

KINTNER, VICTORIA L., M. S. Beliefs and Practices in Early Care and Education: The Relationships among Teachers' and Administrators' Beliefs and Characteristics, Classroom Practices, and Global Quality. (2008)
Directed by Dr. Catherine Scott-Little. 109 pp.

Teachers' beliefs have been an important construct in understanding teachers' practices and classroom quality in early care and education. Despite some theoretical and empirical evidence for the relationship between teachers' beliefs and practices, results from previous research have been mixed. The purpose of this study was to examine the relationship between teachers' beliefs and practices, as well as examine other characteristics which may impact this relationship. Specifically, these factors included administrators' beliefs, administrator leadership style, and teacher efficacy. Results indicated that teachers' beliefs were positively related to both teachers' reported practices ($r = .722$) and classroom global quality ($r = .294$). Additionally, administrators' beliefs were related positively to global quality ($r = .252$). Teacher efficacy was also related positively to teachers' report of developmentally appropriate practices ($r = .263$). Surprisingly, teachers' perception of administrators' leadership style was associated negatively with teachers' practices ($r = -.345$). Teachers who reported their administrators as strong on several leadership characteristics also reported implementing developmentally inappropriate practices. These findings have important implications for efforts to improve classroom quality, specifically in terms of identifying and challenging beliefs in teacher and administrator professional development. Future directions for research are also discussed.

BELIEFS AND PRACTICES IN EARLY CARE AND EDUCATION: THE
RELATIONSHIPS AMONG TEACHERS' AND ADMINISTRATORS'
BELIEFS AND CHARACTERISTICS, CLASSROOM PRACTICES,
AND GLOBAL QUALITY

by

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A Thesis Submitted to
the Faculty of The Graduate School of
The University of North Carolina at Greensboro
in Partial Fulfillment
of the Requirements for the Degree
Master of Science

Greensboro
2008

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ACKNOWLEDGEMENTS

The author would like to thank Dr. Catherine Scott-Little for her constant guidance and support as committee chair. Thanks are also extended to Dr. Deborah J. Cassidy and Dr. Linda L. Hestenes for their direction throughout the research process. The author would also like to thank Sarah Ellen for her help in data collection, and Dr. Sat N. Gupta for his assistance in statistical consultation. Finally, the author would like to acknowledge the teachers and administrators who took time to participate in this research study.

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CHAPTER I

INTRODUCTION

Over the past few decades, researchers have confirmed the benefits of developmentally appropriate practices for children's development, as well as several predictors of quality of care and the inclusion of such practices (Bryant, Peisner-Feinberg, & Clifford, 1993; Hatch & Freeman, 1988; Maxwell, McWilliam, Hemmeter, Ault, & Schuster, 2001). Among these predictors are structural characteristics related to the classroom, such as grade level, teacher-to-child ratio, percentage of children with disabilities, and percentage of children on government subsidy, and teacher characteristics, such as education, teaching experience, and beliefs about children's development (Brown et al., 2006; Charlesworth et al., 1993; Maxwell et al.; Risher, McGrevin, & Lambiotte, 1992; Stipek & Byler, 1997). Within this list of predictors, teacher's beliefs have been related consistently to classroom practices and quality (Brown et al.). Additionally, Maxwell et al. found teacher's beliefs to make a unique contribution to the explanation of classroom practices even when controlling for classroom characteristics and teacher's education and experience.

However, there is some evidence that teachers experience difficulty in translating developmentally appropriate beliefs into practice. Several studies have demonstrated that teachers' beliefs are not consistent with their practices, causing many teachers to feel constrained and conflicted in their daily instructional activities (Hatch & Freeman, 1988;

Hitz & Wright, 1988; Jones & Gullo, 1999). For example, Jones and Gullo found that out of 87 teachers whose beliefs reflected developmentally appropriate practices, only 66 of those teachers implemented developmentally appropriate practices in their classroom. In qualitative interviews, teachers expressed pressure to adhere to more academic practices, rather than use developmentally appropriate practices (Hatch & Freeman). A study by Scott-Little, LaParo, and Weisner (2006) indicated that the beliefs of pre-service teachers were more consistent with developmentally appropriate practices than were the beliefs of in-service teachers. Together these findings suggest that teachers' beliefs may not be consistent with classroom practices; furthermore, teachers' beliefs may even become less consistent with developmentally appropriate practices as they enter the work force.

One source of tension may be found in the teachers' relationship with or perception of their child-care directors or school principals (here after referred to as administrators). As part of their position, administrators are often responsible for establishing work environment, hiring and supervising staff, and managing center and classroom resources. Although there has been some research relating administrator's characteristics, such as leadership style and beliefs, to teachers' beliefs, classroom quality, and student achievement (Butterfield & Johnson, 1995; Bloom & Sheerer, 1992, Hallinger, Bickman, & Davis, 1996), these findings do not clearly demonstrate how administrators' leadership styles and beliefs about developmentally appropriate practices are related to teachers' beliefs and practices.

Research also indicates that teachers' sense of efficacy, or their belief in personal abilities to translate beliefs into practices regardless of outside pressures, may account for the incongruence in beliefs and practices. Teachers who have higher efficacy scores often feel less constrained by administrators' beliefs or actions. Conversely, teachers with lower levels of self-efficacy may perceive pressure from administrators and conform to practices inconsistent with their beliefs (Hoy & Woolfolk, 1993). Therefore, the purpose of the current study was to examine characteristics and beliefs of teachers and administrators that are related to how teachers structure their classroom activities and teacher-child interactions, as well as overall classroom quality. To achieve this purpose, this study investigated teachers' and administrators' beliefs regarding child development and early educational practices, as well as teachers' reports of classroom practices and outside observers rating of global quality. Additionally, this study explored how teachers' and administrators' perceptions of leadership style and teacher efficacy are associated with classroom quality and practices.

CHAPTER II

PREVIOUS RESEARCH

The foundation for this study results from the convergence of three areas of research: (a) the relationship between and predictors of teachers' beliefs and practices, (b) the role of administrators in classroom quality and child outcomes, and (c) teacher efficacy in structuring classroom practices. In the following section, I will define the central constructs and present theoretical and empirical evidence for these three conceptual areas.

Definitions

Teacher beliefs. The general construct of teachers' beliefs is often difficult to define as it can encompass a wide range of concepts. Conceptually similar, but distinct constructs such as attitudes, implicit and explicit theories, folk psychologies, ideologies, and perceptions, have all been used to refer to various teacher thought processes (Daniels & Shumow, 2003; Pajares, 1992). Moreover, teachers' beliefs can focus on a variety of subjects. For example, teachers may have beliefs about the importance of education, appropriate classroom activities and interactions, and the organizational structure of a school, as well as personal philosophies on child development. Beliefs are not only difficult to define, but can also pose problems in measurement as they are not readily observable by an outsider, nor are individuals consciously aware of all beliefs (Pajares).

Therefore, it is critical to establish a clear definition of teacher beliefs in order to properly identify and measure such beliefs. In the current study, teachers' beliefs are defined as individuals' "representation[s] of reality that [have] enough validity, truth, or credibility to guide thought and behavior" (Harvey, 1986, as cited in Pajares, 1992). I further distinguish such beliefs by focusing on teachers' representations regarding what constitutes developmentally appropriate practices in the early childhood classroom (Charlesworth et al., 1991). Although past research has separated teachers' personal ideologies and knowledge of or adherence to formal child development theories (Spodek, 1988), there is no distinction between the two types of beliefs in the current study. The focus of this study is the relationship between teachers' beliefs and practices, rather than the origin or development of those beliefs. Therefore, the construct of teachers' beliefs refers to the implicit, personal beliefs of teachers in regards to developmentally appropriate practices in early childhood classrooms.

Administrator beliefs and leadership. In this study administrators' beliefs are similar to teachers' beliefs and refer to administrators' implicit theories and ideas of what practices are developmentally appropriate for early childhood classrooms (Charlesworth et al., 1991). Another construct central to this study is administrators' leadership style. Several studies have indicated that administrators have an indirect influence on classroom quality and student learning and achievement (Rusher et al. 1992; Hallinger, Bickman, & Davis, 1996). Through supervision, teacher support, and creating a unifying vision, administrators establish the instructional climate of the school or center and thus the classroom (Bloom & Sheerer, 1992; Rusher et al.). Therefore, administrators' leadership

style is defined as the manner in which administrators organize work environment and supervise staff (Bloom & Sheerer) in terms of their leadership characteristics (i.e., supportive, organized, approachable) (Bloom, 2005). This construct includes how directors support teachers and execute administrative duties in order to meet the goals of the center (Bloom; Hoy & Woolfolk, 1993).

Teacher efficacy. In general, self-efficacy is defined as an individual's perception of desired outcomes and one's ability to achieve such outcomes (Bandura, 1989; Fuller, Wood, Rapoport, & Dornbusch, 1982). However, within this definition, there are two components to the construct (Gibson & Dembo, 1984). First, there is general efficacy which refers to understanding that a certain outcome can be achieved by a specific action (Pontius, 1998). In teachers, general efficacy is belief in the ability of teachers to make a positive difference in children's lives over and above home environment and personal characteristics of the children (Hoy & Woolfolk, 1993). (i.e., Do teachers' actions in the classroom matter in the lives of children?) Tschannen-Moran and Hoy (2001) suggest that general efficacy refers to teachers' perceptions of the level of influence that factors outside of the classroom hold on classroom practices. Teachers with a high sense of general efficacy, for example, would believe that teachers can have a positive influence on children's achievement in addition to or despite other environmental influences. Conversely, teachers with a low sense of general efficacy would think children's outcomes are primarily determined by personal characteristics rather than teachers' classroom behavior.

The second component is personal efficacy, or belief in personal abilities to successfully perform actions necessary to produce the desired outcome (Stanovich & Jordan, 1998). Specifically, can individual teachers implement the practices they feel are needed to make a difference in children's lives (Hoy & Woolfolk, 1993)? According to Tschannen-Moran and Hoy (2001), personal efficacy is similar to teachers' locus of control. Teachers with high personal efficacy are thought to have an internal locus of control and would consider themselves able to reach personal goals for the classroom despite opposition from others. On the other hand, those teachers with low personal efficacy (or an external locus of control) would place less confidence in their personal goals or abilities and more often be influenced by other individuals. For this study, teacher efficacy refers to personal efficacy, or the teachers' belief in their personal ability to implement classroom practices and influence the children regardless of outside pressures from administrators or other individuals. Teachers' sense of personal efficacy is theorized to affect their classroom behavior by influencing their personal goals, level of investment in teaching, and persistence in adversity (Tschannen-Moran & Hoy).

Classroom quality. Within the child care field there has been a long standing debate on what constitutes best practice for children's development. Researchers, teachers, administrators, and policy makers hold a wide range of ideas concerning quality care in early childhood education. These ideas are often categorized into two approaches to classroom instruction; early childhood practitioners either employ a "basic-skills approach" or a "child-centered approach". The basic-skills approach emphasizes rote learning, memorization, and large-group, teacher-directed activities. On the other hand,

child-centered approaches focus on engaging children in concrete, hands-on activities, and allowing children to explore their own individual interests and abilities (Stipek & Byler, 1997). In 1997, the National Association for the Education of Young Children (NAEYC) created a position statement regarding the classroom practices that were most developmentally appropriate for children birth to 8. According to this statement, developmentally appropriate practices create an optimal learning environment that guides children in their cognitive, social, emotional, and physical development. Therefore, high quality, child-centered programs are those that use children's age, interests, and developmental level to guide curriculum and practices (Bredekamp & Copple, 1997).

Theory

The theoretical foundation for this study is built upon two primary theories: social cognitive theory and ecological systems theory. Specifically, assumptions from social cognitive theory offer an explanation of the relationship between teachers' and administrators' beliefs and thought processes and their behaviors. Additionally, social cognitive theory provides a definition for teacher efficacy and describes how teacher efficacy may influence classroom behaviors. Finally, ecological theory purposes that individuals' are shaped by their environments and vice versa. From this perspective, micro and macro levels influences, such as administrators and state regulations, influence teachers practices. Together, propositions from these theories provide a model for understanding the complex relationships between teachers' and administrators' characteristics and classroom quality.

Teachers and administrators beliefs. Beliefs are powerful indicators of decisions and have been consistently shown, both theoretically and empirically, to be predictors of behavior (Bandura, 1989; Charlesworth et al., 1991; McCarty, Abbott-Shim, & Lambert, 2001; Pajares, 1992). Social cognitive theory states that individuals' symbolic representations serve to both motivate and dictate future actions (Goldhaber, 2000). According to social cognitive theory, individuals form symbolic representations, such as ideas and beliefs, based upon past learning experiences, as well as social interactions and observations of others. Thus, beliefs are based upon personal, educational, and professional experiences. Teachers' beliefs regarding child development and classroom practices may be based upon child rearing practices in their family of origin, theories learned in higher education settings, or practical experience in the classroom. Through a variety of symbolic capabilities, such as forethought or self-reflection, individuals then use these beliefs to guide future behaviors. For instance, teachers use forethought to create lesson plans and arrange classroom activities. Additionally, teachers may reflect upon their beliefs about child development or past experiences to guide their interactions with the children in their classrooms.

Clark and Peterson (1986) offer a model of the process of teaching which includes both teachers' thought processes and observable actions. In this model, teachers' thought processes consist of a) planning (i.e., "preactive" and "postactive" thoughts), b) interactive thoughts and decision making, and c) theories and beliefs. Although Clark and Peterson suggest a cyclical relationship between these three types of cognitive processes, they also propose that teachers' beliefs act as a guiding factor for teachers' planning and

decision making as well as action in the classroom. Specifically, they state that teachers' actions and cognitive processes "make sense in relation to a personally held system of beliefs, values, and principles" (p. 287). In other words, teachers' personal beliefs (which have multiple antecedents) help create the framework from which teachers plan and implement activities, as well as make immediate interactive decisions in the classroom.

However, Bandura (1989) warns that individuals are not always aware of such beliefs and representations and often act upon irrational ideas. As stated above, Clark and Peterson (1986) theorize that teachers' theories and beliefs have powerful influence on their cognitive processes and classroom behaviors even when they are implicit. Furthermore, Pajares suggests that teachers often react to personal beliefs rather than reflect upon developmental theories during daily interactions and experiences. Cassidy and Lawrence (2000) also contend that teachers often base current actions in the classroom on beliefs formed through past experiences rather than classroom theory. This underscores the importance of identifying teachers' beliefs and examining the connection between beliefs, practices and classroom quality. Theoretically, teachers' and administrators' beliefs and reflective processes are important constructs to understand, especially as they related to classroom practices and behaviors.

