A COMPARATIVE STUDY OF TWO PROFESSIONAL DEVELOPMENT

MODELS' IMPACT ON PRESCHOOL TEACHERS' CLASSROOM PRACTICES

A Dissertation Presented to the
Faculty of the College of Education
University of Houston

In Partial Fulfillment
of the Requirements for the Degree

Doctorate of Education

by

Sharon D. Spillman

December, 2011

ACKNOWLEDGEMENT

I would like to acknowledge all the individuals who were part of a tremendous support system throughout my doctoral journey. I would like to thank Dr. Juanita Copley first and foremost for leading me on the path to the doctoral program. I will be forever grateful for your guidance and confidence in my abilities to reach this milestone. To my research committee, Dr. Nicole Andrews, Dr. Robert Houston, Dr. Catherine Horn and Dr. Teresa Edgar, you are an amazing group of individuals and I am blessed to have had your expertise in this final stage of my doctoral journey. Dr. Andrews, I truly appreciate your unwavering support throughout this process. Thank you for your patience and understanding throughout the last stages of my dissertation. Dr. Houston, thank you for helping me to formulate the concept for this dissertation; your support and willingness to share your research expertise was invaluable. Dr. Horn, your quantitative insight is exceptional and added much value to my research process. Thank you for responding so graciously to the countless emails and for your patience through my data analysis. Dr. Edgar, your timely words of encouragement motivated me to move forward through tough times.

I would be remiss if I did not write a special thank you to my colleagues for your tremendous support over the years. To Dr. Albrecht, Carolyn, Kathryn, Vanese and Lee, thank you for your support and encouragement as I embarked on this journey. A special thank you to Amelia, Preeti, Judy, and Tracy, your guidance and extra support through various hiccups along the way meant a lot to me. I value you as colleagues and your friendship will never be forgotten. To my colleagues at Collaborative for Children, thank you for your well wishes, kind thoughts and words of encouragement over the years.

Carol and Sul, I truly appreciate your support and flexibility; I have been able to juggle full-time work responsibilities and studies. Without your understanding and support this process would have taken much longer. To United Way of Greater Houston, thank you for this opportunity to study a program that provides a promising approach to improved child care quality in our community.

Finally, I would like to express a few words of appreciation to my family and close friends. To my parents Frances Bryant and Allen Spillman, thank you for your ever present confidence in me and for teaching me at an early age that I could achieve anything that I wanted in this world. Mom, thank you for your prayers and gentle reminders that everything is possible if I believed and trusted in God. I have noticed his footprints beside me through the peaks and valleys of my journey. To my stepfather, Henry Bryant, your words of encouragement along the way were greatly appreciated. To my siblings, Deborah, Paula and Michael, thank you for your unwavering love and support of your "big sister." Your prayers and words of encouragement provided comfort and motivation throughout my educational journey. To my best friend Debra, I appreciate your kindness, understanding and empathetic support as I struggled to balance my work, personal and academic life. Last, to the memory of my late uncle, Donald Lee Riley, you noticed potential in me as a child and always encouraged me to reach for the stars. I have held steadfast to your strong words of encouragement that *nothing could defeat me, if I stayed strong and weathered the course*. Thanks for believing in me and never doubting that I would be successful no matter the endeavor. I hope that this accomplishment makes you proud. Your memory and motivational words are forever etched in my memory.

A COMPARATIVE STUDY OF TWO PROFESSIONAL DEVELOPMENT

MODELS' IMPACT ON PRESCHOOL TEACHERS' CLASSROOM PRACTICES

An Abstract
of A Dissertation Presented to the
Faculty of the College of Education
University of Houston

In Partial Fulfillment
of the Requirements for the Degree

Doctorate of Education

by

Sharon D. Spillman

December, 2011

Spillman, Sharon D. "A Comparative Study of Two Professional Development Models'
    Impact on Preschool Teachers' Classroom Practices." Unpublished Doctor of
    Education Dissertation, University of Houston, December, 2011.

