. Since the Teacher Satisfaction Inventory is a new measure that is not yet validated, these correlations also provide support for the validity of these two scales (Gough, 1965). However, given the lack of significant correlations among the variables and the classroom Emotional Support dimensions and Behavior Management, no further support for the study hypotheses is provided by the exploratory variables. This is not the case, however, in the predictive analyses.

Predicting Emotional Support and Behavior Management

The final aims of the current study were to examine teacher personal and professional predictors of observed dimensions of Emotional Support and Behavior Management and to examine how the prediction of these dimensions may differ between toddler and preschool classrooms. Of additional interest was whether or not the teacher personal characteristics predicted the Emotional Support dimensions and Behavior Management above and beyond the predictive ability of the professional characteristics.

The initial multivariate multiple regression revealed education level, class type (toddler or preschool), center star level, and Negative Feelings about Life as significant predictors of the dependent variables. Thus, none of the personality variables were significant predictors of teacher Emotional Support dimensions or Behavior Management. However, the TSI composite variable Negative Feelings about Life was a significant predictor, indicating that teacher personal characteristics do influence classroom Emotional Support and Behavior Management. This was a surprising and interesting finding, given the conservative nature of multivariate multiple regression and

the lack of initial correlations between this variable and the dependent variables. Moreover, Negative Feelings about Life was positively correlated with all of the personality domain scores (except Neuroticism which was negatively correlated) so it is plausible that they measure similar constructs. The hierarchical linear regressions also demonstrated Negative Feelings About Life as a significant positive predictor of Positive Climate above and beyond center star level and teacher professional characteristics.

The hierarchical regressions added two main pieces of information beyond what the multivariate multiple regression could provide. First, they helped to explain how the predictor variables were related to each of the dependent variables. Second, they added information about how the relationships differ in toddler and preschool classrooms. Teacher education significantly positively predicted observed Teacher Sensitivity, Regard for Student Perspective, and Behavior Management. As previously mentioned, these findings are similar to other studies comparing teacher education and Emotional Support and Behavior Management (Pianta et al., 2005). However, the type of classroom mattered for prediction of Negative Climate, Teacher Sensitivity, and Behavior Management scores. Negative Climate was significantly higher in toddler classrooms while Teacher Sensitivity and Behavior Management were significantly lower. Again as previously mentioned, this finding is consistent with previous research (Helburn et al., 1995) but disheartening for the millions of toddlers that attend child care every day.

There are several reasons why these differences between toddler and preschool classrooms might have emerged. First, education was significantly related to Teacher Sensitivity and Behavior Management and toddler teachers had less education (although not significantly) than the preschool teachers. Thus, teacher education might have

contributed to the lower scores in the toddler classrooms. Additionally, negative climate may have been significantly higher in toddler classrooms because of the developmental nature of toddlers. On average, toddlers are less effective at regulating their emotions and behaviors than preschool-aged children (Calkins, 2007). This difference would likely contribute to more expression of negativity in toddler classrooms.

Finally, there were four significant interactions that emerged in the hierarchical regressions. Given the difficulty in finding significant interactions, (Jaccard & Turrisi, 2003), these are important findings. First, class type of toddler or preschool moderated the relationship between teacher education level and the observed Regard for Student Perspectives. The graphing of this interaction (see Figure 2) revealed that higher education levels increased for preschool teachers were associated with higher classroom scores on Regard for Student Perspectives. However, for toddler teachers the opposite was true. As education level for toddler teachers increased, their scores on Regard for Student Perspectives decreased. The initial interpretation seems to be counter-intuitive. However, speculatively, it is possible that this moderation exists because education in itself is not as important for toddler teachers as is education about what is developmentally appropriate important for toddlers.

The dimension of Regard for Student Perspectives encompasses a lot of aspects of Developmentally Appropriate Practice (Copple & Bredekamp, 2009) including allowing movement, child expression, supporting autonomy, and being flexible rather than rigid. Many teachers today are put in toddler classrooms after having their education and previous experience with children preschool-age and above. Thus, many toddler teachers struggle with providing developmentally appropriate care for children. And since many teachers who go through formal education are interested in working with

older children, it is possible that this finding suggests that toddler teachers with more formal education may be trying to implement a curriculum in toddler classrooms that would be better suited for older classrooms. However, this is all speculative, and much more research is needed to both replicate this finding and to explore why it may exist.

The second significant interaction (see Figure 3) demonstrated that class type, toddler or preschool, moderated the relationship between teacher Neuroticism and Behavior Management. Specifically, preschool teachers who were higher on Neuroticism had lower Behavior Management scores. For toddler teachers, the opposite was true. Toddler teachers who had higher Neuroticism had higher Behavior Management scores. Speculatively, there are two possible explanations for this difference. First, there may be something about the trait of Neuroticism that enables toddler teachers to provide more effective Behavior Management for toddlers. Toddlers need constant supervision and intervention, more so than preschool children. Thus, higher anxiety and worry may enable a toddler teacher to do this. The other possible explanation is that this interaction is a product of the differences between the toddler and pre-k versions of the *CLASS* (Pianta et al., 2008). As mentioned in the Methods section, Behavior Management differs between the two versions more than for the other measured dimensions. The Pre-K version includes student behavior in the score while the toddler version does not. Thus, this difference could also have contributed to this interaction occurring.

The third significant interaction (see Figure 4) demonstrated that class type, toddler or preschool, also moderated the relationship between teacher Openness to New Experiences and Behavior Management. Specifically, preschool teachers who scored higher on the personality domain of Openness to New Experiences scored lower on Behavior Management. For toddler teachers, Openness to New Experiences did not

significantly predict their Behavior Management scores. As with the previous interaction, there are at least two possible, reasons this interaction may have occurred. First, given that those scoring lower on Openness to New Experiences tend to be set in their ways, this trait may be beneficial to providing consistent and clear behavioral expectations for children. However, why this would be true only for preschool teachers is unclear. Second, it is again possible that this interaction occurred or was inflated due to the differences in Behavior Management between the two versions of the *CLASS* manual (Pianta et al., 2008).

Finally, the last significant interaction (see Figure 5) demonstrated that class type, toddler or preschool, moderated the relationship between teacher Agreeableness and Behavior Management. Specifically, preschool teachers that scored lower on Agreeableness had higher Behavior Management scores while for toddler teachers the opposite was true. Toddler teachers scoring higher on Agreeableness had higher Behavior Management scores. As with the other class type interactions involving Behavior Management and teacher personality, this is possibly a product of the differences between *CLASS* manuals. Specifically, in the Pre-K version, student behavior is considered in the score. Student behavior may have less to do with the teacher's personality than his/her behavior alone. Thus, the teacher personality characteristics may differentially predict the toddler teacher Behavior Management scores than the scores of the preschool teachers. Given the interactions found with Behavior Management, further research focusing on this dimension and teacher personality is warranted.

Limitations

There are some limitations of the current study that may have contributed to the lack of hypothesized findings. First, although the sample size was adequate for educational research, it was still rather small given the number of predictors included in the analyses. The expense of observational research often limits the number of programs in a research study. Additionally, data collection was extensive for each participating program, thus getting programs to agree to participate was difficult. Overall, a larger sample size may have more beneficial for detecting the hypothesized associations.

Second, one of the main purposes of the larger CQAT study was to pilot newer child care quality measures to see how they may relate to established measures of child care quality and the center star level. The Teacher Satisfaction Inventory (Cassidy, 2009) provided several of the variables used in the current study. However, this measure has not yet been validated and is not yet a reliable measure of teacher satisfaction. Thus, any findings involving the TSI should be replicated in other samples once more reliability and validity work is done on that measure.