The child-care system. As social systems, child-care centers and schools are to be understood as whole entities rather than analyzed in their separate parts (Bloom, 2005; Whitchurch & Constantine, 1993). Instead of examining teachers, administrators, children, physical characteristics, and instructional processes separately, researchers should focus on the relationships between and influences of each part, remembering that

each component is mutually dependent upon the other components as the system works to achieve its goals and meet its needs. Bloom (2005) theorizes that the three primary components involved in child-care programs are: (a) people, including the beliefs, values, and actions of individuals within the system, (b) process, including decision making, feedback processes, and social interactions within the system, and (c) structure, the physical environment and policies and procedures of the system. Using this framework, teachers and administrators, along with their beliefs and behaviors, interact with each other and other individuals within the system (i.e., children, parents) to run classrooms. These beliefs, behaviors, and interactions of teachers and administrators are shaped by the structural boundaries of the system. Although the current study builds upon the interdependence between the three components, it primarily focuses on the influence of people on processes within the classroom and program as a whole. For instance, teachers' and administrators' beliefs regarding child development are one aspect of the people component which guides interactions with children and classroom practices. Additionally, administrators' leadership characteristics and subsequent interactions with teachers may influence how teachers behave in the classroom. Through these interactions and expressions of personal characteristics, teachers and administrators work to care for and educate children in the classroom.

The bioecological model builds upon the systems framework and offers theoretical justifications for the interaction of personal characteristics and environments in human development over time. Within this model, Bronfenbrenner (1988) identifies four essential elements to understanding behavior and development. First is the element

of process which offers the mechanism through which the other three elements interact to produce development. Bronfenbrenner and Morris (1998) identify the primary processes involved in development as proximal processes.

Proposition 1: Especially in its early phases, but also throughout the life course, human development takes place through processes of progressively more complex reciprocal interaction between an active, evolving biopsychological human organism and the persons, objects, and symbols in its immediate environment. To be effective, the interaction must occur on a fairly regular basis over extended periods of *time*. Such enduring forms of interaction in the immediate environment are referred to as *proximal processes* (p. 996, italics original).

Some examples of these proximal processes include routine activities such as feeding children, reading with children, children's play, and learning and performing new tasks or skills. Teacher-child interactions, classroom learning activities, and teacher-administrator interactions are some of the proximal processes involved in understanding the relationship between teachers' beliefs and practices.

In a second proposition, Bronfenbrenner and Morris state that the proximal processes are influenced by the interaction between personal and environmental characteristics, each embedded in time.

Proposition 2: The form, power, content, and direction of the proximal processes effecting [*sic*] development vary systematically as a joint function of the characteristics of the *developing person*; of the *environment* – both immediate and more remote – in which the processes are taking place; the nature of the

developmental outcomes under consideration; and the social continuities and changes occurring over *time* through the life course and the historical period during which the person has lived (p. 996, italics original).

Using the constructs from the current study, this proposition essentially states that proximal processes such as classroom learning activities are shaped by teacher characteristics such as beliefs and environmental influences such as administrator leadership style. Additionally, the congruence between teacher and administrator beliefs may strengthen the relationship between teachers' beliefs and practices by offering both a personal and an environmental influence on teachers' practices (i.e., proximal processes in the classroom).

The second element, person, includes the biological and psychological characteristics and behaviors of the individual as both an influential factor in producing development and a developmental outcome. Within this conceptualization, there are three types of person characteristics that provide for various interactions with the environment: force, resource, and demand. Although resource and demand characteristics are important in understanding human development, the current study will focus on the force characteristics of teachers and administrators (i.e., teachers' and administrators' beliefs, administrators' leadership style, teacher efficacy) and their relationship to classroom practices and the quality of the classroom environment. Force characteristics influence development through the initiation or hindrance of proximal processes with people, symbols, or objects.

Bronfenbrenner and Morris (1998) further distinguish these characteristics into developmentally generative (i.e. curiosity and responsiveness) and developmentally disruptive (i.e. impulsivity and distractibility). Whether or not individuals can engage in and sustain proximal processes depends largely upon their force characteristics. The beliefs of teachers and administrators, as well as administrator leadership characteristics fall within this category. That is, teachers' beliefs may affect the proximal processes inside the classroom such as teacher-child interactions and learning activities and materials. For example, administrators' leadership style and characteristics may influence the frequency and complexity of teachers' proximal processes with their supervisors. Administrators who are perceived to be supportive and approachable may have more in depth interactions with teachers and therefore create more developmentally generative proximal processes. Conversely, teachers may avoid interactions with administrators who are not perceived as empathetic or respectful; these characteristics may be developmentally disruptive to proximal processes such as teacher-administrator interactions.

In many other theoretical models of development, the environment is defined as anything (i.e. person, place, social institution) outside of the individual. Thus, both parent-child interactions and socioeconomic status are defined as environmental influences even though each may have very different effects on development. One of the distinguishing characteristics of the bioecological model is its distinction between process and environment. Bronfenbrenner and Ceci (1994) point out that process is the mechanism through which development occurs and environment is the context in which

processes take place. They further differentiate the environment into four nested systems, at the center of which is the developing individual. In the current study, the center of the ecosystem is the teacher and her classroom practices.

The most immediate level is that of the microsystem: the people and structures that are most immediately connected to the developing individual, such as the classroom and the other staff members of the child care program. It is in this system that proximal processes occur. The mesosystem is the link between various microsystems and occurs when the developing individual leaves one microsystem and enters into a different one. The influence of the microsystem lies in the number and strength of the ties between systems. One focal point of this study is the mesosystemic link in which the teacher is a part of both the childcare classroom and the program staff. The mesosystem also occurs when the administrator or other staff members enter the classroom. The exosystem does not contain the individual directly. Rather, the individual is connected to happenings within this system through someone in a relevant microsystem. For example, policies made at the administrative level may produce indirect effects to classroom practices, most often through teacher-administrator interactions or changes in work environment. Lastly, the macrosystem includes the larger social and cultural influences, such as social institutions and cultural norms (Bronfenbrenner, 1988). For instance, teachers' beliefs and practices may look very different based upon their cultural norms from their ethnic backgrounds or those of the children. Moreover, larger social understandings of school readiness may influence the practices in early childhood classrooms (Wesley & Buysse, 2003). As stated earlier, none of the systems exist separately from one another. Rather,

each one is linked through various dynamic and reciprocal relationships and influences. The characteristics of and events in each level can cause changes in other levels, shaping the trajectories of each system (Eccles & Roeser, 2005).

The inclusion of time, or the chronosystem, in the bioecological model is based off of the life course perspective (Bronfenbrenner, 1995). One of the major principles of this perspective is that development is shaped by the historical period in which the individual lived. Cultural and social norms, structures, and processes are influenced by the concomitant historical period. Bronfenbrenner (1995) suggests that time exerts its influence on the proximal processes involved in development. Thus, the social practice of sending children to school and the proximal processes associated with that practice is influenced by the historical setting surrounding the individual. An example of this is recent legislative changes and efforts to increase school readiness for all children such as the No Child Left Behind Act and “Good Start, Grow Smart” that may impact the relationship between teachers’ beliefs and practices (Wesley & Buysse, 2003). Such policies push for accountability which often means more standardized testing and the creation of a school culture that is focused on academic skills but neglects other areas of children’s development. Teachers and administrators alike have expressed that increased standardized tests creates pressure for teachers to adopt a basic skills approach to teaching (Tyre, 2006). Due to such pressures, teachers may hold beliefs consistent with developmentally appropriate practices, but they may implement classroom practices considered to be inappropriate for young children.

Overall, the bioecological model demonstrates that teachers' classroom practices are not isolated behaviors, but are situated within various contexts which shape teachers' personal and professional development. Additionally, according to the bidirectional nature of this model, teachers' personal characteristics are also influential in all levels of the environment. Thus, it is not only important to investigate teachers' characteristics and the classroom environment, but administrators' characteristics and broader contextual influences as well.

Teacher efficacy. Teacher efficacy, or teachers' perception of their ability to achieve positive outcomes in classrooms, is an important construct in understanding teachers' behaviors in the classrooms. Bandura (1989) theorized that individuals' observable behavior is a function of both general and personal efficacy. He posits that self-efficacy affects behavior through motivation; utilizing forethought, self-regulatory, and self-reflective capabilities, humans perceive outcomes, set goals, and evaluate experiences that, in turn, become cognitive motivators for behavior. For example, forethought allows individuals to envision future outcomes, form hypotheses about prospective consequences, and generate behavior based upon the hypotheses (Goldhaber, 2000). Behavior resulting from forethought is purposive and involves appraisals of both general and personal efficacy. Teachers use forethought in planning activities and organizing the classroom to promote children's learning and development. Self-regulation and self-reflection work in conjunction to influence efficacy. Self-regulatory capabilities create the standards by which individuals' measure their accomplishments and failures, and self-reflective capabilities allow individuals to consider past experiences

and whether the outcomes were comparable to the set goals and standards. Teachers' beliefs can act as self-regulators by defining the practices which teachers want to implement in their classrooms. Using self-reflection teachers can then compare their conceptualizations of ideal practices with their actual practices.

Bandura (1989) proposes that the connection between beliefs and behavior occurs through a feedback loop in which evaluations of outcomes lead to beliefs about one's capabilities that, in turn, lead to behavior. He further suggests that a discrepancy between personal standards and behavior may be determined partly by individuals' sense of efficacy. Those individuals who believe in their capabilities to act upon and achieve certain standards will be more likely to match their behavior to their desired outcomes. It is important to note that the concept of efficacy and the process through which individuals develop, evaluate, and use their perceptions of efficacy are dynamic (Bandura, 1989). Individuals can be more or less efficacious, depending upon the situation at hand (Gibson & Dembo, 1984). For instance, teachers may feel less efficacious after persistent failures or obstacles. Teachers' perceptions of efficacy may be undermined by a consistent incongruence between beliefs and practices as judged by their self-regulatory and self-reflective capabilities. Additionally, teachers may feel more efficacious when supported by administrators or when involved in leadership roles. Individuals can also possess high levels of general efficacy while having lower levels of personal efficacy and vice versa (Pontius, 1998). Teachers may believe that teaching can impact children positively, but not possess confidence in personal abilities to achieve such impact. Such teachers may find it difficult to implement practices consistent with

their beliefs when faced by environmental pressures such as administrators or state regulations. Thus, teacher efficacy is an important construct to examine, especially as it relates to how teachers are able to implement practices in which they believe.

Limitations. Although the theories presented above offer possible explanations for the relationships between the constructs used in this study, as well as guide the study methods, there are some limitations to the impact of theory on the study. First, although social cognitive theory posits that individuals form belief systems from a variety of experiences, it does not offer a process through which these beliefs are shaped from individuals' experience and incorporated into their belief system. Similarly, the model by Clark and Peterson does not address the origins of teachers' beliefs. However, it is beyond the scope of this study to address questions of belief origin and formation.

Second, the bioecological model situates the constructs within the ecosystem, demonstrating how teachers' and administrators' beliefs and behaviors are related and the possible directions of influence. However, the constructs and methods of the current study do not adequately capture the process element of Bronfenbrenner's model.

Although one survey inquires into classroom practices, there is no examination of process between teachers and administrator such as their day-to-day interactions. Similarly, the focus of the study does not include examination into the macrosystem or chronosystem. Rather these components of the theory simply provide an understanding of the ultimate goal behind the study: to understand factors associated with teachers' belief and practices in order to help teachers implement more appropriate practice.

Finally, although Bandura's (1989) theory of efficacy also provides an explanation for the relationship between beliefs and behaviors whether or not they match, this theory does not offer a sufficient reason for any instances in which teachers' with beliefs consistent with inappropriate practices may adopt appropriate practices despite their beliefs. Despite these limitations, together the theoretical models provide a conceptual framework that helps to understand the relationship between teachers' beliefs and practices.

Literature Review

Teachers' characteristics. As stated earlier, there is a large body of research demonstrating the connection between teachers' beliefs and classroom practices (Brown et al., 2006; Charlesworth et al., 1991; Charlesworth et al., 1993; Hatch & Freeman, 1988; Hitz & Wright, 1988; Jones & Gullo, 1999). However, the results from such studies have been mixed. For example, Maxwell et al., (2001) found that teachers' beliefs accounted for variance in quality and practices above and beyond other classroom and teacher characteristics. Specifically, their results demonstrated that teachers' beliefs, both appropriate and inappropriate, were more predictive of classroom practices than class size or teacher experience. Findings from Cassidy and Lawrence (2000) also indicate that teachers' beliefs are related to their classroom practices. Their study included videotaping teachers and then asking them to offer rationales behind their behaviors. The large majority of teachers offered personal experience in the classroom or family of origin as the reasoning behind their beliefs and practices. Indeed, teachers rarely stated that their educational experiences influenced the beliefs and rationales that guided their behaviors.

Although the focus of this study is the origin of teachers' beliefs, the results demonstrate that teachers' behaviors are shaped by their personal beliefs regarding child development and education.

Several other studies also indicate teachers' practices and classroom quality to be congruent with teachers' beliefs (Bryant, Clifford, & Peisner, 1991; Isenberg, 1990; Vartuli, 1999). Hyson (1991) found a strong correlation between teachers' self-reported beliefs and observed practices. Teachers' who held beliefs consistent with developmentally appropriate practices were less likely to implement practices that reflected an "academic" focus. Using the Teacher Belief Scale (TBS; Charlesworth et al., 1991) and the Early Childhood Environment Rating Scale-Revised (ECERS-R; Harms, Clifford, & Cryer, 1998), Brown et al. found a significant, positive relationship between teachers' beliefs and classroom practices and quality. Teacher who scored higher on the ECERS-R, reported more developmentally appropriate beliefs ($r = .309$) and practices ($r = .366$). Similarly, in an examination of Head Start classrooms, teachers' developmentally appropriate belief scores accounted for almost 20% of the variance in quality scores (McCarty et al., 2001). Based on a one-way ANOVA, there was a significant difference between the beliefs of teachers in low quality versus average or high quality classrooms. Teacher who held beliefs that were developmentally inappropriate were more likely to have low quality scores.