Abstract

A convincing body of research supports the significant nature of high quality

child care. Yet, the quality of child care programs across the United States vary greatly

and can be considered mediocre at best (Belsky, Clarke-Stewart, McCartney, Vandell, &

Owen; Burchinal, 2007; Pianta, Barnett, Burchinal, & Thornburg, 2009). This can be

largely attributed to the preparation of the workforce. The preparation offered to child

care teachers is minimal. Child care licensing agencies vary in their staff qualification

requirements and other structural factors associated with higher quality early care and

education. Most states have no requirements for pre-service training and a high school

diploma or its equivalency is usually sufficient. In reviewing the literature on child care

quality, it is evident that public policy and research in this area are not aligned. There is a

gap between "what is" and "what we know" about the education and care of young

children. Child care continues to be the "stepchild" of our early education system (Pianta

et al., 2009). However, researchers have found that professional development can be a

promising method for improving teachers' classroom practices regardless of their

uncoordinated and minimal preparation (Arnett, 1989; Fiene, 2001; Zaslow, 2009).

The focus of this study was to build on the limited but emerging research that

evaluates the effectiveness of multiple forms of professional development when

combined into comprehensive professional development models. United Way Bright

Beginnings (UWBB) has provided ongoing professional development to staff working in

child care centers since 2002. Two distinct models of professional development have

been used over the years (Tier II and Tier IV). Both models combined specialized training and on-site coaching into a cohesive professional development approach. A third component, collegial small groups, was added to the Tier IV model. This component promoted a more collaborative and collegial approach to the professional development process. To determine the impact of the two professional development models, the classroom practices of 29 preschool teachers were investigated. The study examined archival data collected as part of a larger longitudinal study.

Utilizing descriptive analysis and independent samples t-tests, the study compared participants' pretest and posttest mean scores on the Infant/Toddler Environment Rating Scale-Revised ([ITERS-R] Harms & Clifford, 1990) and Early Childhood Environment Rating Scale-Revised ([ECERS-R] Harms, Clifford, & Cryer, 1998).

Overall, descriptive results indicated that the components and format of both professional development models had an impact on improved classroom practices for teachers participating in the UWBB program. However, participants of the Tier IV professional development model showed higher gains in total mean score growth for both ITERS-R and ECERS-R than the Tier II group. Utilizing a t-test, mean differences between classroom ratings for both models were examined and results indicated that no apparent statistically significant differences between the two professional development models existed. Further analysis at the subscale level determined that there was a statistically higher difference in gains on the ITERS-R and ECERS-R *Activities* subscales for one professional development model. No other significant differences were found.

TABLE OF CONTENTS

...

LIST OF TABLES

Chapter I

Introduction

There is a growing consensus about the long-term benefits of high quality early education and care for young children birth to age five. A significant body of compelling scientific and economic research provides evidence that participation in high quality early childhood programs result in lasting effects on young children's cognitive and social development, in particularly, children who come from low-income, high-risk environments (Barnett, 1995; Heckman & Masterov, 2007; Pianta, Burchinal, Barnett, & Thornburg, 2009). Several longitudinal studies such as the Chicago Child-Parent Study, High/Scope Perry Preschool Project, and Carolina Abecedarian project document the short-term and long-term impact high quality early education can have on young children's academic and life-long success in spite of the high risk factors associated with children from poverty (Reynolds, 2000; Schweinhart, Montie, Xiang, Barnett, Belfield, & Nores 2005). Camilli, Vargas, Ryan and Barnett (2010) reported the results of their meta-analysis of 123 research studies that examined the impact of early education on a child's cognitive development, social and emotional health and long-term academic outcomes. The most compelling outcome of this substantial analysis was that as a result of quality early education, 70% of the achievement gap can be closed before kindergarten and 33% of the achievement gap after 3rd grade. This meta-analysis further strengthens the case for the importance of high quality early education.

A report by the National Scientific Council on the Developing Child (2007) provides scientific evidence that early learning environments that provide growth-promoting experiences for young children are critical to a child's healthy brain

development during the sensitive periods. In addition, the development of the brain architecture is ongoing and early experiences can contribute to basic brain development and build a solid foundation for lifelong learning. Healthy brain development in the early years increases the likelihood of positive outcomes for future learning.

According to Heckman and Masterov (2007), high quality early childhood investments not only has a substantial impact on young children's future academic success, but also, have an economic impact on our society as well. Several cost benefit analyses of the impact of quality early childhood education determined that for each dollar spent on high quality early education, the economic return to society can be between three to seven dollars (Heckman & Masterov, 2007; Reynolds, Temple, Dylan, Robertson, & Mann, 2002; Schweinhart, Montie, Barnett, Belfield, & Nores, 2005). This can be directly attributed to a reduction in areas such as, special education cost, decreased grade retention, increased income earnings as an adult, increased tax revenue, reduction in crime rates, and many other educational, social welfare and socioeconomic benefits outlined by economist and early childhood researchers (Reynolds et al., 2002).