There were also a few limitations involving specific study variables. Negative Climate commonly has restricted range (Pianta et al., 2008) as was the case with this study. When using regression methods, limited range of a variable can increase the risk of Type II error (Howell, 2007). The measures of teacher professional characteristics also presented some limitations. In terms of teacher education, the original measure included eleven options which were collapsed into four categories due to the small numbers of teachers in some of the categories. Of particular concern was the largest category “no college degree” which included within it teachers who had only a high

school diploma up through those who may have been very close to graduating with a bachelor's degree. The content of these degrees was also not considered. In terms of teacher professional development, the composite developed for this variable contains aspects of both teacher chosen professional development activities and employer required professional development activities. Thus, it may not accurately measure teacher initiated professional development activities. Finally, while this study demonstrates some correlations of interest among key variables, it was not a random assignment or experimental design. Thus, claims about causality cannot be made.

Conclusions

The current study provides several implications and future directions for research and practice in ECE. First, in terms of theoretical implications, it provides support for both Bronfennbrenner's PPCT model (2001) and Pianta's (1999) systems perspective for the classroom as described in Theoretical Perspectives (see chapter 2). It demonstrates support for at least two different kinds of person characteristics that are related to proximal processes in the classroom, personal and professional. Additionally, this study provides support for Early et al.'s (2007) assertion that the way in which education is related to teacher effectiveness in ECE is complicated and that it is likely not a causal relationship. The way in which the education variable was (or was not) related to the other study variables was complex, and difficult to explain. Theoretically, this provides support for Pianta's (1999) assertion that teachers are their own developing systems in the classroom, and their characteristics are bi-directionally influencing the classroom at a multi-dimensional level. In terms of research implications for teacher education, continuing to focus research on the specific kinds of education that may be

important for teachers in ECE and what other teacher and classroom variables that may be related to teacher education is a needed focus area.

It is important to note that this was the first study to examine teacher personal characteristics in relation to Emotional Support dimensions and Behavior Management in ECE classrooms and it does provide limited support for teacher personal characteristics influencing these dimensions. The support it provides suggests that the relationships are complicated and not necessarily causal. In addition to focusing on larger samples, future studies should consider approaching personality in a different way and possibly focus on looking at relationships between Emotional Support and Behavior Management and the extremes of the scale for the personality domains, rather than correlations with the means of these scales. It is possible that some of the personality domains may not significantly contribute to Emotional Support and Behavior Management unless a teacher is extremely high or low on that scale. Using cluster analysis or logistic regression to profile teachers on these domains may also provide additional information. Certain profiles of teacher's personalities may have more influence on their classroom behaviors than looking at each domain individually. The Myers-Briggs personality assessment (Myers & McCaulley, 1985) is another possible way to focus on personality profiles. This measure provides profiles from four different personality variable combinations and has been used previously in research on teacher effectiveness (Rushton et al., 2007; Sears et al., 1997).

Additionally, since teacher Negative Feelings about Life was a significant predictor of Emotional Support and Behavior Management, focusing research on the variables from this composite such as reported depression, satisfaction with life, and anxiety, among others, is warranted. Moreover, this variable specifically predicted

Positive Climate, suggesting that personal characteristics may be more predictive of certain aspects of the classroom climate, such as teacher enthusiasm, affection, and positive affect, while education is more predictive of dimensions such as Teacher Sensitivity, Regard for Student Perspectives, and Behavior Management. Thus, it is important to identify what kinds of behaviors are malleable and which ones are less changeable through education, mental health support, and reflection.

Additionally, the discrepancy in scores on Emotional Support and Behavior Management in toddler and preschool classrooms is problematic from the perspective of families who may have little access to quality programs because of financial or geographical constraints. Thus, continued focus on providing higher quality programs for toddlers is an important challenge for the field, particularly as the number of children entering child care at this stage or younger continues to increase.

Finally, additional future directions that this research suggests include looking into the stability of teacher personal characteristics longitudinally, particularly over the completion of educational and professional development activities. Identifying those personal characteristics that are most changeable for teachers should assist with focusing professional development initiatives. Similarly, testing interventions aimed at changing and improving aspects of teacher's personal characteristics, particularly in relation to mental health, social-emotional competence, and behavior guidance skills should be a focus of future research. Currently, there are several interventions being developed and piloted involving these personal characteristics of teachers including emotional intelligence training and mindfulness practices among others (Jennings & Greenberg, 2009). Finally, an important and related implication for practice is that it is important for those working in the field of ECE not to assume that teachers have the

personal characteristics necessary to provide effective Emotional Support and Behavior Management in ECE classrooms. Given the importance of these teaching behaviors for child social-emotional outcomes, more attention to teacher personal characteristics in practice is needed (Pianta, 1999; Jennings & Greenberg, 2009).

REFERENCES

Administration of Children and Families, Office of Head Start. (n.d). *Legislation & Regulations.* Retrieved from ACF website: http://www.acf.hhs.gov/programs/ohs/legislation/index.html

Ahn, H. J. (2005a). Child care teachers' strategies in children's socialization of emotion. *Early Childhood Development and Care, 175,* 49-61.

Ahn, H. J. (2005b). Teachers' discussions of emotion in child care centers. *Early Childhood Education Journal, 32,* 237-242.

Ahn, H. J. & Stifter, C. (2006). Child care teachers' response to children's emotional expression. *Early Education and Development, 17,* 253-270.

Ainsworth, M. D. S., Blehar, M., Waters, E., Wall, S. (1978). *Patterns of Attachment*. Hillsdale, NJ: Erlbaum.

Allport, G. W. (1937). *Personality: A psychological interpretation.* New York: Henry Holt.

Barrick, M. R. & Mount, M. K. (2005). Yes, personality matters: Moving on to more important matters. *Human Performance, 18,* 359-372.

Bell, M. A. & Wolfe, C. D. (2004). Emotion and cognition: An intricately bound developmental process. *Child Development, 75,* 366-370.

Belsky, J. & Barends, N. (2002). Personality and parenting. In M. H. Bornstein (Ed.), *Handbook of Parenting* (pp. 415-438). Mahwah, NJ: Lawrence Erlbaum.

Belsky, J, Crnic, K., & Woodworth, S. (1995). Personality and parenting: Exploring the mediating role of transient mood and daily hassles. *Journal of Personality, 63,* 905-931.

Berlin, L. J. & Cassidy, J. (2003). Mothers' self-reported control of their preschool children's emotional expressiveness: A longitudinal study of associations with infant-mother attachment and children's emotion regulation. *Social Development, 12,* 447-495.

Bickel, R. (2007). *Multilevel Analysis for Applied Research.* New York: The Guilford Press.

Blair, C. (2002). School readiness: Integrating cognition and emotion in a neurobiological conceptualization of children's functioning at school entry. *American Psychologist, 57,* 111-127.

Bowers, N. D. & Soar, R. S. (1962). The influence of teacher personality on classroom interaction. *Journal of Experimental Education, 30,* 309-311.

Bowlby, J. (1969). *Attachment and Loss: Vol.1: Attachment*. New York: Basic Books.

Bowman, B. T., Donovan, M. S., & Burns, M. S. (Eds.). (2001). *Eager to learn: Educating our preschoolers.* Washington, DC: National Academy Press.

Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by nature and design.* Cambridge, MA: Harvard University Press.

Bronfenbrenner, U. (2001). The bioecological theory of human development. In N.J. Smelser & P. B. Baltes (Eds.), *International encyclopedia of the social and behavioral sciences* (Vol. 10, pp. 6963-6970). New York: Elsevier.

Bronfenbrenner, U. & Ceci, S. J. (1994). Nature-nurture reconceptualized in developmental perspective: A bioecological model. *Psychological Review, 101,* 568-586.

Bronfenbrenner, U. & Morris, P. (1998). The ecology of developmental processes. In W. Damon (Series Ed.) & R. M. Lerner (Vol. Ed.), *Handbook of child psychology: Vol. 1. Theoretical models of human development* (5th ed., pp. 993-1028). New York: John Wiley.