Despite the above results, some studies have indicated inconsistencies in beliefs and practices (Charlesworth et al., 1991, 1993; Isenberg, 1990). Although Hyson (1991) found a significant correlation ($r = -.61$) between beliefs and practices, this correlation

was not perfect; teachers with developmentally appropriate beliefs implemented both developmentally appropriate and inappropriate practices. Findings from Jones and Gullo (1999) suggest that teachers' self-reported beliefs did not consistently match their observed practices; out of the 87 teachers who reported developmentally appropriate beliefs, only 66 classrooms reflected developmentally appropriate practices. Correspondingly, although 110 teachers reported beliefs consistent with developmentally inappropriate practices, 141 teachers were found to implement such practices in their classrooms. More strikingly, Verma and Peters (1975) found that for only 2 of 38 teachers were beliefs and practices congruent. Specifically, their measures of beliefs and practices were based upon Piagetian and operant conditioning theories. Teachers' classroom behaviors were observed using the Teacher Practices Observation Form, and beliefs were reported by teachers on the Teachers Beliefs Rating Scale; both measures were developed by the authors for this study. The results demonstrated that though the majority of child care teachers believed that classroom instruction should be based upon Piagetian principles, observations of teachers' practices reflected operant conditioning and behavioral theory. Verma and Peters suggest that teachers may be implementing these practices for two reasons. First, teachers may find it less time consuming to learn and implement practices based upon operant conditioning. Thus, rather than taking the time to reflect upon more appropriate, child-directed theories, teachers may opt for more immediate solutions guided by behaviorism. Secondly, child care programs do not often decide on, explicitly state, and enforce adherence to one particular theory or philosophy to guide classroom practice. This may lead to confusion for teachers regarding

expectations or create pressure to agree with the system of beliefs that administrators advocate. Additionally, teachers may feel coerced into adopting practices with which they do not personally agree.

Indeed, according to a survey of Oregon kindergarten teachers many teachers acknowledged that they “have adopted practices that most of them consider inappropriate” (Hitz & Wright, 1988, p. 30). Although most of the teachers surveyed agreed with developmentally appropriate rather than formal academic practices, the majority of respondents reported an increase in emphasis on academic practices. Moreover, in a qualitative study by Wesley and Buysse (2003), responses from focus groups of teachers, principals, and parents indicate that kindergarten teachers are frequently faced with implementing practices that differ from their beliefs. Teachers struggled with balancing what practices they believe are more appropriate in promoting optimal development for all children and those which are encouraged in local, state, or national policy. Furthermore, the participants expressed concern that policies which encouraged developmentally inappropriate practices would soon extend from kindergarten and first grade into preschool settings. Similarly, a study conducted by Hatch and Freeman (1988) indicates that almost two-thirds of teachers are working in daily conflict between beliefs and practices, especially as programs become increasingly academic.

There is some evidence that these inconsistencies may be a result of sample characteristics, such as grade level and classroom quality. For example, Stipek and Byler (1997) found that teachers’ beliefs and practices matched in pre-kindergarten and

kindergarten classrooms, but not first grade. Brown and colleagues (2006) found similar results; teachers in 4-K (pre-kindergarten) classrooms had beliefs more consistent with developmentally appropriate classrooms and scored higher on the ECERS-R than teachers in the 5-K (kindergarten) classrooms. Additionally, the connection between beliefs and practices was more variable for teachers in lower quality classrooms than in higher or average quality rooms (McCarty et al., 2001).

There are several teacher characteristics that have been identified as predictors of developmentally appropriate beliefs. For example, education is one of the most consistent predictors. However, it is not simply years of education that predict more developmentally appropriate beliefs, but area of specialization; those teachers with early childhood training are more likely to demonstrate developmentally appropriate beliefs and practices (Brown et al., 2006; McCarty et al., 2001; Cassidy, Buell, Pugh-Hoese, & Russell, 1995). In addition, fewer years of teaching experience were associated with teachers having beliefs that are more consistent with developmentally appropriate practices, as well as higher quality classrooms (McCarty et al.; Vartuli, 1999). Previous research has noted several characteristics of teachers that may be predictive of classroom practices and/or quality. This study will include several of these characteristics such as experience, education, and training in early childhood in addition to teachers' beliefs to examine how teachers' knowledge of and previous work in early education are related to teachers' practices.

Administrators' characteristics. Within school systems, principals have been identified as instructional leaders (Butterfield & Johnson, 1995; Goldman, 1998;

Stanovich & Jordan, 1998). As such, they are responsible for creating the instructional climate of schools by establishing common goals and creating school norms (Stanovich & Jordan). Although their influence is primarily indirect (Rusher et al., 1992), the beliefs and behaviors of principals are essential to understanding the system as a whole as well as classroom practices and processes. In accordance with ecological theory, principals' beliefs and behaviors color their interactions, or proximal processes, with teachers and are an exosystem influence on the basic structure of the classroom. Nevertheless, results regarding principals' beliefs and the congruence between the beliefs of principals and teachers are mixed. Some studies indicate that principals and teachers hold similar beliefs about developmentally appropriate practices (Bryant, Clifford, & Peisner, 1991; McCarty et al., 2001). However, the general consensus is that principals are less inclined to believe and support developmentally appropriate practices than teachers (Butterfield & Johnson, 1995; Charlesworth et al., 1993). Specifically, principals frequently emphasize academics and basic skills approaches more than teachers (Hyson, 1991), and are less likely to agree with allotting much of the school day to free choice activities (Rusher et al, 1992).

Though principals were not consistent supporters of developmentally appropriate beliefs or practices, some studies have identified personal characteristics of administrators who are more likely to hold developmentally appropriate beliefs. Education, for example, is often a precursor to more appropriate beliefs. Principals who were certified in early childhood or attended early childhood workshops were more likely to agree with and support developmentally appropriate practices (Butterfield & Johnson, 1995; Rusher et al., 1992). Experience teaching in kindergarten through third grade (K-3)

was also a significant predictor of principals' developmentally appropriate beliefs; those principals with previous experience teaching younger children had beliefs that were consistent with developmentally appropriate practices (Rusher et al.). In addition, several studies demonstrated that female principals agreed with developmentally appropriate beliefs more frequently than male principals (Butterfield & Johnston; Rusher et al.). However, female principals were also more likely to have had teaching experience in K-3 and more training in early childhood than their male counterparts.

A caveat to these findings is that the majority of these studies were conducted with elementary school principals who may find difficulty in meeting the requirements of developmentally appropriate practices in varying grade levels. Often, elementary school principals have had less training and work experience in early childhood education, which has been shown to promote developmentally appropriate beliefs regarding child development and classroom practices (Rusher et al., 1992). Similarly, elementary school principals are often responsible for children ages four or five to eleven or twelve. Appropriate practices in a sixth grade classroom look very different from best practice in a pre-kindergarten or kindergarten class; thus, principals may adopt beliefs and encourage practices in early childhood classrooms that are more appropriate for older children. Furthermore, principals, rather than child-care center directors, may experience additional pressure from an increase in standardized testing and accountability standards, making them more likely to adhere to developmentally inappropriate beliefs and practices (Tyre, 2006). Additionally, only one study (Bloom & Sheerer, 1992) addressed directors of private and not-for-profit child-care centers. There may be a difference in predictors of

developmentally appropriate beliefs, as well as direction and means of influence in child-care centers versus elementary schools. This study aims to include both elementary schools and child-care centers in order to clarify the relationship between administrator and teachers in a variety of settings.

Teacher efficacy. One of the most consistent findings in teacher efficacy research speaks to the pressure teachers feel from outside sources (Seefeldt & Barbour, 1988). Specifically, teachers noted that restrictions and mandates from administrators gave them a decreased sense of efficacy; teachers often felt compelled to implement practices that were incongruent with their beliefs (Butterfield & Johnson, 1995). Teachers in public schools have also expressed feelings of pressure from having to prepare young children for standardized tests and school readiness assessments (Tyre, 2006). According to Wesley and Buysse (2003) teachers attribute this pressure to new standards of accountability; as one teacher states, “we are governed by testing and standards, and I have to hold the kids to the standard curriculum, and I’m held accountable” (p. 358).

However, some studies suggest that teacher efficacy may buffer feelings of outside pressure and help teachers adhere to practices that are in line with their beliefs (Hoy & Woolfolk, 1993). Teachers’ beliefs and administrators’ leadership and support have been identified as two predictors of teacher efficacy. Teachers who held more appropriate beliefs perceived administrators to have less influence on their classroom practices and had a higher sense of efficacy (Charlesworth et al., 1991). Additionally, teachers who reported that they felt support from their administrators were also more efficacious than teachers who perceived little or no support from administrators (Hoy &

Woolfolk). Administrators who were willing to use their influence with superiors such as school superintendents and policy makers on teachers' behalf had more efficacious teachers. This administrative support may encourage efficacy by relieving outside pressures that hinder teachers from implementing practices that are consistent with their beliefs.

There are several other predictors of both general and personal efficacy in teachers. In Hoy and Woolfolk (1993) personal efficacy was related positively to organizational climate. Their findings indicate that orderly work environments and high resource support were related to higher personal efficacy scores. Specifically, teachers' ratings of support for instrumental tasks and classroom management were related to teachers' sense of efficacy; teachers who felt they had high levels of instrumental support from administrators and colleagues were more efficacious. Several studies have also demonstrated that teachers feel more efficacious when they are involved in decision making and leadership roles (Vartuli, 1999) and where innovation in the classroom is encouraged (Hoy & Woolfolk). Similarly, Fuller et al. (1982) suggests that administrators could increase efficacy, as well as job commitment and satisfaction, through delegating more meaningful tasks and clarifying overall vision and goals. Bloom (2004) suggests that when directors share leadership responsibilities with teachers, teachers feel more empowered in their work, finding greater meaning and dedication to their tasks.

Coincidentally, some predictors of teacher efficacy are also predictors of developmentally appropriate beliefs and practices. For example, higher education levels (Hoy & Woolfolk, 1993) and early childhood certification are correlated with higher

efficacy (Vartuli, 1999). Charlesworth et al. (1991) found that developmentally appropriate beliefs, implementing more creative activities, and less teacher directed learning were all related positively to teacher's sense of efficacy. Conversely, some studies did find that highly efficacious teachers were engaged in more large-group instruction time (Gibson & Dembo, 1984) and emphasized academics and basic skills (Hoy & Woolfolk, 1993). The samples for these studies, however, included teachers in kindergarten through sixth grade, and their results may not be applicable to early childhood classrooms.

CHAPTER III

RESEARCH QUESTIONS AND HYPOTHESES

Based upon the literature reviewed above, there are still several gaps in current research. Specifically, there is still confusion regarding the relationship between teachers' beliefs and their classroom practices. Additionally, there is little information regarding how administrators' characteristics such as beliefs and leadership style are related to teachers' beliefs and practices, as well as classroom quality. Finally, teacher efficacy has not been included in many studies of early childhood teachers. Similarly, there has not been much research on how teacher efficacy is related to teachers' beliefs, practices, and administrators' leadership.

In order to address these gaps in previous research, this study examined the following questions. First, are teachers' beliefs related to their classroom practices and the global quality of their classroom? What are the characteristics of teachers who hold beliefs consistent with developmentally appropriate practices? Secondly, are administrators' beliefs associated with teachers' beliefs and practices? What characteristics of administrators are more predictive of developmentally appropriate beliefs? Specifically, is there a difference between the characteristics and beliefs of public school principals and child care center directors? If administrators' and teachers' beliefs are related, does the congruence between administrators' beliefs and teachers' beliefs moderate the relationship between teachers' beliefs and classroom quality and

practices? Do teachers find it difficult to implement practices consistent with their beliefs if these practices are not encouraged by supervisors? Similarly, do administrators' beliefs have a direct impact on classroom practices or is this relationship mediated by teachers' beliefs? Thirdly, does administrator leadership style support or detract from developmentally appropriate beliefs and practices? Are there specific categories of leadership characteristics that are related to teachers' practices? Do teachers and administrators have similar perceptions of leadership style and is this congruence (or non-congruence) predictive of classroom practices and quality? Finally, what role does teacher efficacy play? Are highly efficacious teachers more resistant to pressures from administrators? The answers to these questions are essential to understanding the day-to-day experiences of early childhood teachers. Careful investigation of factors that are involved in the relationship between beliefs and practices may help practitioners combat teacher stress, ineffectiveness, and burnout, creating a more satisfactory environment for teachers, as well as children (Vartuli, 1999).

Hypotheses

Using the definitions, theory, and empirical evidence presented above as a foundation, I hypothesized that findings from the proposed study will demonstrate support for the following relationships:

1. Despite the mix of findings, the relationship between developmentally appropriate beliefs and classroom practices and quality has been established in many studies; therefore, the findings will support a positive relationship between teachers' beliefs and practices. More specifically, teachers' who hold beliefs more consistent with

developmentally appropriate practices are more likely to apply such practices and in turn, have higher quality classrooms. Conversely, teachers' who have more developmentally inappropriate beliefs (i.e., beliefs in accordance with the basic skills approach) are more likely to follow inappropriate practices and have lower quality classrooms.

2. Furthermore, teachers' education level, years of experience, and amount of training in early childhood will be predictors of developmentally appropriate beliefs and practices, as well as classroom quality. Teachers with more education and specialized training in early childhood and less experience will be more likely to hold beliefs consistent with developmentally appropriate practices. In addition, these teachers will be more likely to implement developmentally appropriate classrooms and score higher on a measure of global classroom quality.

Within the social system of child-care programs, administrators are powerful influences and set the organizational and instructional climate of programs. Therefore, understanding how their beliefs and leadership styles impact teacher functioning is central to increasing quality practices in early childhood classrooms.

3. Drawing from systems and ecological theory, as well as previous research, administrators' beliefs and teachers' beliefs will be related positively; however, administrators' beliefs will be more consistent with developmentally inappropriate practices than will the beliefs of teachers.

4. Similar to teachers' beliefs, administrators who have more education, specialized early childhood training, experience teaching early childhood, and are female will be more likely to hold developmentally appropriate beliefs and advocate those

practices in their programs. Because elementary school principals are less likely to fall into those categories, there will be a difference between public school principals' beliefs and those of center-based care directors'; principals will be less likely than center directors to have developmentally appropriate beliefs.

5. Furthermore, the congruence between administrators' beliefs and teachers' beliefs will moderate the relationship between teachers' beliefs and practices. When administrators' and teachers' hold similar beliefs, there will be more consistency between teachers' beliefs and practices regardless of whether those beliefs reflect developmentally appropriate practices.