There is a surmountable amount of research that clearly documents the scientific, economic and societal benefits of investing in high quality early childhood education for young children and an even greater return for children from poverty (Gardner, Ramey, Skinner, Ramey, Campbell, & Burchinal, 2000; Reynolds, 2000; Schweinhart et al., 2005). At-risk children typically lag behind their more affluent peers and suffer the effects of starting school poorly prepared and never catch up (Lundy-Ponce, Griffin, & American Federation of Teachers, 2002; Yazejian & Bryant, 2009). In spite of the growing and convincing body of research providing empirical evidence of the benefits

associated with high quality early education and care, many children enter kindergarten with poor literacy, math and social skills (Yazejian & Bryant, 2009; Zill & West, 2001). This suggests that many children are not exposed to high quality early education experiences that prepare them for school entry. Children with limited skills in the before-mentioned areas are unlikely to be successful academically if their skills are not increased by the end of the third grade (Lundy-Pounce, Griffin, & American Federation of Teachers, 2002). Consequently, the achievement gap starts early, before children enter school.

Thus, high-quality early care and education experiences can close much of the achievement gap (Barnett, 2004; Neuman & Kamil, 2010; Ramey & Ramey, 2006). Several decades of scientific research suggest that young children must enter kindergarten prepared intellectually and socially for future academic success. As a result, much of the focus and investments over the years has been centered on improving the quality of early childhood programs serving children birth to age five. However, the promise of access to high quality early education is not yet a reality for many young children.

Statement of the Problem

The lack of high quality child care programs across the county is a contributing factor to the significant percentage of young children entering kindergarten without the necessary skills to perform well in school (Lundy-Ponce et al., 2002; Pianta, Burchinal, Barnett, & Thornburg, 2009). Across the United States, there are a multitude of early childhood programs serving preschool children, offering a varying assortment of early care and educational services. For the purposes of this study, the early childhood program

of focus is center-based child care. Child care programs are among the most diverse array of early childhood programs that provide early care and learning experiences to young children who have not entered kindergarten (National Association of Child Care Resource and Referral Agencies ([NACCRRA], 2010). Child care is considered one of the main systems of early care and education. However, the quality of the care and early education experiences provided within child care settings is in question. According to a report by NACCRRA (2010), there are several issues related to child care quality in our country. For example, in every state, low quality was a critical issue. Moreover, children living in poverty are less likely to have access to higher quality child care programs thereby increasing their risk for not receiving the type of early learning experiences that promote school readiness (Kelley & Camilli, 2007; Pianta et al., 2009). The higher the quality of the early childhood program the larger the learning gains in literacy and math skills, as well as increases in social and emotional development (Burchinal & Cryer, & Clifford 2003; Pianta et al., 2009).

There are various structural factors that contribute to the low-quality of care and education experiences within child care programs. States continue to vary greatly in regulatory standards pertaining to the education level, teacher-to-child ratios, training requirements and experience required for individuals working in child care settings (Lundy-Ponce et al., 2002; NACCRRA, 2010). Research has documented that early childhood teachers must possess the knowledge, skills and disposition to provide high-quality early learning experiences for young children in their care, if young children are to acquire the competencies fundamental to their school success (McCutchen et al. 2002; Meichtry & Smith, 2007). Subsequently, teachers working in early childhood programs,

in particularly center-based child care, need ongoing support and training in order to provide high quality education programming to young children (Fukkink & Lont, 2007; Landry, Anthony, Swank, & Monseque-Bailey, 2009).

In spite of the research that underscores the relationship between qualified teachers and young children's academic achievement, the majority of individuals working in child care centers have limited experience and lack formal education because of the minimum staff qualifications defined by many child care licensing agencies across the county (Barnett, 2004; Bowman, Donovan, & Burns, 2001; Kagan, Kauerz, & Tarrant, 2008). Thus a workforce that has limited or no prior training in how to care for and educate young children before they start to work is prevalent. Young children's early experiences with those who provide care and learning experiences for them are crucial to their early development and their readiness for school (Martinez-Beck & Zaslow, 2006). Therefore, early childhood teachers are one of the major factors that can impact student learning (Wright, Horn, & Sanders, 1997).

As previously noted, there is a serious disconnect between the preparation of the early childhood workforce and the expectations in their classroom to provide rich educational experiences to young children, in particular to those who are vulnerable and disadvantaged (Whitebook, 2003; Landry et al. 2009). In fact, if our goal is to close the achievement gap, we must first address the professional development gap that exist in the preparation of the early childhood workforce that is charged with determining how much a young child learns and how prepared that child is for school entry.