Brownell, C. A. & Kopp, C. B. (2007). Transitions in toddler socioemotional development: Behavior, understanding, relationships. In C. A. Brownell and C. B. Kopp (Eds.), *Transitions in Early Socioemotional Development: The Toddler Years* (pp. 1-40). New York: Guildford Press.

Bueno, M., Darling-Hammond, L., Gonzales, D. (2010). *A matter of degrees: Preparing teachers for the pre-k classroom.* Pre-K Now, Pew Center on the States, Washington, DC.

Calkins, S. D. (2007). The emergence of self-regulation: Biological and behavioral control mechanisms supporting toddler competencies. In C. A. Brownell and C. B. Kopp (Eds.), *Transitions in Early Socioemotional Development: The Toddler Years* (pp. 261-284). New York: Guildford Press.

Calkins, S.D. & Williford, A. P. (2009). Taming the terrible twos: Self-regulation and school readiness. In O. A. Barbarin & B. H. Wasik (Eds.) *Handbook of child development and early education: Research to practice.* (Chapter 9, pp. 172-198). New York: Guilford.

Cano-Garcia, F. J., Padilla-Munoz, E. M., & Carrasco-Ortiz, M. A. (2005). Personality and contextual variables in teacher burnout. *Personality and Individual Differences, 38,* 929-940.

Cassidy, D. J. (2009). *Comfort and Contentedness of Children in Child Care.* Unpublished measure. The University of North Carolina at Greensboro.

Cassidy, D. J. (2009). *Teacher Satisfaction Inventory.* Unpublished measure. The University of North Carolina at Greensboro.

Cassidy, J. (1994). Emotion regulation: Influences of attachment relationships. *Monographs of the Society for Research in Child Development, 59,* 228-249.

Clark, L., Kochanska, G., & Ready, R. (2000). Mother's personality and its interaction with child temperament as predictors of parenting. *Journal of Personality and Social Psychology, 79,* 274-285.

Copple, C. & Bredekamp, S. (2009). *Developmentally appropriate practice in early childhood programs serving children from birth through age eight,* 3rd ed. Washington D. C.: NAEYC.

Costa, P.T. & McCrae, R.R. (1992). Revised NEO personality inventory (NEO-PI-R) and NEO five-factor inventory (NEO-FFI) professional manual. Odessa, FL: Psychological Assessment Resources.

DeBord, K., Hestenes, L. L., Moore, R. C., Cosco, N. G., McGinnis, J. R. (2005). *Preschool Outdoor Environment Measurement Scale.* Lewisville, NC: Kaplan Press.

Decker, L. E. & Rimm-Kaufman, S. E. (2008). Personality characteristics and teacher beliefs among pre-service teachers. *Teacher Education Quarterly, 35,* 45-53.

de Kruif, R. E. L., McWilliam, R. A., Ridley, S. M., & Wakely, M. B. (2000). Classification of teachers' interaction behaviors in early childhood classrooms. *Early Childhood Research Quarterly, 15*, 247 – 268.

De Raad, B. & Schouwenberg, H. C. (1996). Personality in learning and education: A review. *European Journal of Personality, 10,* 303-336.

Denham, S. A. (1997). "When I have a bad dream, mommy holds me": Preschoolers' conceptions of emotions, parental socialization, and emotional competence. *International Journal of Behavioral Development, 20,* 301-319.

Denham, S. A. & Auerbach, S. (1995). Mother-child dialogue about emotions and preschoolers' emotional competence. *Genetic, Social, & General Psychology Monographs, 121,* 311-337.

Dietz, L. J., Jennings, K. D., & Abrew, A. J. (2005). Social skill in self-assertive strategies of toddlers with depressed and nondepressed mothers. *The Journal of Genetic Psychology, 166,* 94-116.

Dodge, A. F. (1943). What are the personality traits of the successful teacher? *Journal of Applied Psychology, 27,* 325-337.

Early, D. M., Bryant, D. M., Pianta, R. C., Clifford, R. M., Burchinal, M. R., Ritchie, S. (2006). Are teachers' education, major, and credentials related to classroom quality and children's academic gains in pre-kindergarten? *Early Childhood Research Quarterly, 21,* 174-195.

Early, D. M., Maxwell, K. L., Burchinal, M., Alva, S., Bender, R. H., Bryant, D.,….Zill, N. (2007). Teachers' education, classroom quality, and young children's academic skills: Results from seven studies of preschool programs. *Child Development, 78,* 558-580.

Eisenberg, N., Spinrad, T. L., & Cumberland, A. (1998). The Socialization of Emotion: Reply to Commentaries. *Psychological Inquiry, 9*, 317-333.

Egan, V., Deary, I., & Austin, E. (2000). The NEO FFI : emerging British norms and an item-level analysis suggest N, A, and C are more reliable than O and E. *Personality and Individual Differences, 29,* 907-920.

Erikson, E. H. (1950). *Childhood and Society.* New York: Norton.

Fairhurst, A. M. & Fairhurst, L. L. (1995). *Effective teaching effective learning: Making the personality connection in your classroom* (1st ed). Palo Alto, CA: Davis-Black.

Feldman, K. A. (1986). The perceived instructional effectiveness of college teachers as related to their personality and attitudinal characteristics. *Research in Higher Education, 24,* 139-175.

Fisher, D. L. & Kent, H. B. (1998). Associations between teacher personality and classroom environment. *Journal of Classroom Interaction, 33,* 5-13.

Fitzgerald, H. E., Barnes, J., & Almerigi, J. (2007). A systemic approach to assessment of normative and atypical socioemotional function in toddlers. In C. A. Brownell and C. B. Kopp (Eds.), *Transitions in Early Socioemotional Development: The Toddler Years* (pp. 451-481). New York: Guildford Press.

Ford, D. H. & Lerner, R. M. (1992). *Developmental systems theory: An integrative approach.* Newbury Park, CA: Sage.

Fukkink, R. G. & Lont, A. (2007). Does training matter? A meta-analysis and review of caregiver training studies. *Early Childhood Research Quarterly, 22,* 294-311.

Fuligni, A. S., Howes, C., Lara-Cinisomo, S., & Karoly, L. (2009). Diverse pathways in early childhood professional development: An exploration of early educators in public preschools, private preschools, and family child care homes. *Early Education and Development, 20, 507-526.*

Goldsmith, D. F. & Rogoff, B. (1995). Sensitivity and teaching by dysphoric and nondysphoric women in structured and unstructured situations. *Developmental Psychology, 31,* 388-394.

Goldstein, L., Diener, M., & Mangelsdorf, S. (1996). Maternal characteristics and social support across the transition to motherhood. *Journal of Family Psychology, 10,* 60-71.

Gough, H. G. (1965). Conceptual analysis of psychological test scores and other diagnostic variables. *Journal of Abnormal Psychology, 70,* 294-302.

Hamre, B. K. & Pianta, R. C. (2004). Self-reported depression in nonfamilial caregivers: Prevalence and associations with caregiver behavior in child-care settings. *Early Childhood Research Quarterly, 19,* 297-318.

Hamre, B. K. & Pianta, R. C. (2005). Can instructional and emotional support in the first-grade classroom make a difference for children at risk of school failure? *Child Development, 76,* 949-967.

Hamre, B. K., Pianta, R. C., Downer, J. T., & Mashburn, A. J. (2007). Teachers' perceptions of conflict with young students: Looking beyond problem behaviors. *Social Development, 17,* 115-136.

Harms, T., Clifford, R. M., & Cryer, D. (2005). *Early childhood environment rating scale – revised edition.* New York: Teachers College Press.

Harms, T., Cryer, D., & Clifford, R. M. (2003). *Infant/toddler environment rating scale – revised edition.* New York: Teachers College Press.

Helburn, S. W. (1995). *Cost, Quality, and Child Outcomes in Child Care Centers, Technical Report,* Denver, Department of Economics, Center for Research in Economic and Social Policy, University of Colorado at Denver.