6. In addition, administrators' beliefs influence on classroom practices will be mediated partially by teachers' beliefs; administrators' beliefs will be related positively to teachers' beliefs, which will in turn, be related positively to classroom practices.

7. In regards to administrator leadership style, my questions and hypotheses are more exploratory. Teachers and administrators who have similar perceptions of the administrator's leadership style will be more likely to implement practices that are in line with their personal beliefs. On the other hand, those teachers and administrators who disagree on leadership style and characteristics will have more difficulty implementing practices in accordance with their beliefs.

Teacher efficacy has been related to effectiveness in teaching and student performance (Gibson & Dembo, 1984). Those teachers who are more efficacious have an easier time organizing classrooms, interacting with students, and implementing desired practices. Additionally, teachers with higher education, specializations in early

childhood, and developmentally appropriate beliefs are often better able to articulate their beliefs, goals, and objectives to others and therefore, possess a high sense of teaching efficacy (Bredekamp, 1987; Seefeldt & Barbour, 1988).

8. Consequently, teacher efficacy will moderate the relationship between teachers' beliefs and practices in that higher efficacy will lead to a stronger correlation between teachers' beliefs and practices. Teachers with high levels of efficacy will perceive less and be more resistant to pressure from administrators, regardless of the congruence between teachers' and administrators' beliefs. On the other hand, teachers with lower levels of efficacy will be less likely to turn their personal beliefs regarding early childhood education into classroom practices. These teachers will be more likely to adopt practices consistent with their administrators' beliefs rather than their personal beliefs; again, this relationship will exist regardless of the congruence between teachers' and administrators' beliefs.

CHAPTER IV

METHOD

Sample

The intent of the current study was to examine the relationship between teacher and administrator beliefs, as well as the role of teacher efficacy and administrator leadership style on classroom practices and quality in a variety of early childhood education programs. The sample was obtained through early childhood programs recently assessed by the North Carolina Rated License Assessment Project (NCRLAP). Specifically, this sample included lead teachers and administrators from preschool classrooms assessed with the Early Childhood Environment Rating Scale-Revised (ECERS-R; Harms, Clifford, & Cryer, 2005) between January 2007 and April 2007. All preschool programs (serving children ages 31 to 60 months) assessed with the ECERS-R during this time were invited to participate in this study. If there were multiple classrooms assessed within one program, these classes were entered into a random selection, and one class was invited to participate. In total, 396 programs (each including one administrator and one teacher) were invited to participate. One hundred forty classrooms were excluded for one of the following reasons: a) the teacher rated on the ECERS-R was the same person as the administrator, b) either the teacher or administrator no longer worked at the center, c) the teacher or administrator was never reached by phone, or d) the administrator was in charge of more than one child care facility and only

one of those programs was selected randomly to participate in the study. Only eight of the administrators who were reached by phone refused to participate. One hundred fifty-six pairs of packets were mailed to participants which resulted in a sample of 81 classrooms for an overall response rate of 51.9%. Out of the 81 classrooms included in the sample, 72 administrators and 61 teachers participated by returning their surveys; 51 of these administrators and teachers were from the same program.

The NCRLAP assesses the global quality of child-care programs throughout the state of North Carolina, thus the sample included a variety of early care and education programs. Additionally, the centers assessed by the NCRLAP serve a range of populations including low to high income families, as well as urban and rural populations. However, specific data on socioeconomic status and geographical location of the programs were not collected and cannot be included in the sample description or data analyses. The sample also demonstrated a variety of quality in care: classrooms scored between less than good (4.24) to excellent (6.72) on the ECERS-R. Nevertheless, one limitation of the sample is that the NCRLAP assessment process is voluntary; early childhood education programs were not selected randomly and may not be representative of programs across the whole state, including lower quality programs. In general, the programs reported an average of 148 children enrolled in the program with a range of enrollment from 10 to 700 children. The age range of children in the programs was from 0 to 13 with the majority of the programs enrolling either preschool and school age children or infants to school-agers. The average number of children in the classroom

was approximately 17 for both child care and public school teachers; teacher-child ratio data were not collected.

Individuals from several types of programs participated in the study. In order to best describe the sample, the description below was divided into two settings: a) child care centers (which include private, not for profit, and government funded centers) and b) public school pre-kindergartens. The proportion of child care centers to public school programs was representative of both the ratio of program types assessed by the NCRLAP during the data collection and the ratio of packets mailed to participants.

Administrator characteristics. Seventy-two of 156 administrators participated in this study. Fifty-three out of 120 administrators from child care centers returned their packets for a response rate of 44.1%. Nineteen of the 36 administrators of public elementary schools participated (52.7% response rate). Table 1 shows the demographic characteristics for all of these administrators. Though the majority of these administrators were European American (64.4%; 57% in child care centers and 84.2% in public schools), the sample did include other ethnic groups. In the total sample, 23% of administrators identified themselves as African American; among the child care administrators the percentage of African Americans was 30%. Only one public school administrator was African American. Five administrators in the total sample self-identified as Native American (6.8%); four were administrators in child care and one was a public school principal. Only one administrator identified as “Other”, and three of the administrators did not identify themselves in terms of ethnicity. The sample was primarily female (91.8%); however, there were five male administrators (6.8%) in the

sample. All of the male administrators were from public schools. One administrator did not report his or her gender. On average, the administrators were almost 49 years old (48 in child care and 50 in public schools); the youngest administrator was 30 years old, and the oldest was 76 years of age. In terms of experience, the administrators averaged 10.36 years of experience as an administrator (ranging from 1 to 35) and 14.29 (range 0 to 35) years of experience teaching early childhood. These averages were similar to the child care administrators who had 10.81 years of administrative experience and 15.31 years of teaching experience. The public school administrators on the other hand had less experience in both administration (9.42) and teaching (11.47). One hundred percent of the administrators had completed at least some college. In the child care sample, almost 14 % had either some college coursework or had completed a 1 year community college degree or certificate. Thirty-four percent had a two-year Associate's degree, 26.4% had a bachelor's degree, and some (22.6%) had either some graduate coursework or a graduate degree. All of the nineteen public school administrators had graduate degrees. The majority (54.8%; 67.9% in centers versus 21% in public schools) of the administrators did specialize in early childhood education/child development; however, the split samples showed that most administrators who specialized in early childhood were employed in child care centers (67.9%). Conversely, only 21% of administrators from public schools received degrees in early childhood or child development. In the total sample, there were quite a few administrators (32.9%) who received degrees in a related field such as psychology or education; almost three-quarters of the public school administrators majored in a related field compared to 17% of the child care administrators. Very few

administrators in either setting specialized in a non-related field such as business (8% in total sample and 11.3% of child care administrators). Three administrators did not report a specific field of study. The administrators worked at their current program for an average of 8.75 years (ranging from 3 months to 33 years) and supervised the teacher selected for the study for an average of 3.06 years (range 3 months to 12 years). Again, the child care administrators were employed at their current programs longer (10.35 years vs. 4.4 years in public school) and supervised the teacher from this study longer (3.3 years vs. 2.41 years in public school).

Teacher characteristics. Though fewer teachers than administrators participated in the study, there were still 61 total teachers who returned their packets. Forty-seven teachers in child care participated (39.2% response rate) compared to 14 public school teachers (38.9% response rate). Table 2 indicates the demographic characteristics for these teachers. In terms of ethnicity the teachers were a little more diverse; however, the majority of the sample was still European American (54.8%; 46% in child care and 78.6% in public schools). Thirty percent of the teachers in the total sample were African American and almost five percent were Native American. In the child care sample, 34% were African American, six percent were Native American, and two teachers (3.2%) identified themselves as “Other”. In the public school sample, the only other ethnicity reported was African American (21.4%). Four teachers in the total sample (6.5%) did not report their ethnicity. Similar to the rest of the child care field, 96.8% of the teachers were female. Two teachers (3.2%) did not specify a gender. On average, the teachers were 42 years old and had 8.97 years of experience teaching preschool children (ages

ranging from 2 to 5 years). The teachers in the child care sample were older than the public school teachers; the average ages were 43 years compared to 40 years. Child care teachers also had more experience teaching preschool children (9.89 years) than the public school teachers (6.21 years). Similar to the administrators, every teacher had at least a high school degree. In the child care sample, 25% of teachers had completed their North Carolina credentials, some college coursework, or a one-year degree. Approximately 43% of these teachers had completed their 2-year degree and 21% had a bachelor's degree. Three teachers (6%) had a graduate degree. The public school teachers were more educated than the child care teachers. Sixty-four percent had received a bachelors' degree and 25% had completed some graduate coursework or a graduate degree. In both settings, most of the teachers specialized in early childhood education or child development (74.5% in child care and 78.6% in public schools). Four percent of the child care teachers majored in a related field, two did not specialize in a related field, and 17% did not report a specialization. A larger percentage of the teachers in public schools majored in a related field (21%); most of these teachers specialized in early childhood education. Overall, the teachers reported an average of 5.13 years working at their current program and 3.85 years under their current administrator. Similar to the administrators, the child care teachers had worked at their current programs longer than the public school teachers (5.52 years vs. 3.86 years). Child care teachers had also worked under their current administrator longer than public school teachers (4.18 years compared to 2.79 years).

Procedure

Survey data. Using contact information from the NCRLAP database, initial contact with the administrators was made with phone calls after the licensing assessment was completed. The purpose of this phone call was to inform the administrators about the study and ask if they would like to participate. If administrators agreed, packets including all questionnaires, consent forms, and self-addressed envelopes were sent to administrators. In order to maintain confidentiality and ensure that teachers did not feel pressure from administrators to participate in the research, the packets were separated (with individual return envelopes) for teachers and administrators. The teacher packet included the Teacher Belief Scale, Instructional Activities Scale, the Teachers' Sense of Efficacy Scale, and the administrator leadership style questionnaire, as well as a demographic questionnaire and informed consent forms. Similarly, administrator packets consisted of an adapted Teacher Belief Scale, the administrator leadership style questionnaire, a demographic questionnaire, and informed consent forms. All participants with completed packets were entered into three drawings for a fifty dollar gift certificate to Target for teachers and administrators.

Observational data. ECERS-R scores were used to measure the global quality of the participating programs/classrooms. The observational data were not collected directly for this study. Rather, these data were collected by highly trained assessors for the North Carolina Rated License Assessment Project (NCRLAP) as a part of North Carolina's quality rating system. The scores from these assessments were then gathered from the NCRLAP database for the purposes of this study. In line with the procedures of the NCRLAP, classroom quality assessments consisted of a 3-5 hour observation and a

teacher interview. Interrater reliability was checked every 6 to 10 assessments for assessors with an interrater reliability of 85 to 89 percent. For assessors with consistent reliability scores of 90% or better, reliability checks occurred at least twice a year.

Measures

The instrumentation in this study consisted of a classroom observation, four teacher questionnaires, and two administrator questionnaires, as well as demographic data sheets for both teachers and administrators (see Figure 1). The instruments were as follows:

Teacher Belief Questionnaire. The teacher belief questionnaire (TBQ; Charlesworth et al., 1991) consists of two subscales, the Teacher Beliefs Scales (TBS) and the Instructional Activities Scale (IAS). The TBS consists of 37 items rated by teachers on a likert scale from 1 (*not important at all*) to 5 (*extremely important*). Items in this scale address teachers' beliefs about appropriate and inappropriate interactions ("It is ____ for teacher-child interactions to help develop children's self-esteem and positive feelings towards learning.") and classroom activities ("It is ____ for children to color with predefined lines."). Additionally, in the first item teachers estimate percentages on the amount of influence each holds on their instructional practices: parents, school policy, principal (administrator), self, state regulations, and other teachers. These percentage estimates are to total 100%. The TBS has been widely used in studies regarding teachers' beliefs and demonstrates face and construct validity. In addition, the scale's internal consistencies are .85 for appropriate beliefs and .80 for inappropriate beliefs (Charlesworth et al.). In the current study, the TBS was also adapted to measure

administrators' beliefs; items refer to "programs" rather than "classrooms" ("It is ____ for children in your program to learn to read."). Items 1, 3, 6, 10, 13, 14, 15, 16, 18, 19, 22, and 23 in this scale were reverse coded in order for higher scores to reflect more developmentally appropriate beliefs for both teachers and administrators. For these times, 1 (*not important at all*) became 5 (*extremely important*) and vice versa. A composite score was then calculated by totaling the scores for each item; again a higher score indicated more developmentally appropriate beliefs. The reliability based upon this sample was .836 for the teachers and .811 for the adapted administrators' scale.

The IAS measures the appropriateness of teachers' classroom practices using 34 items. Teachers rate how often they include specific practices in their classrooms from 1 (*almost never, less than monthly*) to 5 (*very often, daily*). In a test of psychometric properties, Charlesworth et al. (1991) found the IAS to consist of six factors including appropriate, inappropriate, exploratory, rote learning, art, and control activities. This scale also required reverse coding; items 12, 14, 15, 16, 17, 18, 19, 20, 21, 22, 24, 25, 27, and 31 were recoded so that 1 (*almost never, less than monthly*) became 5 (*very often, daily*) and 5 became 1. The composite score was then calculated by summing the scores for each item. Higher scores reflected more developmentally appropriate practices. The internal consistencies for these factors range from .60 to .75. Similar to the TBS, the IAS has also been used a variety of research studies and is considered a valid instrument. In this study, the alpha for the whole scale was .655.

Teachers' Sense of Efficacy Scale. The Teachers' Sense of Efficacy Scale (TSES; Tschannen-Moran & Hoy, 2001) measures three factors of teacher efficacy. The

subscales consist of efficacy in student engagement (SE), efficacy in instructional strategies (IS), and efficacy in classroom management (CM) and demonstrate high levels of reliability (alphas ranging from .81 to .90). Teachers rank each item on a likert type scale from 1 (*nothing*) to 9 (*a great deal*). Examples of items from each scale include: “How much can you help your students value learning?” (SE), “How well can you implement alternative strategies in your classroom?” (IS), and “How much can you do to calm a student who is noisy or disruptive?” (CM). For the purposes of this study, “children” was substituted for “students” on all items to better fit the language used in early childhood classrooms. Similarly, the phrase “class activities” was used instead of “school work”. There is both a long form of the scale (24 items, alpha = .94) and a short form (12 items, alpha = .90). In order to minimize time for teachers to complete questionnaires, the short form was used in this study. The overall score for this scale was created by adding the participants’ rating for each item. The overall alpha for this scale based upon the sample from this study was .904.