Despite the body of evidence that supports the importance of well-trained and educated teachers of young children, there is currently a shift in research about the

qualification of early childhood teachers (Sheridan, Edward, Marvin, & Knoche, 2009). Conversely, a growing body of research has found that increasing teacher's education level alone does not suffice as a means for improving classroom quality and teaching practices (Early et al., 2007; Landry et al., 2009; Zaslow, Tout, Halle, Vick, & Lavelle, 2010). Other forms of professional development for early childhood teachers has been identified as a promising means of increasing the quality of young children's care and education and can serve as a mechanism for equalizing disparities in the classroom (Garet, Porter, Desimone, Birman, & Yoon, 2001; Landry et al., 2009; Neuman & Cunningham, 2008). Professional development forms such as specialized training, collegial small groups and coaching can influence the knowledge, skills and dispositions of early childhood professionals, subsequently having a positive impact on teachers' classroom practices. Although there is convincing body of research about these forms of professional development, there are still significant questions concerning the independent and collective impact of particular professional development components (Zaslow et al., 2010). More importantly, an emphasis should be focused on the impact of features such as the content, quantity, frequency and duration of the professional development forms.

Purpose of the Study

Current and past research indicates that high-quality early care and education can have a positive impact on student's academic achievement (Schweinhart et al., 2005; Temple & Reynolds, 2006; Vandell, Belsky, Burchinal, Steinberg, Vandergrift, & NICHD Early Child Care Research Network, 2010; Yazejian & Bryant, 2010). One indicator of quality is the early childhood teacher. However, many of the preschool teachers working in center-based child care programs have no formal education and

experience caring for and educating young children (Burchinal et al., 2002; Saluja, Early, & Clifford, 2002).

In reviewing the literature on professional development, numerous studies have examined the extent to which professional development improves pedagogical knowledge and classroom teaching practices (Landry et al., 2009; Raver, Jones, Li-Grining, Metzger, Smallwood, Sardin et al., 2008; Zaslow et al., 2010). Surprisingly, there is a lack of consistency in the research literature about the particular components of professional development that are most effective in improving teacher's classroom practices and overall classroom quality (Sheridan, 2001; Zaslow, et al., 2010). The goal of this study is to gain a deeper understanding of effective professional development models for preschool teachers working in child care settings with little or no formal education or training. The study aims to contribute new knowledge to this phenomenon. As a result, developers of professional development programs for the child care workforce can make informed decisions regarding the components that are effective in increasing teachers' knowledge and that are indicative of higher quality classroom practices. In addition, identifying an effective professional development model is important to the diverse field of early childhood education so that alternative pathways to a teacher's professional growth can be discovered.

Research Question

As stated earlier, early childhood teachers must have the knowledge and skills to provide quality learning experiences that positively impact young children's school readiness and future school success. The purpose of this investigation is to report on the effectiveness of a professional development program on the improvement of teachers'

classroom practices. The following question guides this research: *Is there a statistically significant difference between two professional development models impact on preschool teachers' classroom practices as measured by ITERS-R and ECERS-R Rating Scale?*

Chapter II

Review of the Literature

Introduction

The review of literature for this study focuses on five specific topics that inform this dissertation research: (1) Landscape of Child Care Quality Research; (2) Early Childhood Professional Development; (3) Child Care Workforce; (4) Impact of Professional Development on Classroom Practices; and (5) United Way Bright Beginnings Program. This chapter reviews relevant and current literature pertinent to this study. Collectively, the areas discussed aim to provide the framework for this study.

The Landscape of Child Care Quality Research

National Association of Child Care Resource and Referral Agencies (2010), reports that more than 11 million children under the age of 5 are in some form of child care every week. Child care has become a permanent fixture in the lives of many children and families. Child care arrangements can take on different forms such as children being in the care of relatives, non-relatives in the child's home, child care centers or family child care homes. As noted, there are a substantial number of young children spending time with someone other than their parents. Given this growing trend, it is important to understand the impact child care experiences can have on children's development and ultimately their school readiness.