Horm-Wingerd, D. M., Caruso, D. A., Gomes-Atwood, S., & Golas, J. (1997). Head Start teaching center: Evaluation of a new approach to Head Start staff development. *Early Childhood Research Quarterly, 12,* 407-424.

Howell, D. C. (2007). *Statistical methods for psychology* (6th ed.). Belmont, CA: Thomson.

Howes, C., Burchinal, M., Pianta, R., Bryant, D., Early, D., Clifford, R., & Barbarin, O. (2008). Ready to learn? Children's pre-academic achievement in pre-kindergarten programs. *Early Childhood Research Quarterly, 23(1), 27-50.*

Howes, C., Phillips, D. A., & Whitebook, M. (1992). Thresholds of quality: Implications for the social development of children in center-based child care. *Child Development, 63,* 449-460.

Howes, C. & Spieker, S. (2008). Attachment relationships in the context of multiple caregivers. In J. Cassidy and P. R. Shaver (Eds.), *Handbook of Attachment* (2nd ed., pp. 317-332). New York: Guilford.

Hurtz, G. M. & Donovan, J. J. (2000). Personality and job performance: The big five revisited. *Journal of Applied Psychology, 85,* 869-879.

Kopp, C. B. (1989). Regulation of distress and negative emotions: A developmental view. *Developmental Psychology, 25,* 343-354.

Jaccard, J., & Turrisi, R. (2003) *Interaction effects in multiple regression.* Newbury Park: Sage.

Jameson, P. B., Gelfand, D. M., Kulcsar, E., & Teti, D. M. (1997). Mother-toddler interaction patterns associated with maternal depression. *Development and Psychopathology, 9,* 537-550.

Jennings, P. A. & Greenberg, M. T. (2009). The prosocial classroom: Teacher social and emotional competence in relation to student and classroom outcomes. *Review of Educational Research, 79,* 491-525.

Landry, S. H., Anthony, J. L., Swank, P. R., Monesque-Bailey, P. (2009). Effectiveness of comprehensive professional development for teachers of at-risk preschoolers. *Journal of Educational Psychology, 101,* 448-465.

La Paro, K., Pianta, R. C., & Stuhlman, M. (2004). The Classroom Assessment Scoring System: Findings from the Prekindergarten year. *The Elementary School Journal, 104,* 409-426.

Le, H., Oh, I.-S., Robbins, S. B., Ilies, R., Holland, E., & Westrick, P. (2010, October 11). Too much of a good thing: Curvilinear relationships between personality traits and job performance. *Journal of Applied Psychology.* Advance online publication. doi. 10.1037/a0021016

Leavitt, R. L. (1994). *Power and Emotion in Infant-Toddler Day Care*. Albany: State University Of New York Press.

Leavitt, R. L. & Power, M. B. (1989). Emotional socialization in the postmodern era: Children in day care. *Social Psychology Quarterly, 52,* 35-43.

Li-Grining, C., Raver, C. C., Champion, K., Sardin, L., Metzger, M., & Jones, S. M. (2010). Understanding and improving classroom emotional climate and behavior management in the “real world”: The role of Head Start teachers’ psychosocial stressors. *Early Education and Development, 21,* 65-94.

LoCasale-Crouch, J., Konold, T., Pianta, R., Howes, C., Burchinal, M., Bryant, D.,….Barbarin, O. (2007). Observed classroom quality profiles in state-funded

pre-kindergarten programs and associations teacher, program, and classroom characteristics. *Early Childhood Research Quarterly, 22,* 3-17.

Losoya, S., Callor, S., Rowe, D., & Goldsmith, H. (1997). Origins of familial similarity in parenting. *Developmental Psychology, 33,* 1012-1023.

Luster, T. & Okagaki, L. (Eds.). (2005). *Parenting: An ecological perspective*. Mahwah, NJ: Lawrence Erlbaum.

Marchand, J. F., Schedler, S., & Wagstaff, D. A. (2004). The role of parents' attachment orientations, depressive symptoms, and conflict behaviors in children's externalizing and internalizing behavior problems. *Early Childhood Research Quarterly, 19,* 449-462.

Martin, N. K., Baldwin, B., & Yin, Z. (April, 1995). *Beliefs regarding classroom management style: Relationships to teacher personality characteristics.* Paper presented at the Annual Conference of the American Education Research Association, San Francisco, CA.

Mashburn, A. J., Pianta, R. C., Hamre, B. K., Downer, J. T., Barbarin, O. A., Bryant, D.,….Howes, C. (2008). Measures of classroom quality in prekindergarten and children's development of academic, language, and social skills. *Child Development, 79,* 732-749.

McCrae R. R. & Costa, Jr., P. T. (1994). The stability of personality: Observations and evaluations. *Current Directions in Psychological Science, 3,*173-175.

Morris, A. S., Silk, J. S., Steinberg, L, Myers, S. S & Robinson, L. R. (2007). The role of the family context in the development of emotion regulation. *Social Development, 16,* 361-388.

Mulligan, G. M., Brimhall, D., West, J., & Chapman, C. (2005). *Child care and early education arrangements of infants, toddlers, and preschoolers: Statistical analysis report* (National Center for Education Statistics Rep. No. 2006-039). Retrieved from NCED website: http://nced.ed.gov/pubs2006/2006039.pdf.

Myers, I. B. & McCaulley, M. H. (1985). *Manual: A guide to the development and use of the Myers-Briggs type indicator.* Palo Alto, CA: Consulting Psychologist Press.

National Child Care Information and Technical Assistance Center (n.d.). *Quality Improvement Systems.* Retrieved from NCCIC website: http://nccic.acf.hhs.gov/topics/quality-improvement-systems.

NICHD Early Child Care Research Network (1999). Chronicity of maternal depressive symptoms, maternal sensitivity, and child functioning at 36 months. *Developmental Psychology, 35,* 1297-1310.

NICHD Early Child Care Research Network (2000a). Characteristics and quality of child care for toddler and preschoolers. *Applied Developmental Science, 4,* 116-135.

NICHD Early Child Care Research Network (2000b). Factors associated with fathers' caregiving activities and sensitivity with young children. *Journal of Family Psychology, 14,* 200-219.

NICHD Early Child Care Research Network (2003). Social functioning in first grade: Associations with earlier home and child care predictors and with current classroom experiences. *Child Development, 74,* 1639-1662.

National Research Council and Institute of Medicine (2000). *From Neurons to Neighborhoods: The Science of Early Childhood Development*. Committee on Integrating the Science of Early Childhood Development. Jack P. Shonkoff and Deborah A. Phillips, Eds. Board on Children, Youth, and Families, Commission on Behavioral and Social Sciences and Education. Washington, D. C.: National Academy Press.

North Carolina Division of Child Development (2010). *NC child care snapshot.* Retrieved from DCD website: http://ncchildcare.dhhs.state.nc.us/general/mb_snapshot.asp.

Piaget, J. (1952). *The origins of intelligence in children.* New York: International Universities Press.

Pianta, R. C. (1999). *Enhancing relationships between teachers and children.* Washington, DC: American Psychological Association.

Pianta, R. C., Howes, C., Burchincal, M., Bryant, D., Clifford, R., Early, D.,….Barbarin, O. (2005). Features of pre-kindergarten programs, classrooms, and teachers: Do they predict observed classroom quality and child-teacher interactions? *Applied Developmental Science, 9,* 144-159.

Pianta, R. C., La Paro, K. M., Hamre, B. (2008). *The Classroom Assessment Scoring System, Pre-K Version.* Baltimore, MD: Paul H. Brookes.

Pianta, R. C., La Paro, K. M., Hamre, B. (2009). *The Classroom Assessment Scoring System, Toddler Version.* Baltimore, MD: Paul H. Brookes.

Pianta, R. C., Mashburn, A. J., Downer, J. T., Hamre, B. K., & Justice, L. (2008). Effects of web-mediated professional development resources on teacher-child interactions in pre-kindergarten classrooms. *Early Childhood Research Quarterly, 23,* 431-451.