Leadership style. Created by Paula Bloom (2005), the leadership style assessment tool was intended to gauge teachers’ perceptions and administrators’ self-perceptions of administrators’ leadership. Participants rated whether they or their administrators exhibit various leadership traits (i.e., accessibility, enthusiasm, organization, and resourcefulness) using a likert scale rating system. The rating ranges from 1 (*strongly disagree*) to 5 (*strongly agree*). Although the original phrasing was directed to teachers, the scale was completed by teachers and administrators. For this study, I adapted the phrasing to address teachers and administrators separately; pronouns were changed from

“he/she” to “I” for the administrator version of the scale. In addition, for administrator and teacher report in child-care centers, the word “director” was used; for those participants in public school pre-kindergarten programs, the word “principal” was used. These distinctions were made in order to maintain clarity in who is considered an administrator. Similar to the other scales, the score for administrators’ leadership style was calculated by totaling the ratings for each item; administrators and teachers had separate overall scores. Because it was designed for improving child-care programs and not for research purposes, the assessment tool did not have reliability or validity scores from other research. However, based upon the definitions of this study, it did at least demonstrate face and construct validity. Moreover, the alpha for this study was .959 for the administrators and .982 for the teachers.

Early Childhood Environment Rating Scale-Revised. The ECERS-R is one of the most widely used and validated classroom observational scales for assessing global quality in early childhood classrooms. The scale includes 43 items in 7 subscales: space and furnishings, personal care routines, language/reasoning, activities, interactions, and parents and staff. Each item is scored from 1 (*inadequate*) to 7 (*excellent*). Internal consistency for the scale as a whole is .92, with subscale ranges from .71 (Parents and staff) to .88 (Activities) (Harms et al.). In this study, Cronbach’s alpha for the entire scale was .862. However, the scores for the parents and staff subscale were not used in the analyses as these scores are not used in the overall average reported for program licenses in North Carolina. Without the parents and staff subscale, the alpha for the ECERS-R was .815.

CHAPTER V

RESULTS

Preliminary analyses

SPSS statistical software was used for all analyses. Preliminary analyses included an independent samples t-test to explore any differences between public school principals and child-care center directors in regards to their beliefs and leadership style. A similar test was conducted to see if differences exist between public school and child-care center teachers. As hypothesized, there were significant differences between the child care administrators and public school administrators on both the administrators' self-perceptions of leadership style ($t(64) = -2.36, p = .021$) and administrators' beliefs ($t(64) = 2.011, p = .049$). However, the sample size of public school principals ($n = 19$) was not large enough for sufficient statistical power to know if the differences between the settings were a result of chance. Similarly, there was a significant difference between teachers from child care centers and public schools ($n = 14$) in terms of their personal beliefs ($t(36) = -2.752, p = .009$) and reported practices ($t(36) = -2.631, p = .012$). Again, despite this finding, there was little power due to the small sample size. Separate analyses were run using only the administrators and teachers from center based settings. Only one of the regression analysis which tested predictors of administrators' beliefs resulted in different findings from what was found using data from both child care centers and public school programs. Because of low statistical power with a split sample and the

lack of difference in results in the separate analyses, the results reported below combine administrators and teachers from both settings. Additionally, in order to gain an overall picture of the data, preliminary analyses also tested the correlations between all variables collected in this study. However, only correlations that are connected to the hypotheses outlined above are reported in the following results.

Hypothesis testing

Specifically, these correlational analyses tested whether teachers' beliefs and practices were related, as well as examine whether administrators' beliefs were related to teachers' beliefs and practices. Additionally, multiple regression was used in order to understand what personal characteristics of teachers and administrators were related to more appropriate beliefs. Furthermore, regression analyses tested a variety of variables that may mediate or moderate the relationship between teachers' beliefs and practices.

Hypothesis 1. The findings will support a positive relationship between teachers' beliefs and practices.

As noted in Table 3, there was a strong correlation between teachers' reported beliefs and reported practices ($r = .722, p < .001$). As teachers' reported more developmentally appropriate beliefs, they also stated that they implemented more developmentally appropriate practices. Also, a moderate, significant correlation was found between teachers' reported beliefs and ECERS-R scores ($r = .294, p = .034$). Thus, teachers who reported more developmentally appropriate beliefs also had higher global quality scores. This correlation was not as strong as the relationship between teachers' reported beliefs and reported practices; however the significance of this correlation is

meaningful due to the small sample size. Although the Instructional Activities Scale and ECERS-R both measure teachers' classroom practices, there was a moderate correlation between the scores on these measures ($r = .372$, $p = .009$). The magnitude of this correlation probably results from: a) distinctions between self-report and observational measures, and b) the divergence in items/questions and scoring requirements for both scales.

Hypothesis 2. Teachers' education level, years of experience, and amount of training in early childhood will be predictors of developmentally appropriate beliefs and practices, as well as classroom quality. Teachers with more education and specialized training in early childhood and less experience will be more likely to hold beliefs consistent with developmentally appropriate practices.

Based upon the theory and empirical evidence presented earlier, teachers' highest education level, field of study, years of professional experience working with early childhood, and years specifically teaching children ages 2.5 to 5 years of age were entered as predictors of teachers' reported beliefs. Overall, the stepwise regression revealed a significant relationship between these predictors and teachers' beliefs ($F(1, 41) = 13.426$, $p = .001$), and explained approximately one-quarter of the variance in teachers' beliefs ($R^2 = .247$) (see Table 4 for regression results). However, only one variable, highest level of education completed, emerged as a predictor of teachers' beliefs ($t = 3.664$, $p = .001$). In terms of teachers' reported practices, the overall relationship was significant ($F(1, 39) = 6.407$, $p = .016$) and explained 14.1% of variance (see Table 5). Of the same set of predictors, only teachers' level of education was a significant predictor of

teachers' practices ($t = 2.531$, $p = .016$). Interestingly, the overall relationship between these predictors (teachers' education level, field of study, years of experience working in early childhood education, and years of experience teaching children ages 2.5 to 5 years of age) and ECERS-R scores was not significant. Furthermore, none of the variables emerged as significant predictors of ECERS-R scores.

Though teachers' education was predictive of teachers' developmentally appropriate beliefs and practices, this relationship may not reveal the full picture. For example, when teachers' beliefs scores were then added to the same set of predictors to understand the relationship between these variables and teachers' practices, teachers' level of education was no longer significant predictor. Instead, teachers' report of developmentally appropriate beliefs was the only variable that resulted as a significant predictor ($t = 6.933$, $p < .001$). Additionally, the overall relationship explained much more variance than the previous set of predictors. Specifically, this relationship was significant ($F(1, 33) = 48.062$, $p < .000$), and these predictors accounted for more than half (59.3%) of the variance observed in teachers' reported practices. The diminished effect of teachers' education may result from the multicollinearity between teachers' education and their personal beliefs ($r = .492$, $p < .001$), as well as their reported practices ($r = .409$, $p < .001$). Therefore, the relationship between teachers' education level and teachers' reported practices may be confounded by teachers' beliefs which account for most of the variance in the teachers' classroom practices.

Hypothesis 3. Administrators' beliefs and teachers' beliefs will be related positively. Additionally, administrators' beliefs will be related positively to teachers' practices and classroom practices.

Though teachers' beliefs were related to both measures of practices, administrators' reported beliefs were not significantly related to teachers' reported beliefs ($r = .038$, $p = .811$) nor teachers' reported practices ($r = -.101$, $p = .539$) (see Table 3). However, administrators' beliefs were associated moderately with ECERS-R scores ($r = .252$, $p = .04$). The appropriateness of administrators' beliefs seems to only be related to an outsider's observation of global quality, not teachers' report of beliefs or practices. Administrators who reported more developmentally appropriate beliefs were more likely to have teachers who score higher on the ECERS-R. The relationship between administrators' beliefs and administrators' self-perception of leadership style demonstrated a trend toward significance ($r = .228$, $p = .066$). This finding may be significant with a larger sample size. Administrators who rated themselves as strong leaders on various leadership characteristics also reported more developmentally appropriate beliefs.

Hypothesis 4. Administrators who have more education, specialized early childhood training, experience teaching early childhood, and are female will be more likely to hold developmentally appropriate beliefs and advocate those practices in their programs.

In terms of administrators' characteristics and beliefs, the results did not paint the same picture as teachers' characteristics and beliefs. When highest level of education,

field of study, years of experience teaching in early childhood, years of experience as an administrator, and gender were entered as predictors of administrators' beliefs, only gender ($t = 2.198, p = .032$) emerged as significant predictors (see Table 6). Thus, being female was predictive of more developmentally appropriate beliefs. Together, these predictors were related significantly to administrators' beliefs ($F(1, 54) = 4.829, p = .032$), but only accounted for 8.2% of the variance in administrators' beliefs. When this same set of predictors was used to predict teachers' reported practices, gender was no longer significant. Additionally, the relationship overall was not significant. Similar to teachers' beliefs and characteristics, none of the administrators' characteristics were predictive of ECERS-R scores.

Hypothesis 5. The congruence between administrators' beliefs and teachers' beliefs will moderate the relationship between teachers' beliefs and practices. When administrators' and teachers' hold similar beliefs, there will be more consistency between teachers' beliefs and practices regardless of whether those beliefs reflect developmentally appropriate practices.

Based upon both systems and ecological theory, the congruence between teachers' beliefs and administrators' beliefs was hypothesized to act as a moderator of the relationship between teachers' beliefs and practices. In order to test the moderating effect, a congruence score was created by subtracting the composite for administrators' beliefs from the composite for teachers' beliefs. All variables used in the analysis were then centered and entered into the regression equation using a stepwise method. Teachers' beliefs were entered first, followed by the congruence score. Then teachers' beliefs and

the congruence score were multiplied to create an interaction term which was entered last in the regression equation. Contrary to the hypothesis, this test for moderation yielded no significant results; the congruence between teachers and administrators' beliefs did not act as a moderator of the relationship between teachers' reported beliefs and reported practices. There were also no significant results when classroom global quality was used as the dependent variables. The relationship between teachers' beliefs and teachers' practices/classroom quality was not different for teachers who reported beliefs similar to their administrators than for teachers who reported beliefs that did not match their administrators.

Hypothesis 6. Administrators' beliefs influence on classroom practices will be mediated partially by teachers' beliefs; administrators' beliefs will be related positively to teachers' beliefs, which will in turn, be related positively to classroom practices.

Testing for the mediating effects of teachers' beliefs also resulted in insignificant findings. Following Baron's and Kenny's (1986) instructions for determining mediation, I first tested whether administrators' beliefs predicted teachers' practices and global quality, as well as teachers' beliefs. I then examined whether teachers' beliefs predicted their practices and global quality. Finally, I tested whether the addition of teachers' beliefs diminished the predictive value of administrators' beliefs on classroom practices and global quality. Although teachers' beliefs were predictive of both classroom practices and global quality, administrators' beliefs were not predictive of either teachers' beliefs or teachers' practices. Administrators' beliefs were only related to ECERS-R scores, but not mediated by teachers' beliefs. The correlations in Table 3 help to explain these

relationships; only the relationships with significant correlations held in testing mediation.

Hypothesis 7. Teachers who have similar perceptions of the administrator's leadership style as compared to their administrators will be more likely to implement practices that are in line with their personal beliefs.

Using the method used for testing regression (as outlined in hypothesis 5), the congruence between teachers' and administrators' perception of leadership was also tested as moderators, but did not produce a significant finding. Teachers' beliefs were related to their reported practices, regardless of the similarity or dissimilarity in perceptions of administrator leadership.

Hypothesis 8. Teacher efficacy will moderate the relationship between teachers' beliefs and practices in that higher efficacy will lead to a stronger correlation between teachers' beliefs and practices.

As noted in the literature review, theory and past research also relate teacher efficacy to their classroom practices. Teachers' perception of administrator leadership style was correlated positively with teachers' sense of efficacy ($r = .263$, $p = .048$), but related negatively with teachers' reported practices ($r = -.345$, $p = .02$) (see Table 3).

When teachers rated their administrators as strong leaders, they were more likely to rate themselves as efficacious in the classroom. Surprisingly, teachers who reported that their administrators had strong leadership styles also reported less developmentally appropriate practices. Though teachers' perception of administrator leadership was related to teachers' report of practices, it was not associated with overall ECERS-R score or

administrators' report of leadership style. Therefore, teachers' ratings of administrators' leadership were not associated with global quality scores or administrators' ratings of their own leadership. Additionally, using the method outlined earlier, teachers' sense of efficacy was tested as a moderating variable. Again the findings were not significant; the relationship between teachers' beliefs and practices was no different for teachers who rate themselves as more efficacious than teachers who do not consider themselves efficacious.

Teacher efficacy was also measured by the first item in the Teachers' Belief Scale. (See Table 7 for the descriptive information on this item.) In this item, teachers noted the amount of influence that each of the following holds on their classroom practices: parents, school or center policy, administrator/supervisor, self, state regulations, and other teachers. These percentage estimates added to a total of 100% for each teacher. Each of the six percentages were then correlated with the composite scores for all administrator and teacher questionnaires (i.e., Administrator Leadership Questionnaire (administrator and teacher report), Teacher Belief Scale (and administrator version), Instructional Activities Scale, and Teacher Sense of Efficacy Scale) as well as the average ECERS-S scores. Though the structure and policies of child care centers and public school can be very dissimilar, these correlations were based upon the whole sample because of the small sample sizes and low power found in the preliminary analyses.

Teachers' ratings of the influence of state regulations were related to teachers' perceptions of administrator leadership, teachers' reported beliefs, and teachers' reported practices; Table 8 shows these correlations. Specifically, percentage of influence of state

regulations was negatively related to teachers' perception of administrators' leadership characteristics ($r = -.325, p = .015$). Teachers who rated their administrators as strong leaders were less likely to rate state regulations as highly influential to their practices and vice versa. Teachers' ratings of state regulations were also related positively to teachers' reported beliefs ($r = .332, p = .02$) and teachers' reported practices ($r = .343, p = .02$). Teachers who reported more developmentally appropriate beliefs and practices were more likely to report state regulations as highly influential to their practices. Moreover, teachers' beliefs were related negatively to teachers' rating of school/center influence ($r = -.334, p = .019$). Teachers who reported beliefs more consistent with developmentally appropriate practices were less likely to rate school or center policies as influential. Finally, teachers' reported practices were related negatively to teachers' rating of supervisors' influence ($r = -.297, p = .045$). Similar to the correlation between teachers' perception of leadership and teachers' reported practices, teachers who reported their administrators as more influential to practices were less likely to report adherence to developmentally appropriate practices.