Yet, the quality of child care provided in the United States is in question. In short, the child care landscape includes varying child care licensing regulations regarding health and safety aspects, in addition to the structural and process quality indicators associated with child care quality. The literature documents features that are indicators of a quality

early childhood program. These factors are both structural and process-oriented in nature. Structural quality indicators (e.g., staff qualifications, training, and adult-child ratio and group size) and process quality indicators (e.g., teacher-interactions, teaching practices, activities) that are linked to the quality of the care and education are strikingly different across the United States (Pianta et al., 2009). This has resulted in the majority of child care programs providing mediocre care and education to a large number of young children in our county. Over the last thirty years, there has been a body of compelling empirical research, including longitudinal studies that provide evidence about the structural features and process quality indictors associated with higher child care quality and positive child outcomes.

      Improving classroom practices a historical perspective. We know from research that early childhood education is the nexus to address the education gap. However, the largest early care an education system for young children is composed of teachers who lack the experience and training to adequately prepare young children with the school readiness skills needed prior to entering school. Because past research points to the importance of high quality early education on children's overall development, teachers working in child care programs must possess the knowledge and skills to create early learning experiences that have a positive impact on young children's school readiness and future academic success. Child care quality depends on the quality of the teaching staff and their abilities to transform theory into practice.

      The National Day Care Study (Ruopp, Travers, Glantz, & Cohen, 1979) was the first large scale child care study that examined the effects of structural features such as staff/child ratio, group size, and teacher qualification in center-based programs on student

behavior and academic achievement. The investigation examined the effects of structural characteristics including staff/child ratio, group sizes, and teacher qualifications (i.e., education level, years of experience, and specialized ECE training like seminars, courses, in-service training) on students' behavior and academic achievement. Survey data related to structural features were collected from 3,167 child care centers across seven states. In addition, on-site visits were conducted for 70 programs. The study findings revealed that specialized child-related training and group size as the highest predictor of child care quality. It was determined that teachers with specialized training were more engaged in positive teacher-child interactions as compared to teacher with no training. Also, children taught by teachers with more specialized training demonstrated more positive social behaviors than children in classrooms with teachers with no specialized training. Moreover, the study found that children in classrooms of teachers with specialized training exhibited greater gains on test scores than children in classrooms of teachers with no specialized training.

Expanding on the effects of staff qualification and training on classroom quality, Arnett (1989) was the first to examine the association between a bachelor's degree and college-level training in early childhood education and child care quality. The study examined the level of training of 59 preschool teachers working in 22 of the 23 centers in Bermuda. Study participants had either completed at least half or the entire two-year early childhood education (ECE) training program offered by Bermuda College, had a four-year degree in ECE or had no specialized training. Observers used the Caregiver Interaction Scale developed by Arnett (1989) and the Prenatal Modernity Scale to measure teachers' attitudes and behaviors. For two days, two different observers spent

two 45 minute periods observing teachers in their classroom. Regarding classroom behaviors, teachers who had completed at least half of the two-year ECE program were rated higher in positive teacher-child interactions than teachers with no training. Teachers with a four-year degree in ECE received the highest rating in positive teacher-child interactions than the other teachers. In addition, teachers with four-year degrees or some specialized training were rated as less detached and punitive towards children than teachers with no training. Among teacher attitudes, a similar pattern was revealed. These findings suggest that college-level training influences teacher behavior with or without completion of a degree.

Another large scale study, The National Child Care Staffing Study (Whitebook, Howes, & Phillips, 1990) provides robust body of research that adds to the importance of quality child care and the impact of quality on young children's development. The study investigated the quality of care in 644 classrooms from 227 child care centers randomly selected from five diverse U.S. cities. The center quality in each classroom was rated using observation instruments Early Childhood Environment Rating Scale (ECERS), Infant-Toddler Environment Rating Scale (ITERS), and the Caregiver Interaction Scales. In addition, information on teacher education and training was also collected through interviews of over 1,300 teachers and assistant teachers. Although this study is notable for identifying a link between teaching staff wages, staff tenure and program quality, the study also examined the impact of teacher background on center quality and child outcomes. In addition to finding how mediocre the quality of center-based care is in the United States, researchers found that teachers with more formal education, more training in early childhood at the college level and higher wages provided higher quality care and

demonstrated more developmentally appropriate practices and sensitivity characteristics in the classroom as measured by Caregiver Interaction Scale and either ITERS or ECERS observation. In sum, teachers with college-level early childhood training or a bachelor's degree in the field engaged in more appropriate and responsive care-giving and were more sensitive and less detached, than teachers with no degree or specialized training, ultimately resulting in positive outcomes for children.