Phillips, D., Mekos, D., Scarr, S., McCartney, K., & Abbott-Shim, M. (2000). Within and beyond the classroom door: Assessing quality in child care centers. *Early Childhood Research Quarterly, 15,* 475-496.

Ramey, S. L. & Ramey, C. T. (2008). Establishing a science of professional development for early education programs: The Knowledge Application Information Systems theory of professional development. In L.M. Justice & C. Vukelich, (Eds.), *Achieving excellence in preschool literacy instruction*. New York: Guilford Press.

Raver, C. (2002). Emotions matter: Making the case for the role of young children's emotional development for early school readiness. *Society for Research in Child Development Social Policy Report, 16(3),* 8-9.

Raver, C. C., Garner, P. W., & Smith-Donald, R. (2007). The roles of emotion regulation and emotion knowledge for children's academic readiness: Are the links causal? In R. C. Pianta, M.J. Cox, & K. L. Snow (Eds.), *School readiness and the transition to kindergarten in the era of accountability* (pp. 121-148). Baltimore: Brookes.

Raver, C. C., Jones, S. M., Li-Grining, C. P., Metzger, M., Champion, K. M., Sardin, L. (2008). Improving preschool classroom processes: Preliminary findings from a randomized trial implemented in Head Start settings. *Early Childhood Research Quarterly, 23,* 10-26.

Rencher, A. C. (2002). *Methods of Multivariate Analysis,* 2nd Ed. Hoboken, NJ: John Wiley & Sons, Inc.

Rhodes, S. M. & Hennessy, E. (2000). The impact of training on workers in early childhood education: An evaluation of the Foundation Course in Playgroup Practice. *Early Childhood Research Quarterly, 15,* 559-576.

Rothbart, M. K. & Ahadi, S. A. (1994). Temperament and the development of personality. *Journal of Abnormal Psychology, 103,* 55-66.

Rushton, S., Morgan, J., & Richard, M. (2007). Teacher's Myers-Briggs personality profiles: Identifying effective teacher personality traits. *Teaching and Teacher Education, 23,* 432-441.

Sears, S. J., Kennedy, J. J., & Kaye, G. L. (1997). Myers-Briggs personality profiles of prospective educators. *The Journal of Educational Research, 90,* 195-202.

Shackman, G. (2001). Sample size and design effect. Paper presented at Albany Chapter or American Statistical Association, March 24, 2001. Retrieved from University of Albany website: http://www.albany.edu/~areilly/albany_asa/confweb01/abstract/Download/shackman.pdf

Sheridan, S. M., Edwards, C. P., Marvin, C. A., & Knoche, L. L. (2009). Professional development in early childhood programs: Process issues and research needs. *Early Education and Development, 20,* 377-401.

Slider, N. J., Noell, G. H., & Williams, K. L. (2006). Providing practicing teachers classroom management professional development is a brief self-study format. *Journal of Behavior Education, 15,* 215-228.

Soar, R. S. (1964). Methodological problems in predicting teacher effectiveness. *The Journal of Experimental Education, 32,* 287-291.

Sparks, R. & Lipka, R. P. (1992). Characteristics of master teachers: Personality factors, self-concept, locus of control, and pupil control ideology. *Journal of Personnel Evaluation in Education, 5,* 303-311.

Spinrad, T. L., Stifter, C. A., Donelan-McCall, N., & Turner, L. (2004). Mothers' regulation strategies in response to toddlers' affect: Links to later emotion self-regulation. *Social Development, 13,* 40-55.

Sprague, M. M. (1997). Personality type matching and student teacher evaluation. *Contemporary Education, 69,* 54-57.

Sutin, A. R. & Costa, P. T. (2010). Reciprocal influences of personality and job characteristics across middle adulthood. *Journal of Personality, 78,* 257-288.

Sylva, K., Siraj-Blatchford, I., Taggart, B. (2006). *Assessing Quality in the Early Years: Early Childhood Environment Rating Scale (ECERS-E)*. UK: Trentham.

Tabachnick, B. G. & Fidell, L. S. (2001). *Using Multivariate Statistics,* 4th ed. Boston, MA: Allyn and Bacon.

Thomason, A. C. & La Paro, K. M. (2009). Measuring the quality of teacher-child interactions in toddler child care. *Early Education and Development, 20,* 285-304.

Thomason, A. C. & La Paro, K. M. (2010). Do career variables predict teacher-child interactions in toddler and preschool classrooms? Manuscript in preparation.

Thompson, R. A., Laible, D., & Ontai, L. (2003). Early understanding of emotion, morality, and self: Developing a working model. In R. Kail (Ed.), *Advances in Child Development and Behavior* (Vol. 31, pp. 137-171). San Diego, CA: Academic Press.

Tudge, J. R. H., Mokrova, I., Hatfield, B. E., & Karnik, R. B. (2009). Uses and misuses of Bronfenbrenner's bioecological theory of human development. *Journal of Family Theory & Review, 1,* 198-210.

U.S. Bureau of Labor Statistics (2005). Employment status of women by presence and age of youngest child, 1975-2004. Retrieved from U.S. Bureau of Labor Statistics website: http://www.bls.gov/cps/wlf-table7-2005.pdf

U.S. Department of Education, National Center for Education Statistics. (2009). *Digest of Education Statistics, 2008* (NCES 2009–020), Table 44. Retrieved from National

Center for Education Statistics website: http://nces.ed.gov/programs/digest/d08/tables/dt08_044.asp

Whitebook, M. (2003). *Early education quality: Higher teacher qualifications for better learning environments – A review of the literature.* Berkeley, CA: Center for the Study of Child Care Employment.

Winter, D. G. & Barenbaum, N. B. (1999). History of modern personality theory and research. In L. A. Pervin and O. P. John (Eds.), *Handbook of personality: Theory and research* (2nd ed., pp.3-30). New York: Guilford.

Wlodkowski, R. J. (2008). *Enhancing adult motivation to learn: A comprehensive guide for teaching all adults,* 3rd ed. San Francisco, CA: Jossey-Bass.

Zahn-Waxler, C., Iannotti, R. J., Cummings, E. M., & Denham, S. (1990). Antecedents of problem behavior in children of depressed mothers. *Development and Psychopathology, 2,* 271-291.

Zhang, L. (2007). Do personality traits make a difference in teaching styles among Chinese high school teachers? *Personality and Individual Differences, 43,* 669-679.