CHAPTER VI

DISCUSSION

Although there has been much research in early childhood on the relationships between teachers' characteristics and classroom practices/quality (Charlesworth et al., 1991; Hatch & Freeman, 1988; Maxwell et al., 2001), there is little information on the role of administrators in early childhood settings and the relationships among administrators' characteristics, teachers' characteristics, and classroom practices. Taken together the results from this study portray a complex picture of these relationships. In this picture, there are several sources of influence on teachers' practices and classroom global quality, such as teachers' and administrators' personal characteristics and beliefs. Additionally, teachers reported that state and program level policies were influential to their classroom practices. Though the picture from this study does not include moderating or mediating pathways, it still contains important and even surprising findings that may help to better understand teachers' practices and ways in which administrators may influence their programs. Furthermore, these findings have important implications for the professional development of both teachers and administrators, as well as future research.

Teachers' beliefs related to classroom practices

One purpose of this study was to understand the relationship between teachers' beliefs and practices/classroom quality. Overall, the findings support the proposed hypotheses and highlight the importance of teachers' beliefs to their practices.

Teachers' beliefs and reported practices. Findings from this study indicated that teachers' reported beliefs were associated strongly with teachers' reported practices. Teachers who reported beliefs that were more consistent with developmentally appropriate practices also reported implementing more appropriate practices. Unfortunately, this association also shows that teachers who reported beliefs in line with developmentally inappropriate practices reported using more inappropriate practices.

Although past research demonstrates support for and against this relationship, the association found in this study does have strong empirical support (Brown et al., 2006; Charlesworth et al., 1991, 1993; Maxwell et al., 2001; Pianta et al., 2005; Stipek & Byler, 1997). Each of these studies found a significant relationship between teachers' beliefs and practices despite using a variety of instruments to measure both beliefs and practices. These findings also support several theoretical propositions which identify beliefs as antecedents of behavior. Beliefs, which are based upon past experiences such as social interactions and observations, are thought to motivate individuals' actions, which will then influence future interactions and experiences (Bandura, 1989). This cyclical process of moving from experience to thought to action is no different for teachers in early care and education settings than for any other individual. Teachers' use their personal beliefs and theories regarding children's development as a lens to make sense of the interactions in their classroom. The framework that results from this sense-making process then influences decision making in the classroom, which leads back to various interactions and proximal processes in the classroom (Clark & Peterson, 1986). Though the current study did not find evidence for the relationship between teachers' experience and teachers'

practices or classroom quality, this finding does not necessarily refute this theory. Specifically, in this study, teachers' experience was measured by teachers reporting how long they had worked in early education. Though this information is important, it does not provide insight into the quality of teachers' previous work experience or how that experience has shaped teachers' thought processes. Thus, further research is needed to understand how teachers' experiences shape their beliefs, which in turn are influential in teachers' practices.

Some previous research does not support the conclusions from this study; however, these inconsistencies may be a result of different study characteristics. For instance, Jones and Gullo (1999) studied first grade teachers rather than teachers of preschool programs. Additionally, Jones and Gullo concluded that teachers' beliefs were not consistent with their practices, but did not report a correlation coefficient. Thus, it is difficult to know exactly the strength of the association between teachers' beliefs and practices. There may have been a significant relationship between these constructs even if the relationship was not a perfect correlation of 1. Although Brown et al. (2006) found that teachers' beliefs were related to their practices, their results also showed that kindergarten teachers' beliefs were less consistent with developmentally appropriate practices than preschool teachers' beliefs. Teachers may be experiencing a pressure to use a more "basic-skills" approach to classrooms; however, this pressure may not begin to influence their practices until kindergarten or first grade. Additionally, all of the teachers in the study by Brown et al. were public school teachers. With current macrosystem influences such as legislation requiring stricter standardized testing and

academic performance expectations increasing for many schools, it may be that these pressures are more salient for teachers in public schools rather than teachers in center-based care. In the current study, all of the teachers taught preschool children (2.5 to 5 years of age), and the majority of the teachers were employed in center child care. It may be that teachers in this sample reported implementing the developmentally appropriate practices that were consistent with their beliefs because most were not directly connected to public schools. A sample including preschool, kindergarten, and first grade teachers may offer different results and elucidate inconsistencies in previous research.

Teachers' beliefs and observed classroom quality. Teachers' beliefs were also related positively to global quality of the classroom; teachers who reported beliefs that were consistent with developmentally appropriate practices were more likely to have higher quality classrooms. Several of the studies which offer support for the relationship between teachers' beliefs and practices also report significant relationships between teachers' beliefs and classroom quality (Brown et al., 2006; Maxwell et al., 2001; Vartuli, 1999). However, the relationship between teachers' beliefs and global quality was not as strong as the association between teachers' beliefs and their self-report of practices. The simplest explanation may be that teachers have some bias in reporting both their beliefs and practices and do not want to report that their practices may sometimes be inconsistent with their personal beliefs. Moreover, the items in and constructs measured by the Teachers' Belief Scale and the Instructional Activities Scale may be more closely aligned than those in the Teachers' Belief Scale and ECERS-R.

Another possible explanation is that teachers may not distinguish fully between their beliefs and the practices they actually implement (Pajares, 1992). Just as it can be difficult for any individual to step outside of themselves and objectively evaluate their personal practices, teachers may not be completely aware of when their practices do not match their beliefs. Thus, teachers may be reporting practices consistent with their beliefs, but their actual practices may vary from those which they reported. Several scholars have proposed that teachers need not be aware of their beliefs for these beliefs to influence practices (Bandura, 1989; Clark & Peterson, 1986; Pajares). Teachers' implicit theories drawn from personal experiences may be just as influential as their intentional thoughts and decisions (Spodek, 1988). Similarly, teachers' intuitive knowledge often precludes more formal knowledge during classroom interactions and processes (Cassidy & Lawrence, 2000). Moreover, many teachers have never been required to identify, much less evaluate, their beliefs regarding child development and may therefore have a difficult time articulating such beliefs (Spodek). Perhaps, encouraging teachers to use self-reflection and forethought to evaluate their beliefs and practices may help to strengthen the relationship between teachers' beliefs and classroom quality.

Factors related to teachers' beliefs

Understanding the antecedents of beliefs, specifically which personal characteristics are predictive of beliefs, is also important to understanding the relationship between teachers' beliefs and practices. The results regarding predictors of teachers' beliefs partially supported the hypothesized relationships. Of all of the variables entered into the regression equation (years of experience teaching preschool age children, years

of experience in early childhood, field of study, and level of education), only teachers' level of education significantly predicted teachers' beliefs. Several other studies have also found that teachers with higher levels of education tend to hold more developmentally appropriate beliefs (Brown et al., 2006; Maxwell et al., 2001). More education is often associated with more developmentally appropriate beliefs because teachers are gaining a more specialized knowledge regarding developmental theories and appropriate teaching methods that promote children's development (Cassidy et al., 1995). Even though personal beliefs are often difficult to change (Pajares, 1992), the exposure to more formal theories and methods for promoting child development may lead some teachers to adopt more appropriate beliefs into their personal and professional ideas about children's education.

However, due to the nature of the regression analyses, we cannot say for certain that higher education levels lead to more appropriate beliefs. This relationship, in fact, may work in the other direction; teachers' beliefs may influence their level of education. Perhaps teachers who hold beliefs that are more consistent with developmentally appropriate practices are more likely to seek out and complete higher levels of formal education. Additionally, when teachers' beliefs were entered into the regression equation, teachers' education was no longer predictive of teachers' practices; rather, teachers' beliefs were the only significant predictor. Teachers' beliefs and level of education were also correlated significantly, thereby making it difficult to tease out the distinct influences of each. Because of multicollinearity, teachers' education and beliefs may be capturing similar dimension of teachers' personal characteristics as they relate to teachers'

practices. It may be that teachers' education level is representative of their beliefs and thus serves as a proxy variable for teachers' beliefs. Likewise, because teachers' beliefs are strongly related to their practices, it may be that teachers' beliefs explain a larger percentage of the variability in teachers' practices. In examining several predictors of teachers' appropriate practices, Maxwell et al. (2001) found that teachers' beliefs uniquely accounted for 11 percent of the variance in teachers' practices; none of the other predictors, including teachers' education, singly accounted for such a percentage of the variability.

This finding is a little surprising as teachers' education, and specifically in early childhood, has been established as consistent predictor of global quality in previous research (Cassidy et al., 1995; Vartuli, 1999). However, there are a few studies which suggest inconsistencies in the relationship between teachers' education or specialized training, and classroom global quality. For example, LoCasale-Crouch and colleagues (2007) found that teachers' level of education and/or credentials did not help to distinguish among centers according to quality profile. Furthermore, Troquati, Raikes, and Huddleston-Casas (2007) found that education predicted teacher compensation but not classroom quality for preschool classrooms. They also found that teacher compensation was related to classroom quality in infant-toddler and preschool classrooms. Perhaps there is a construct such as compensation or work environment that mediates this relationship that has not been thoroughly investigated. Additionally, none of the other demographic or personal characteristics of the teachers were predictive of teachers' beliefs, practices, or classroom quality. Previous research has shown that

experience working or teaching in early childhood care and education is not always predictive of more developmentally appropriate beliefs or practices (Maxwell et al., 2001). Future research should examine this lack of clarity in the link between teachers' education, experience, and global quality by including possible mediating or moderating constructs.

Administrators' characteristics and teachers' beliefs and practices

Based upon ecological theory, administrators are a component of teachers' microsystem of work. As such, daily interactions between administrators and teachers have the potential to function as proximal processes to influence teachers' beliefs and classroom practices.

Administrators' beliefs and teachers' practices. Just as administrators work to structure the organizational climate of a center, they also influence classroom practices by advocating specific practices over others. As a part of their job, teachers will often employ the practices encouraged by their administrators. Logically then, those administrators' who have more appropriate beliefs will be more likely to promote developmentally appropriate practices, and teachers will be more likely to implement high quality practices.

However, the findings from this study provide mixed support for this hypothesis. Although there was a moderate, positive association between administrators' beliefs and classroom global quality, there was no relationship between administrators' beliefs and teachers' reported practices. Strikingly, these results are contrary to the findings regarding teachers' beliefs. One explanation for this may be simply that administrators

are not teachers, and thus, are not in the classroom everyday. Because administrative duties often require work outside of the classroom, administrators may not be aware fully of day to day instruction and interaction. Therefore, administrators' beliefs, whether developmentally appropriate or inappropriate, may not have a direct influence on teachers' daily practices. According to Bronfenbrenner and Morris (1998), developmental processes, such as teacher-administrator interactions, are more influential when they occur regularly and repeatedly (see Proposition 2 stated above). Though administrators and teachers may interact on a daily basis, these interactions may not be sustained long enough for administrators' beliefs to influence teachers' practices. Moreover, the content of these interactions may not include direct conversations regarding administrators' beliefs. For instance, many teacher-administrator interactions include day-to-day administrative tasks such as ensuring the teacher has the necessary supplies, discussing a payroll issue, or offering a reminder for an upcoming workshop. Though these various conversations may be reflective of administrators' beliefs, the absence of intentional conversation regarding beliefs may account for the lack of influence on teachers' practices. Future studies are needed to explore the nature and content of interactions between teachers and administrators to see if and how these proximal processes are influential in teachers' practices.

Although administrators' beliefs are not related to teachers' reported practices, they are related to classroom global quality. Because administrators do not always have extensive experience teaching young children (Hyson, 1991), their understanding of what practices are important in early childhood classrooms may come from their knowledge of

the ECERS-R. Furthermore, when administrators do spend time observing in classrooms, they are likely to concentrate on classroom interactions and practices. The feedback given to teachers after these observations may then be focused on specific behaviors rather than administrators' or teachers' beliefs.

Correspondingly, this finding may be indicative of macrosystem influences, specifically through state regulations, on classroom quality. For instance, as the ECERS-R is a component of the rated license system in North Carolina, administrators may be using this instrument as a judge of which classroom practices are most important. Thus, administrators' knowledge of and beliefs about early childhood classrooms may be more closely related to global quality as measured by the ECERS-R because administrators are more familiar with the requirements of the instrument than they are of teachers' daily practices or child development theories and research. Additionally, as higher ECERS-R scores may lead to higher points on the star-rated license system and more subsidized funds from various agencies, administrators may have a more vested interest in promoting specific practices measured by the ECERS-R.

Administrators' and teachers' beliefs. It is also interesting to note that there was no significant relationship between administrators' and teachers' beliefs. Administrators' who reported beliefs consistent with developmentally appropriate practices were no more likely to have teachers who reported more developmentally appropriate beliefs than teachers who reported more developmentally inappropriate beliefs. Although it makes logical sense that administrators would hire teachers who agree with the beliefs of the administrator and the philosophy of the center, this may not be happening in preschool

programs. Perhaps some administrators do not include discussions on beliefs in the hiring process, assuming that other characteristics such as education or field of study indicate a specific set of beliefs. In addition, other variables such as teachers' experience or the urgency of filling a vacancy may be more influential in administrators' decision making than teachers' personal beliefs. However, the findings regarding teachers' beliefs and practices, as well as classroom quality suggest that understanding teachers' beliefs may need to be an important part of the hiring and training process.

Factors related to administrators' beliefs. In regards to administrators' beliefs, only administrator gender emerged as a predictor. Female administrators were more likely than male administrators to hold developmentally appropriate beliefs. This finding, however, may be skewed by the high percentage of female administrators, as the field of early childhood is dominated by women. In particular, all of the male administrators in this study had graduate degrees in related field and most did not have professional experience in early childhood education. Other studies have found that female administrators may have had more experience teaching younger children and are more likely to have specialized in early childhood as opposed to other fields (Butterfield & Johnson, 1995; Rusher et al., 1992). Other indicators such as administrators' education, experience, or field of study were not predictive of administrators' beliefs. It seems that administrators' education and specialized training are not related to their beliefs regarding developmentally appropriate classroom practices. Similar to teachers, it may be that administrators' beliefs originate from personal life experiences, regardless of education or training in early childhood. This finding is a little disheartening, especially

considering many of the administrators in the sample were highly educated and trained in early childhood. Perhaps administrative courses, though related to early care and education, more often focus upon administrative duties, staff relations, and organization of the center instead of child development theories and practices.

Interestingly, none of the administrators' characteristics were predictive of either teachers' reported practices or global quality. Though administrators who are female were more likely to hold more appropriate beliefs, they may not have been able to utilize these beliefs to influence teachers' practices or classroom quality. As noted earlier, it may be that administrators' beliefs are not influential through the proximal processes that drive teacher development (Bronfenbrenner & Morris, 1998). However, administrators' personal characteristics may have an indirect influence on global quality through processes such as administrator-teacher interactions or work environment. Another possible explanation lies in what brings credibility to administrators. In early childhood settings, it may not be beliefs, education, or experience that help teachers to respect their administrators. Rather, teachers may be more likely to listen to their administrators and implement the practices with which they agree when they can relate to the administrators as individuals. Perhaps administrators' leadership style or personality characteristics are more important to teachers as they create work relationships with their administrators.

Thus far these findings suggest that characteristics of both teachers' and administrators' are influential in teachers' practices and classroom global quality. Nevertheless, some of the findings seem contradictory. Therefore, it is necessary to explore the other constructs used in this study, such as the congruence between teachers

and administrators beliefs, administrator leadership characteristics, and teacher efficacy, as possible missing parts of this picture

Congruence of beliefs. Theoretically, the congruence between teachers' and administrators' beliefs may be an important factor in understanding how teachers and administrators function in early childhood settings. Specifically, Bloom (2005) states that early care and education programs work as interdependent systems in which each part of the system influences the other components. Teachers and administrators within the system are influenced by the beliefs and actions of each other through a variety of social interactions and feedback processes. Based upon this idea of interdependence, teachers' practices and classroom quality may not only be influenced by their own personal beliefs, but may be influenced by the beliefs of their administrators, especially as the administrators have authority over the teachers.

Unfortunately, the results did not support the hypothesis that congruence of beliefs moderates the relationship between teachers' beliefs and teachers' practices. Teachers' beliefs are related to their practices regardless of the similarity between teachers' and administrators' beliefs. There are two possible explanations for this finding. First, as noted earlier, Pajares (1992) suggests that beliefs are deeply rooted in a person and are therefore difficult to change or influence. Teachers' practices are thus led by their strongly held personal beliefs rather than influenced by administrators' beliefs. Though this finding negates the hypothesis, it does not necessarily challenge Bloom's (2005) theoretical understanding of child-care programs as systems. Teacher and administrators may still operate interdependently, even if the congruence of their beliefs does not affect

the other individual's practices. Rather than influencing teachers' practices, the congruence of beliefs may be important in elements of the work environment such as staff relations and communication. Therefore, this construct may be more useful in investigations regarding staff morale or teacher burnout. The second reason is statistical; moderating effects are often more likely to occur when there is an insignificant or weak relationship between the two variables. Because the correlation between teachers' beliefs and practices was large, there is little chance that the relationship is moderated by other constructs. It seems that teachers are implementing the practices in which they believe regardless of how similar or dissimilar their beliefs are to their supervisors' beliefs. This finding again highlights the importance of including direct challenges to teachers' beliefs in teacher education programs and professional development endeavors.

Administrator leadership and teacher efficacy. Administrator leadership and teacher efficacy are two personal, force characteristics which may affect the proximal processes and daily interactions between administrators and teachers (Bronfenbrenner & Morris, 1998). These characteristics may act as developmentally generative or developmentally disruptive depending upon their influence on proximal processes. For example, administrators' leadership may be generative if it leads to more constructive processes within their programs. In this study specifically, leadership characteristics would be considered generative if they were related positively to teachers' report of developmentally appropriate practices or classroom quality. Teacher efficacy would be similarly characterized based upon the same results. Conversely, administrators'

leadership and teachers' efficacy would be disruptive if they were related negatively to developmentally appropriate practices and classroom quality.

Though there was no support for congruence of beliefs as influential in the relationship between teachers' beliefs and practices, there was some evidence that such personal characteristics such as administrators' leadership characteristics and teachers' sense of efficacy are influential. For instance, teachers' perception of administrators' leadership was related positively to teachers' sense of efficacy. Teachers who rate their administrators as strong on several leadership characteristics also rate themselves as efficacious. It may be that teachers who perceive strong leadership characteristics in their administrators feel supported by this leadership and thus feel that they have control over the decisions made in their classroom in regards to classroom management and instructional practices. Studies have shown that teachers feel more efficacious and autonomous when given the opportunity to make decisions that directly affect their classroom (Gibson & Dembo, 1984; Tschannen-Moran & Hoy, 2001). Teachers who have the power to make decisions for their classroom are more able to compare their actual practices with their ideal practices and then act upon these comparisons, using their symbolic capabilities to reflect on and make adjustments to the situation (Bandura, 1989). In this way, it may be that administrators rated as strong may be establishing work environments which allow for teachers to feel in control over their classrooms and professional development. Additionally, this would support the characterization of administrator leadership as developmentally generative.

It is interesting to note, however, that teachers who rated their administrators as strong leaders also reported beliefs less consistent with developmentally appropriate practices. Although teachers' sense of efficacy was not related to teachers' practices, it is surprising to find a positive relationship between teachers' perception of administrators' leadership and teachers' efficacy and a negative relationship between teachers' perception of administrators' leadership and teachers' practices. Perhaps teachers who rate their administrators as strong leaders or influential in practices, as well as those teachers who feel more efficacious in the classroom, are also those teachers who are more likely to agree with and implement more developmentally inappropriate practices. In this way, teachers' efficacy may be developmentally disruptive.

It may also be that these contradictory relationships may be reflective of two distinct groups of teachers. That is, one group of teachers may feel more efficacious the more strong or influential they perceive their administrator to be whereas another group of teachers may be pressured by strong leadership into implementing less appropriate practices. However, the analyses for this study were not intended to detect any such clusters or groupings. Additionally, it is important to note that the analyses used a composite of scores on a wide variety of leadership characteristics. The relationships between teachers' perceptions of administrators' leadership, teachers' characteristics, and classroom practices and quality may be very different if analyzed based upon typologies or clusters of leadership characteristics. Finally, there may be a third variable such as the influence of state regulations or school/center policy which are confounding these relationships. Therefore, it is not appropriate to make conclusive statements regarding

these findings. In addition, based upon the findings in this study, there is not enough evidence to characterize leadership or efficacy as either developmentally generative or disruptive force characteristics. Nevertheless, whatever the reason may be, the association between these constructs suggests that administrator leadership characteristics do play a role in teachers' practices, even if this relationship is negative. Future research is needed to identify if specific leadership characteristics are related to inappropriate practices, if teachers can be grouped in terms of their perceptions of administrator leadership, and what are the processes through which teachers' practices are influenced by administrators' leadership characteristics. Again, neither administrators' leadership nor teachers' sense of efficacy acted as moderators of the relationship between teachers' beliefs and practices/global quality. It seems that teachers' beliefs and practices are strongly related and there may not be many other factors, specifically in terms of administrators' characteristics, that influence this relationship.

Teachers' ratings of influence. Although the correlations regarding teachers' ratings of various sources of influence were not a focal point of the study, they may help to put the primary findings into an ecological context. For example, teachers rated the percentage of influence to which microsystem components such as administrators and program policy, exosystem elements such as parents, and macrosystem factors such as state regulations affected their practices. The findings demonstrated that several layers of the child care system, in addition to teachers' and administrators' personal beliefs and characteristics, are influential to classroom practices.

Specifically, elements of the macrosystem such as state regulations were related positively to teachers' beliefs and reported practices. Teachers who perceived state regulations as influential to their practices were more likely to report both developmentally appropriate beliefs and practices. This finding affirms the theoretical understanding that larger social policies and regulations can influence center and individual teacher practices. Adherence to specific state regulations may help to shape the environment of the classroom by advocating specific practices.

In North Carolina, there are several regulations which encourage developmentally appropriate practices and may help to explain the above findings. First, as noted earlier, classroom assessment using the ECERS-R is one way in which centers can earn points towards their rated license. Thus, the use of this instrument in quality rating assessments may promote more developmentally appropriate practices in classrooms and centers as a whole. Teacher education is another component of the rated license system. Programs receive higher points for having more educated teachers and administrators. As the findings from this study suggest, teachers' education is related strongly to teachers' beliefs. Therefore, current state regulations which promote teachers' continued education may also be encouraging the hiring of teachers whose beliefs are consistent with developmentally appropriate practices.

It is interesting to note that teachers' ratings of the influence of state regulations were also related to their perceptions of administrators' leadership characteristics. However, this relationship was negative suggesting that teachers who rated state regulations as highly influential to their practices were less likely to perceive their

administrators as strong leaders. Although administrators are a component of the work microsystem for the teachers, it may be that the macrosystem, through regulations and policies, is more influential to teachers' practices. On average, teachers rated the influence of state regulations second only to their own personal influence on their practices.

Interestingly, teachers' ratings of other microsystem elements were related negatively to teachers' beliefs and practices. Specifically, teachers who rated their school or center policy as highly influential also reported beliefs less consistent with developmentally appropriate practices. It seems strange that policies within early childhood programs may be promoting developmentally inappropriate beliefs and practices. However, the negative relationship between teachers' ratings of supervisors and teachers' reported practices, as well as the finding discussed earlier regarding teachers' perception of administrators' leadership and their reported practices, add further support to this surprising relationship. Perhaps some teachers do experience pressure from administrators to implement more developmentally inappropriate practices; however, it is not known if this pressure is a result of school/center policy, administrators' leadership characteristics, or another confounding variable which was not tested in this study. It also may be that teachers who hold beliefs more consistent with developmentally inappropriate practices are more likely to rely on both their administrator and program policies for guidance. As noted earlier, administrators may not always be aware of what constitutes developmentally appropriate practices and the guidance they offer may be more in line with inappropriate beliefs and practices. Finally,

center based care and public school programs may have very distinct policies. Often, public schools are less likely to advocate for developmentally appropriate practices. Program policies and principals which discourage developmentally appropriate practices may influence teachers to implement developmentally inappropriate practices.

Limitations

There were several limitations of this study that resulted from either the study design or sample characteristics. These limitations include self-report bias, lack of random sampling and experimental design, and small sample sizes.

First, as with any self-report, there is always the possibility of social desirability biasing the scores on the measures. Both teachers and administrators may have reported more developmentally appropriate beliefs and practices in order to appear more in line with current trends in early childhood education. Correspondingly, all of the questionnaires were given to participants at once; because teachers may have completed their reports of beliefs and practices at the same time, the relationship between teachers' beliefs and reported practices may be biased. Additionally, the distribution of score on the administrator leadership questionnaire was skewed; almost all administrators rated themselves as strong (4 or 5 out of 5) for every leadership characteristic. Though there was more variability in the teachers' reports of administrators' leadership, there were still very high scores for all administrators. It may be that both administrators and teachers created a profile of administrator leadership which does not reflect the actual style of leadership.

Secondly, as a non-experimental study with no random selection of participants, the results do not support any causal relationships. All of the analyses used in the study are based upon bivariate correlations and regressions; therefore, the current analysis and study design cannot determine which, if any, of these relationships are bidirectional. For example, it may be that teachers who hold beliefs more consistent with developmentally inappropriate practices are more likely to be influenced by school or center policy instead of teachers' beliefs changing as a result of such policies. Similarly, we cannot be certain if teachers' perceptions of their administrators as strong leaders influence their sense of efficacy or vice versa.

Finally, there are two primary limitations regarding sample characteristics. Because of the small sample size, there may not be enough power to detect significant results. Specifically, there were a few correlations that were marginally significant; perhaps these findings would have reached significance had there been more participants. Moreover, the analyses could not be run separately for each type of setting because of the small sample sizes and lack of statistical power. Secondly, the small effect sizes, moderate correlations, and small percentage of total variance explained may also result from a small sample size. Although there may have been more variability with an increased number of participants, a larger sample size may have provided slightly stronger relationships among the variables.

Implications and future research

This study offers evidence for the positive relationship between teachers' beliefs, practices, and classroom quality. What teachers believe is related to their reported

classroom practices and the global quality of their classroom environment. Additionally, though the results do not indicate a relationship between administrators' beliefs and teachers' practices, the findings suggest that administrators play an important role in teachers' efficacy in the classroom, as well as classroom quality. Specifically administrators' beliefs are associated with classroom quality, and administrators' leadership characteristics are related to teachers' sense of efficacy and their classroom practices. Taken together these findings have important implications for both practitioners and researchers who are working to improve quality in early care and education settings.

Implications for professional development. These implications are particularly related to teacher and administrator professional development, specifically as it relates to improving global quality in early childhood settings. These implications include finding ways to address both teachers' and administrators' beliefs in education and professional training, as well as emphasizing the association between administrators' characteristics and quality.

First, the results indicate that the beliefs of teachers are important in understanding their classroom practices. If teachers' beliefs are related to classroom practices and quality, then exploring and challenging teachers' beliefs should be an essential part of teacher preparation and professional development. Again, this line of thinking highlights the importance of helping teachers identify and articulate their beliefs as they relate to classroom interactions and activities. Based upon this evidence, teacher preparation and professional development programs should not only include training in

developmentally appropriate methods, but also challenge teachers to understand and even change beliefs that may lead to developmentally inappropriate practices. Therefore, it would be beneficial for teacher education programs to use a variety of assignments and exercises which help teachers identify their beliefs. In this process, teachers should also consider the origins of their beliefs and examine various aspects of their own development that may have been influential in forming those beliefs.

Furthermore, Pajares (1992) suggests that even after teachers have articulated beliefs, changing any beliefs that are inconsistent with developmentally appropriate practices may be an arduous process. He theorizes that the more central beliefs are to an individual's understanding of self and personal worldview, the more difficult it is to change the beliefs. Even when presented with evidence contrary to a set of beliefs, individuals' tend to hold steadfastly to their beliefs. Interestingly, some studies noted that changes in practices may be the most influence in promoting change in beliefs (Friedman, 2004; Hyson, 1991). As Cassidy and Lawrence (2000) point out, teachers' personal and professional experience may be more prominent than formal education when teachers are trying to understand and reflect upon classroom interactions. Perhaps teachers have to see and experience the effect of different practices in order to assimilate new points of view. Unfortunately, teaching practicums that are included in many teacher education programs may not be enough to challenge students' beliefs. Those involved in the formal education of teachers may need to seek out innovative ways to expose teachers to successfully implemented, developmentally appropriate practices in order to provide concrete experiences that can guide possible changes in beliefs. Rather than simply

provide teachers with abstract information, these courses and workshops could include observations of other teachers and various assignments that help to challenge their beliefs. Specific assignments may include having students journal about their experiences in teaching practica including reflections on how their experiences in the classrooms compare to their personal beliefs as well as formal theories. Other possibilities include observing or interviewing in-service teachers and discussing the purpose behind specific practices.