APPENDIX A

TABLES AND FIGURES

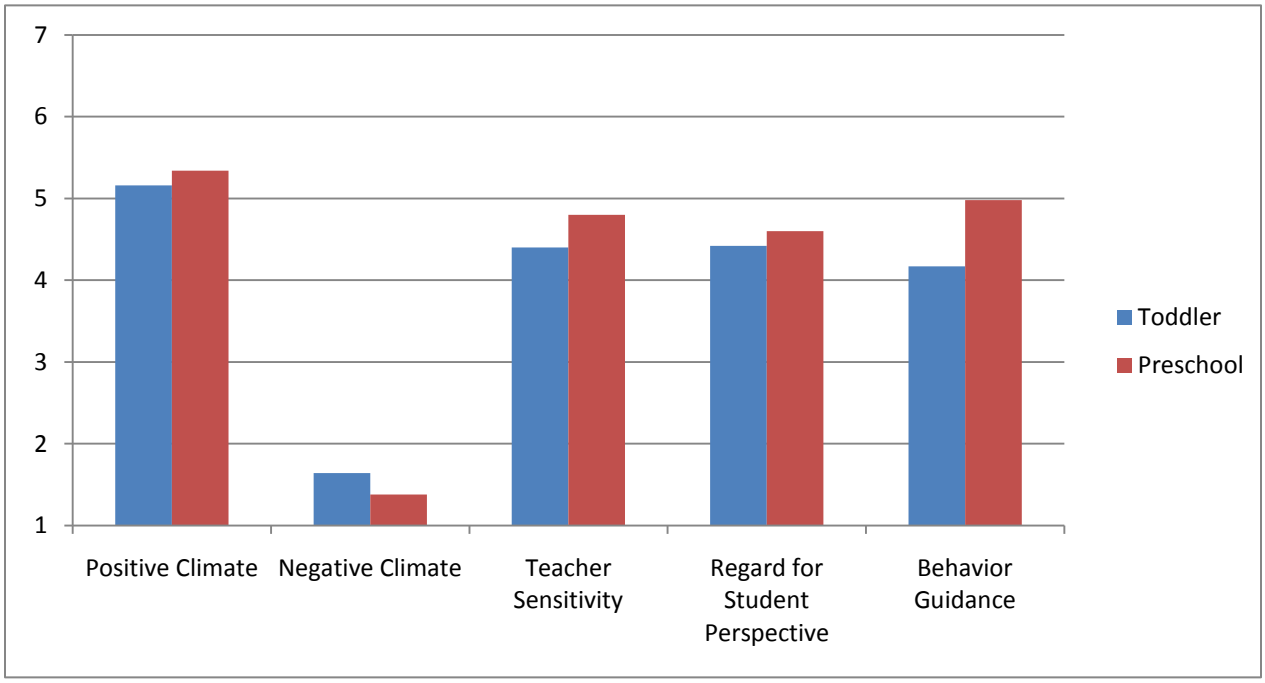

Figure 1. Bar graph illustrating the differences between *CLASS* dimension score means by classroom age-level. Toddler N = 63; Preschool N = 72

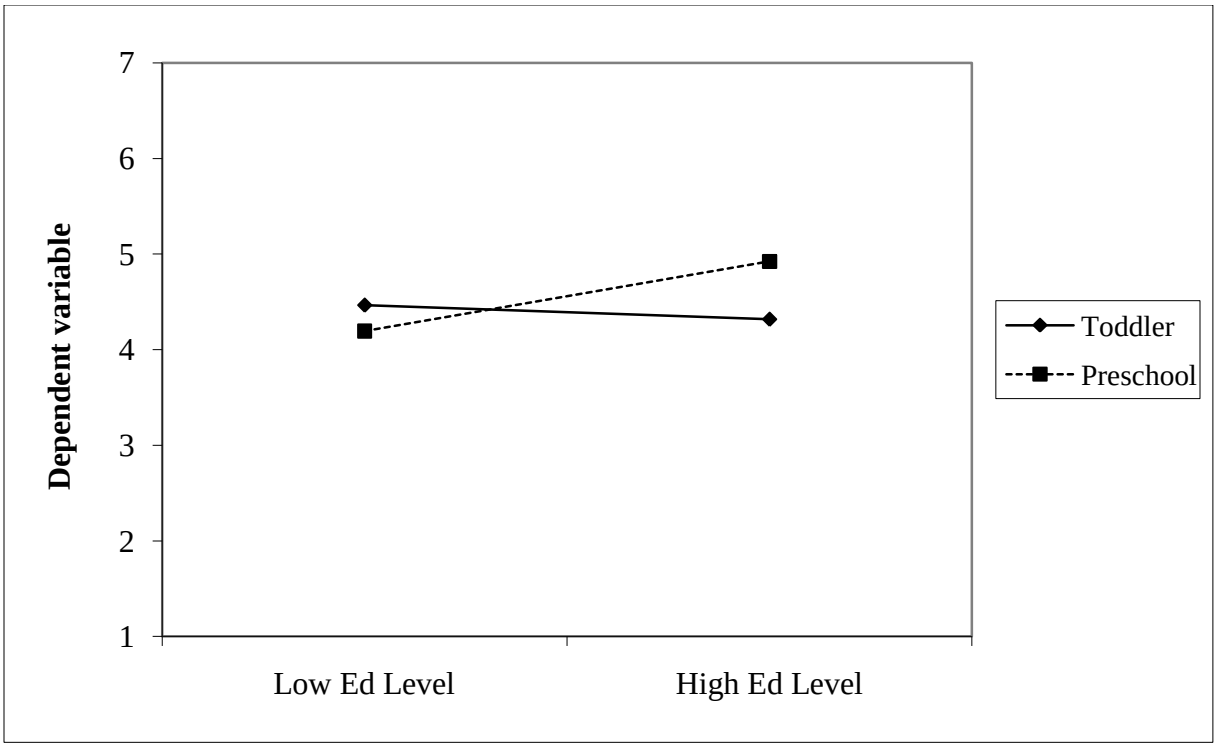

Figure 2. Moderating effects of class type on relationship between teacher Education Level and Regard for Student Perspectives.

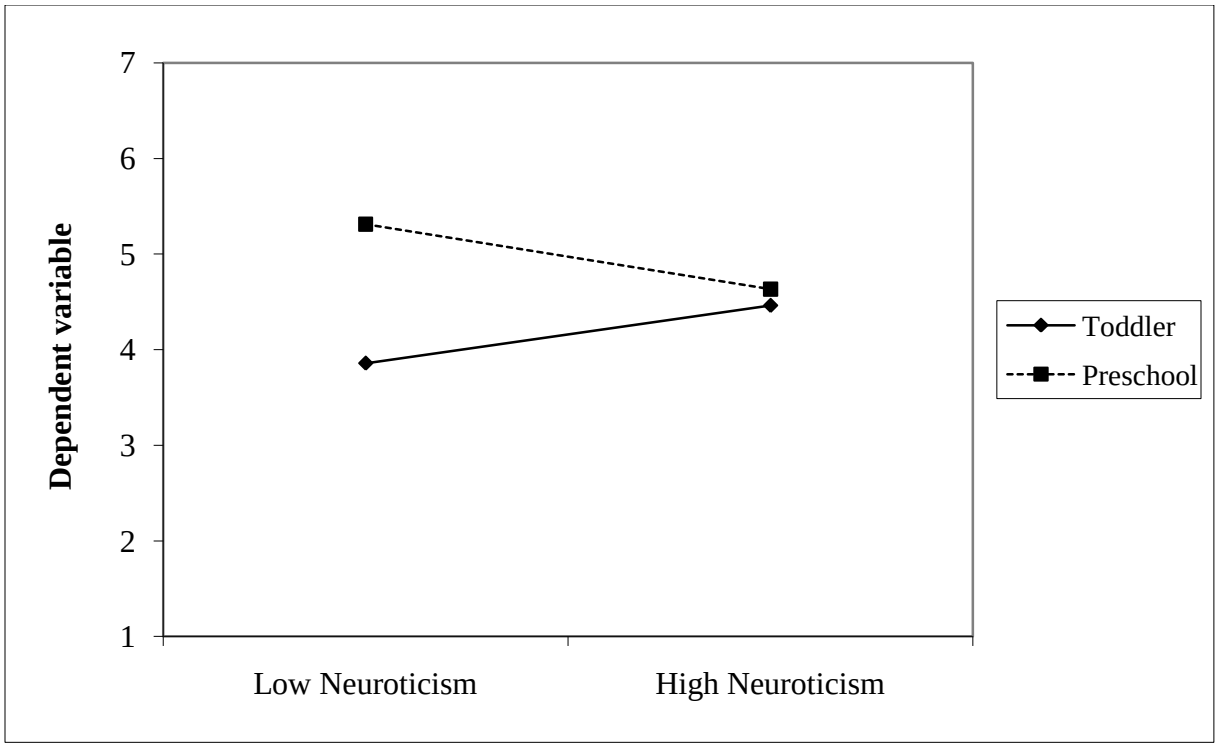

Figure 3. Moderating effects of class type on relationship between teacher Neuroticism and Behavior Management.

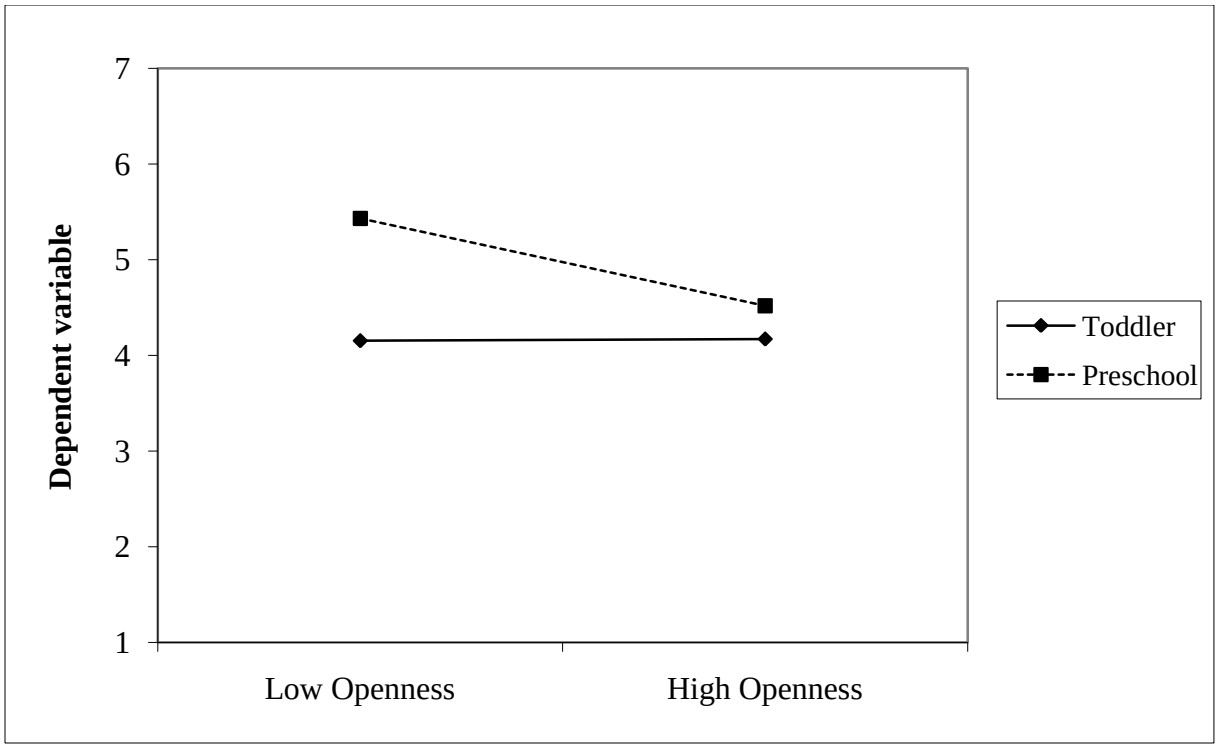

Figure 4. Moderating effects of class type on relationship between teacher Openness to New Experiences and Behavior Management.

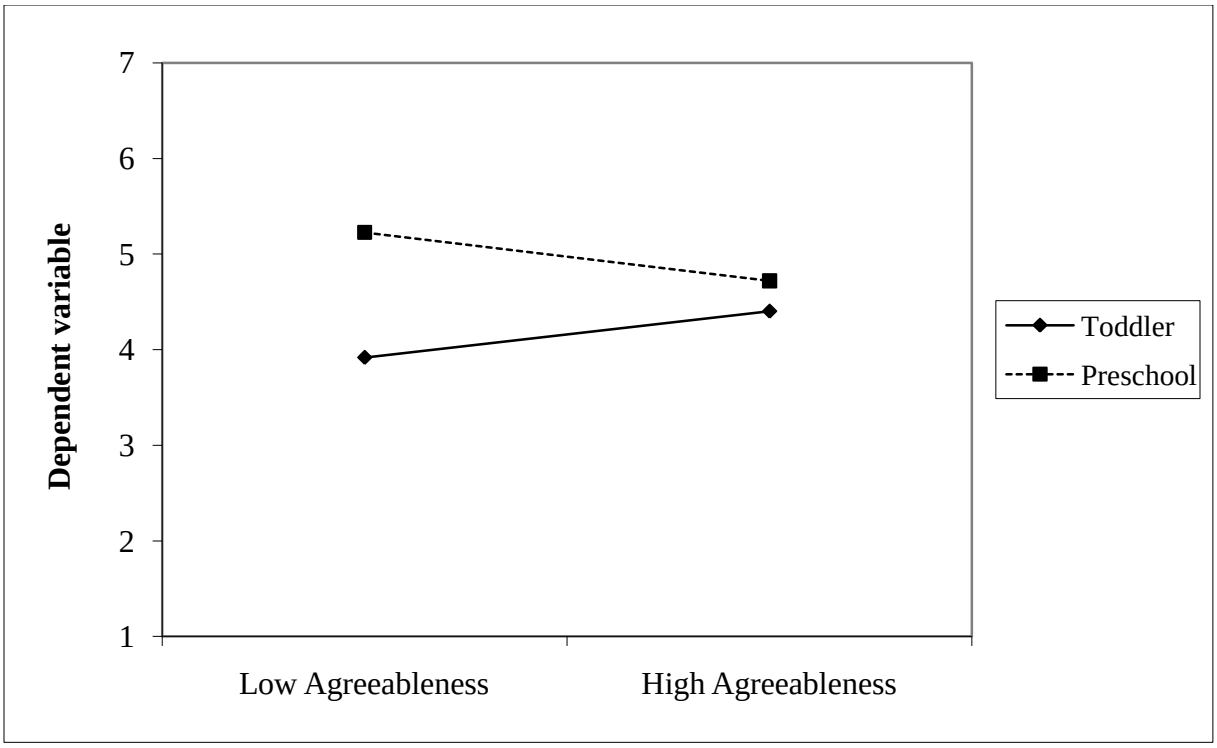

Figure 5. Moderating effects of class type on relationship between teacher Agreeableness and Behavior Management.

Table 1. Means, standard deviations, and range for CLASS variables (Possible range of 1 to 7)

	Full Sample M (SD)	*Min*	*Max*	*Toddler M (SD)*	*Min*	*Max*	*Preschool M (SD)*	*Min*	*Max*
Positive Climate	5.26 (1.18)	2.25	7.00	5.16 (1.2)	2.25	7.00	5.34 (1.19)	2.25	7.00
Negative Climate	1.51 (.68)	1.00	4.25	1.64 (.68)	1.00	3.25	1.38 (.57)	1.00	4.25
Teacher Sensitivity	4.62 (1.1)	2.00	6.80	4.4 (1.11)	2.25	6.80	4.80 (1.07)	2.00	6.50
Regard for Student Perspectives	4.51 (1.05)	1.50	6.50	4.42 (1.05)	1.50	6.25	4.60 (1.05)	2.00	6.50
Behavior Management	4.60 (1.30)	1.75	7.00	4.17 (1.22)	1.80	6.60	4.98 (1.25)	1.75	7.00

Note. Full n = 135; Toddler n = 63; Preschool n = 72

Table 2. Means, standard deviations, and range for NEO variables (transformed to T-scores for interpretation, Possible range of 25-75)

	Full Sample M (SD)	*Min*	*Max*	*Toddler M (SD)*	*Min*	*Max*	*Preschool M (SD)*	*Min*	*Max*
Neuroticism	43.74 (9.18)	25.00	75.00	44.84 (9.31)	27.00	65.00	42.78 (9.03)	25.00	75.00
Extraversion	54.86 (9.63)	26.00	75.00	54.19 (9.66)	26.00	75.00	55.44 (9.37)	33.00	75.00
Openness	47.40 (8.95)	25.00	69.00	45.67 (9.80)	25.00	67.00	48.92 (7.89)	31.00	69.00
Agreeableness	55.44 (10.56)	25.00	75.00	55.27 (8.61)	40.00	74.00	55.58 (12.08)	25.00	75.00
Conscientious	53.56 (9.27)	25.00	72.00	53.56 (8.46)	34.00	71.00	53.56 (9.98)	25.00	72.00