Using technology may also be helpful in giving teachers concrete examples to which they can apply the theories or techniques they are learning. For instance, one technique may consist of videotaping student teachers and then requiring students to evaluate their own teaching methods and classroom interactions. Discussions about their practices could then be used to help student teachers identify their beliefs, analyze the origins of those beliefs, and articulate how those beliefs are related to their practices (LaParo & Scott-Little, under review). As Friedman (2004) found, teachers are more likely to change their beliefs when given opportunities to dialogue about these changes rather than mandates to change. Through various workshops with teachers, she demonstrated that when teachers are allowed to be “actively involved in making choices about their own professional growth, including choosing what and when they would change” (Friedman, p. 67), true transformation in beliefs and practices occurred. However, when teachers were neither included in discussions nor offered opportunities to ground research and theory in personal experience, change in beliefs and practices was not observed. Therefore providing avenues through which pre-service and in-service

teachers can observe and evaluate their own practices, as well as those of other teachers, may be a necessary component to improving classroom quality. Additionally, Friedman notes that it is important to offer teachers support throughout this process, so that teachers can work through fear or anxiety associated with change.

Overall, these findings regarding teachers' beliefs and characteristics demonstrate that teachers' beliefs are incredibly important in understanding and improving teachers' classroom practices. Teachers' courses and workshops should not only address the "how-to's" in early care and education, but the "why's" as well (Cassidy & Lawrence, 2000). Exposing teacher to various theories and reasons behind best practices may help to challenge teachers in their thought processes regarding classroom practices. Providing concrete evidence for teachers may turn seeing into believing as teachers are able to discuss their observations and construct ways to implement more appropriate practices in their own classrooms. Additionally, as Vartuli (1999) discussed teachers who are given autonomy to construct such understandings and ways to implement developmentally appropriate practices, they may be more effective in their classrooms and less likely to experience stress or burnout due to conflicts between beliefs and practices.

These data also support a relationship between administrators' beliefs and classroom quality in early childhood settings. This is important because administrators' characteristics are not often included as a part of efforts to improve classroom quality. As in teachers' preparation and professional development, it may be that a more intentional focus on beliefs regarding children's development should be included in administrator education. Offering administrators programs and workshops which help them to identify

and challenge their beliefs may be an important, but overlooked, component to improving quality. These endeavors may include methods similar to efforts in educating teachers including observing other programs or creating a network in which administrators can discuss issues of quality. It is also important for these trainings to make administrators aware of the relationship between their personal beliefs and classroom quality.

Administrators understand the importance of their organizational or communication skills in creating quality environments, but they may not know that their personal beliefs are associated with classroom quality. Trainings which emphasize the relationship between beliefs and practices may make administrators more willing to reflect on their own beliefs and actions, as well as encourage the teachers to do so.

Implications for future research. Despite the practical importance of the findings, future research is necessary to better understand the role of administrators in creating a high quality environment for young children. Some possible directions are noted in the limitations such as replicating this study with a larger number of participants to improve statistical power. Specifically, future studies could include a larger sample of both child care center directors and public school principals in order to explore these relationships in a variety of early care and education settings. Additionally, the small correlation between administrators' beliefs and classroom global quality indicates that there are other factors which may play a role in administrators' effects on quality. Future research could test other mediators or moderators for this relationship, as well as the lack of association between administrators' beliefs and teachers' report of practices. For example, the compatibility or clash of personality characteristics may be influential in work

relationships between teachers and administrators. Furthermore, as this study was the first to use the Leadership Style Questionnaire (Bloom, 2005), future research should include examining its psychometric properties. Such investigations may bring insight to the processes by which administrators influence teachers and their classrooms.

Currently, most studies regarding teachers' characteristics and classroom quality are cross-sectional and quasi-experimental. Therefore, it is difficult to make any causal statements regarding the relationships explored in this study. In order to test causality, future research should include use longitudinal and experimental designs. Such studies may help in teasing apart the effects of beliefs and education on teachers' practices. Additionally, using longitudinal data may provide information on how the chronosystem is related to processes within early care and education programs.

Qualitative research is also needed to best understand the complexity of the relationships and interactions within the child-care system. In-depth interviews with teachers and administrators regarding their beliefs may help scientists and practitioners to identify the origins of beliefs and shape education and professional development efforts accordingly. Other studies could inquire about obstacles and pressures teachers face, including questions regarding the sources of those pressures. Using qualitative research may help to illuminate teachers' and administrators' thought processes and actions, as well as allow teachers to give voice to their day-to-day challenges and experiences.

Similarly, both qualitative and quantitative efforts could investigate other possible sources of influence on teachers' practices and classroom quality. Teachers in this study were also asked to rate how much influence parents, state regulations, other teachers, or

school/center policy had on their practices. Though there were a few significant correlations regarding teachers' beliefs, practices, perception of administrators' leadership and the influence of supervisors and regulations from various sources, examining these questions in depth was beyond the scope of this paper. Nevertheless, these findings suggest that teachers are influenced by state policy makers in addition to individuals directly within the child care system. Therefore, future efforts should examine teachers' perceptions of these other areas of influence specifically as they relate to teachers' sense of efficacy.

Lastly, in future quantitative endeavors, it may be important to focus upon issues related to construct operationalization and measurement. As early care and education programs experience growing diversity in children and families, current understandings of quality and best practices may need to be examined. Though developmentally appropriate practices are encouraged by many researchers, professional organizations, and practitioners, there are some scholars who do not agree with that such practices are best for all children (Cannella, 1997; Lubeck, 1998). Moreover, classroom quality is a multidimensional construct that includes both structural and processual aspects of the environment. Defining and measuring quality, especially in programs serving diverse families, can be quite difficult. Similarly, as beliefs are an elusive construct, describing and quantifying beliefs can also be a complicated process. In this process of critiquing the constructs of developmentally appropriate belief and practices, it is also important to evaluate current measures. Although most of the measures used in this study have acceptable psychometric properties and have been used in previous research, they may

not be the most appropriate instruments for these constructs. For instance, the TBS and IAS were created almost two decades ago and may not be reflective of current (or changing) understandings of developmentally appropriate beliefs and practices. Additionally, though the ECERS-R is used in a wide variety of settings across the world, the items in the scale may not capture appropriate, cultural variations in quality environments (Hansen, Kintner, & Cassidy, 2007). As programs evolve and new studies emerge, it is essential that scholars revisit current definitions, operationalizations, and measures in order to best capture the construct.

Conclusion

This study demonstrated several statistically significant findings which have critical implications for research and practice. In general, this study emphasizes the importance of teachers' beliefs and characteristics as they are related to teachers' practices and quality, as well as administrators' beliefs and characteristics. Specifically, the large correlation between teachers' reported beliefs and reported practices provides substantial evidence that teachers' personal understandings and implicit theories of the development and education of young children are important to daily classroom practices. Future endeavors to improve quality, whatever they may be, should address teachers' beliefs and practices, as well administrators' beliefs and leadership characteristics. Furthermore, whether it is providing teachers and administrators with courses and trainings which challenge their beliefs or researching teachers' perception of leadership and efficacy, this study emphasizes the need to examine early care and education programs from an ecological perspective. Particularly, understanding that both factors

within the microsystem such as administrators' and teachers' personal characteristics and interactions, as well as elements of the macrosystem such as state regulations, are necessary components to creating high quality environments for children.

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APPENDIX
TABLES AND FIGURE

Figure 1
Measures used in research packets

Measures	Teacher packet	Administrator packet
<i>Independent variables</i>		
Demographic questionnaire	✓	✓
Teacher Belief Scale	✓	✓ (adapted)
Teachers' Sense of Efficacy Scale	✓	
Leadership style questionnaire	✓ (directors or principals)	✓
<i>Dependent variable</i>		
Instructional Activities Scale	✓	

Table 1

Frequencies and descriptives of administrators' demographics

	Total sample		Child care centers		Public schools	
	Frequency	%	Frequency	%	Frequency	%
Gender						
Female	66	91.8	51	96.2	15	78.9
Male	5	6.8	1	1.9	4	21.1
Missing	1	1.4	1	1.9	0	0
Ethnicity						
African American	17	23.3	16	30.2	1	5.3
Euro American	46	64.4	30	56.6	16	84.2
Native American	5	6.8	4	7.5	1	5.3
Other	1	1.4	1	1.9	0	0
Missing	3	4.1	2	3.8	1	5.3
Education level						
Some college	7	9.5	7	13.6	0	
AA or AAS	19	26.1	18	34	0	
Bachelor's degree	14	19.2	14	26.4	0	
Some graduate	4	5.5	4	7.5	0	
Graduate degree	27	37	8	15.1	19	100
Missing	2	2.7	2	3.8	0	
Field of study						
Early childhood	40	54.8	36	67.9	4	21.1
Related field	23	32.9	9	17	14	73.7
Other	6	8.2	6	11.3	0	0
Missing	3	4.1	2	3.8	1	5.3
	M	SD	M	SD	M	SD
Years of professional experience	10.36	7.94	10.81	8.799	9.42	5.337
Time employed at current program (in months)	105.08	95.77	124.21	102.79	52.74	42.17
Time supervising teacher in study (in months)	36.67	29.141	39.62	31.65	28.89	19.83

Table 2

Frequencies and descriptives of teachers' demographics

	Total sample		Child care centers		Public schools	
	Frequency	%	Frequency	%	Frequency	%
Gender						
Female	60	96.8	48	100	14	100
Male	0	0	0		0	
Missing	2	3.2	0		0	
Ethnicity						
African American	19	30.6	16	34	3	21.4
Euro American	33	54.8	22	46.8	11	78.6
Native American	3	4.8	3	6.4	0	
Other	2	3.2	2	4.3	0	
Missing	4	6.5	5	8.5	0	
Education level						
NCECC	4	6.5	4	8.5	0	
Some college	8	12.9	8	17	0	
AA or AAS	22	35.5	22	44.7	0	
Bachelor's degree	19	30.6	10	21.3	9	64.3
Some graduate	2	3.2	0	0	2	14.3
Graduate degree	6	9.7	3	6.4	3	21.4
Missing	1	1.6	1	2.1	0	
Field of study						
Early childhood	47	75.8	35	74.8	11	78.6
Related field	5	8.1	2	4.3	3	21.4
Other	2	3.2	2	4.3	0	
Missing	8	12.9	8	17	0	
	M	SD	M	SD	M	SD
Years of professional experience	10.92	7.55	10.00	6.57	14.29	9.746
Time employed at current program (in months)	61.55	49.39	66.2	52.16	41.29	36.42
Time under current supervisor (in months)	46.23	43.31	50.13	47.11	33.43	24.54

Table 3

Correlation Matrix for Composite Scores

	Leadership style: Admin	Leadership style: Teacher	Administrator beliefs (ABS)	Teacher beliefs (TBS)	Teacher practices (IAS)	Teacher efficacy (TSES)	ECERS-R score
Leadership style: Admin	1	.141	.228	.189	.075	.233	-.150
Leadership style: Teacher	-	1	.076	-.123	-.345*	.263*	-.145
Administrator beliefs (ABS)	-	-	1	.038	-.101	-.022	.252*
Teacher beliefs (TBS)	-	-	-	1	.722**	.202	.294*
Teacher practices (IAS)	-	-	-	-	1	-.049	.372**
Teacher efficacy (TSES)	-	-	-	-	-	1	-.043
ECERS-R score	-	-	-	-	-	-	1

Note: * $p < .05$; ** $p < .001$

Table 4

Multiple regression on teachers' beliefs

Teacher characteristics	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Level of education	3.578	.977	.497	3.664	.001
Field of study			.064	.450	.655
Total experience working in EC			.084	.587	.561
Experience teaching current age range			-.041	-.295	.770
	F (1,41) = 13.426* R ² = .247				

Note: * p <.001

Table 5

Multiple regression on teachers' practices

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Level of education	2.419	.956	.376	2.531	.016
Field of study			.024	.142	.888
Total experience working in EC			.272	1.832	.075
Experience teaching current age range			.137	.921	.363
	F (1, 39) = 6.407* R ² = .141				
Highest level of education			.077	.606	.549
Field of study			.050	.441	.663
Total experience working in EC			.145	1.287	.207
Experience teaching current age range			.034	.303	.764
Teachers' beliefs	.643	.093	.770	6.933	.000
	F (1, 33) = 48.062** R ² = .593				

Note: ** p <.001, * p <.05

Table 6

Multiple regression on administrators' beliefs

Administrator characteristics	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Gender	11.698	5.323	.287	2.198	.032
Level of education			.176	1.297	.200
Field of study			-.084	-.589	.558
Total experience teaching EC			.025	.184	.854
Experience as an administrator			.224	1.747	.087

F (1, 54) = 4.829*
R² = .082

Note: * p <.05

Table 7

Descriptives for sources of influence (TBS percentages)

Source of influence	Total sample			Child care			Public school		
	M(%)	SD	Range	M(%)	SD	Range	M(%)	SD	Range
Parents	16.52	10.2	0-75	17.29	11.2	0-75	13.85	5.06	5-25
School/center	13.71	6.32	0-25	14.00	6.54	0-25	12.69	5.63	5-25
Principal/director	17.16	8.01	0-35	17.78	7.8	5-35	15.00	8.66	0-30
Teacher (self)	27.24	10.7	5-80	26.78	11.1	5-80	28.85	9.61	15-50
State Regulations	18.19	11.8	5-80	17.44	12.6	5-80	20.77	8.62	10-40
Other teachers	6.67	4.29	0-20	6.04	4.12	0-20	8.85	4.16	5-20

Table 8

Bivariate correlations between sources of influence and composite scores

Composite score	Admin. leadership (teacher report)	Teachers' beliefs	Teachers' practices
Influence (%)			
State regulations	-.325	.332	.343
School/center policy	-	-.334	-
Supervisor	-	-	-.297

Note: Only significant correlations are shown here, $p < .05$.