Note. Full n = 135; Toddler n = 63; Preschool n = 72

Table 3. Means, standard deviations, and range for TSI variables

	Possible Range	*Full Sample M (SD)*	*Min*	*Max*	*Toddler M (SD)*	*Min*	*Max*	*Preschool M (SD)*	*Min*	*Max*
Teacher Education	0 - 3	1.28 (1.08)	0.00	3.00	1.13 (1.05)	0.00	3.00	1.42 (1.10)	0.00	3.00
Professional Development	1 - 10	3.72 (2.17)	0.00	10.00	3.67 (2.21)	0.00	10.00	3.76 (2.16)	1.00	9.00
Negative feelings about work	1 - 5	2.34 (.86)	1.00	4.86	2.42 (.922)	1.00	4.71	2.26 (.80)	1.00	4.86
Negative feelings about life	1 - 5	1.90 (.65)	1.00	4.67	1.93 (.617)	1.00	3.50	1.88 (.67)	1.00	4.67

Note. Full n = 135; Toddler n = 63; Preschool n = 72

Table 4. ANOVA comparing Toddler and Preschool classroom and teacher variable means

CLASS Variables	*Toddler Mean* *n = 63*	*Preschool Mean* *n = 72*	*F*	*Sig*
Positive Climate	5.16	5.34	.846	.359
Negative Climate	1.64	1.38	5.609	.019*
Teacher Sensitivity	4.4	4.80	4.633	.033*
Regard for Student Perspectives	4.42	4.60	.933	.336
Behavior Management	4.17	4.98	14.427	.000***
NEO Variables				
Neuroticism	44.84	42.78	1.705	.194
Extraversion	54.19	55.44	.567	.453
Openness	45.67	48.92	4.548	.035*
Agreeableness	55.27	55.58	.029	.864
Conscientious	53.56	53.56	.000	1.00
TSI Variables				
Teacher Education	1.13	1.42	2.427	.122
Professional Development	3.67	3.76	.067	.797
Negative feelings about work	2.42	2.26	1.075	.302
Negative feelings about life	1.93	1.88	.257	.613

Table 5. Bivariate Correlations Among All Study Variables

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.
CLASS Variables														
1. Positive Climate	--													
2. Negative Climate	-.480**	--												
3. Teacher Sensitivity	.839**	-.471**	--											
4. Regard for Student Perspectives	.738**	-.496**	.768**	--										
5. Behavior Management	.766**	-.477	.831**	.693**	--									
6. Rated License Star Level[a]	.278**	-.283**	.352**	.452**	.351**	--								
NEO Variables														
7. Neuroticism	-.060	.034	-.034	.009	-.114	-.003	--							
8. Extraversion	.023	.090	-.052	-.114	.011	-.013	-.408**	--						
9. Openness to New Experiences	-.108	-.039	-.074	-.051	-.057	.065	-.232**	.410**	--					
10. Agreeableness	.138	.023	.075	.065	.051	.121	-.478**	.239**	.148	--				
11. Conscientiousness	.109	.079	.030	-.026	.092	-.050	-.533**	.360**	.110	.255**	--			
TSI Variables														
12. Education Level	.149	-.094	.208*	.233**	.296**	.148	-.172*	-.043	.103	.179*	-.020	--		
13. Professional Development	.039	-.145	.033	.076	.035	.196*	-.194*	.195*	.185*	.158	.087	.205*	--	
14. Negative Feelings about Work	-.127	-.078	-.118	-.085	-.131	-.097	.508**	-.430**	-.073	-.370**	-.358**	-.082	-232**	--
15. Negative Feelings about Life	.047	-.046	.013	.036	-.086	-.032	.553**	-.452**	-.223**	-.314**	-.347**	-.086	-251**	.622**

[a] Control variable * $p < .05$ ** $p < .01$

Table 6. Summary of results from Multivariate Multiple Regression calculating relative contributions to emotional support dimensions and behavior management from teacher *personal* and *professional* characteristics (controlling for star level)

	Wilk's Lambda	F	Sig.
Neuroticism	.972	.685	.636
Extraversion	.940	1.509	.192
Openness	.951	1.239	.295
Agreeableness	.942	1.466	.206
Conscientiousness	.960	.994	.425
Negative feelings about work	.936	1.633	.157
Negative feelings about life	.912	2.296	**.050**
Education Level	.890	2.927	**.016**
Professional Development	.958	1.038	.399
Class type	.793	6.218	**.000**
Rate License Star Level	.763	7.375	**.000**

Table 7. Summary of Results from Hierarchical Regression predicting dependent variables and assessing moderation by class type for teacher *professional* characteristics (controlling for star level)

		Positive Climate	Negative Climate	Teacher Sensitivity	Regard for Student Perspective	Behavior Management
Overall R^2		.101	.133	.197	.280	.277
Adjusted R^2		.059	.093	.159	.246	.243
Block						
1.	ΔR^2	.077	.080	.124	.205	.123
Star Level	β	.273**	-.271**	.344***	.433***	.344***
2.	ΔR^2	.014	.010	.029	.030	.068
Teacher Education	β	.042	.035	.005	-.070	.204
Prof Development	β	-.065	-.067	-.017	.029	-.112
3.	ΔR^2	.005	.041	.030	.005	.084
Class type	β	.074	-.206*	.178*	.079	.294***
4.	ΔR^2	.005	.002	.014	.040	.002
Teacher Ed x Class type	β	.089	-.060	.183	.308**	.028
Prof Dev. X Class type	β	.044	-.030	-.055	-.074	.039

Note: Reported are the standardized regression coefficient from the final regression model and R^2 change as each block was added. *$p < .05$; **$p < .01$; ***$p < .001$

Table 8. Summary of Results from Hierarchical Regression predicting dependent variables and assessing moderation by class type for teacher *personal and professional* characteristics (controlling for star level)

		Positive Climate	Negative Climate	Teacher Sensitivity	Regard for Student Pers.	Behavior Management
Overall R^2		.219	.201	.258	.314	.399
Adjusted R^2		.098	.077	.143	.208	.306
Block						
1.	ΔR^2	.077	.080	.124	.205	.123
Star Level	β	.271**	-.277**	.341***	.414***	.354***
2.	ΔR^2	.014	.010	.029	.030	.068
Teacher Ed.	β	.133	.002	.183*	.186*	.277**
Prof Dev.	β	.013	-.094	-.033	-.020	-.048
3.	ΔR^2	.069	.040	.029	.027	.036
Neuroticism	β	.238	.297	.217	.099	.232
Extraversion	β	.090	.015	-.041	-.003	-.093
Openness	β	-.077	-.001	.023	.008	.009
Agreeableness	β	.325	.244	.202	-.029	.188
Conscientiousness	β	.084	-.036	.110	.260	.229
Work Negative Feelings	β	-.273	-.273	-.191	-.145	-.069
Life Negative Feelings	β	.361*	-.070	.198	.328	.131
4.	ΔR^2	.009	.041	.034	.007	.094
Class type	β	.099	-.211*	.191*	.084	.314***
5.	ΔR^2	.050	.030	.042	.045	.078
N x Class type	β	-.292	-.194	-.259	-.071	-.355*
E x Class type	β	-.047	.077	-.020	-.162	.117
O x Class type	β	-.137	.022	-.196	-.057	-.234*
A x Class type	β	-.266	-.208	-.227	.022	-.317*
C x Class type	β	.062	.080	-.029	-.231	-.138
Work Negative Feelings X CT	β	.182	.164	.066	.003	.029
Life Negative Feelings X CT	β	-.178	.093	-.116	-.304	-.170

Note: Reported are the standardized regression coefficients from the final regression model and R^2 change as each block was added.
*$p < .05$; **$p < .01$; ***$p < .001$