Similar to National Child Care Staffing Study, The Cost, Quality, and Child Outcomes Study Team (1995) examined the role of teacher education in relation to classroom relations and teacher performance. The study collected information on the overall cost, structural and process quality indicators from 400 randomly selected child care programs in four states, California, Colorado, Connecticut, and North Carolina. Observers also used the ECERS or the ITERS, the Caregiver Interaction Scales, the math and reading scale of the Woodcock-Johnson, and the Classroom Behavior Inventory to measure social competency. The Cost Quality and Outcomes Study (CQCO) findings from the first phase of the study indicated that the quality of most child care programs in America is poor to mediocre. It was also determined the teachers with a higher degree (B.A., B.S. or higher) or some specialized college-level training, provided higher quality learning environments.

The second phase of the Cost Quality and Outcomes Study was a longitudinal study that began in 1993 and followed a sample of over 800 children in the child care programs for four years, in preschool, kindergarten, first and second grade to gather data on their development. Peisner-Feinberg et al. (2000) documented the link between high-quality child care and children's academic achievement. Children in higher quality

programs had higher cognitive and social abilities that lead to kindergarten readiness and future school success. Children in the study in classrooms with teachers having bachelor's degrees demonstrated higher receptive language skills than children in classrooms with teachers having only a high school background. In addition, the longitudinal study revealed that children at-risk for school failure due to family backgrounds benefitted the most from positive child care experiences and were more likely to be negatively affected by low quality program practices and environments. In summary, the findings from the Cost Quality and Outcomes study show that in order to ensure children enter school with the necessary cognitive and social skills to be successful the quality of their early learning environment is a critical factor.

There continues to be a heightened awareness of the need to improve the quality of the non-parental care and education received by young children. Since 1991, The National Institute of Child Care Health and Human Development (NICHD) has been assessing the quality of child care experiences for over 1000 children from 6 months through 4 ½ years of age through longitudinal studies. In more recent investigations, by NICHD's Early Child Care and Youth Development Research Network (2000; 2002 & 2003) quality child care experiences were reported to be a positive predictor of children's cognitive abilities, their language development and their overall school readiness. In addition, the consortium continued to follow children through 3rd grade. The findings reveal that cognitive gains persisted through first, second and third grade. The study also found greater evidence of social competence and less problem behavior as a result of higher quality child care experiences

Additionally, NICHD published a more recent study by Vandell et al. (2010) that measured adolescent outcomes of 958 youth from the original sample. The study found that high quality child care has a positive long-term impact on young children's cognitive and behavioral abilities at age 15. According this report, children who were provided high-quality care during the first years of life had higher academic achievement scores and were less likely to exhibit behavior problems when they reached 15 years old than children enrolled in low quality child care.

Even though there is convincing body of evidence that shows a strong correlation between quality child care and positive child outcomes, there still remain several disparities in the quality of child care experiences provided to young children. The literature on child care quality has identified several factors that affect quality. The most prevalent and consistent factor affecting quality is the child care teaching workforce (Burchinal et al., 2002; Cost Quality and Child Care Outcomes Study Team, 1995; Peisner-Feinberg et al., 2000; Ruop et al., 1979; Whitebook, 2003). The following section will provide a closer look inside this particular workforce.

The Child Care Workforce

The research literature indicates that there is a very strong association between the quality of the early education program and the qualification level of the programs teachers (Burchinal et al., 2002; CQCO Study Team, 1995; NICHD, 2000; Peisner-Feinberg et al., 2000; Rupp et al., 1979; Whitebook; 2003). Past research produced evidence that teachers working in child care settings with bachelor's degrees in early childhood education (ECE), or have some form of specialized training in ECE, provide a higher quality child care environment for young children. More importantly, children

have greater gains academically and socially and are better prepared prior to entering school. However, there are a large number of young children who are in the care of individuals with no educational background or training in early care and education, therefore, creating a workforce that has limited or no training in how to care for and educate young children before they start to work (Kagan, Kauerz, Tarrant, 2008). Of greater significance is the reality that the child care industry is composed of low wages, limited employee benefits, and limited opportunity for career advancement which contributes to factors such as higher rates of teacher turnover (Gable and Halliburton, 2003; Whitebook, Phillips, & Howes, 1998; 2001; Whitebook, 2003). The low level of compensation makes it difficult for child care programs to attract and retain high quality early preschool teachers. Furthermore, as noted earlier, the profession is hindered by the varying state regulations concerning standards, teacher preparation, and continuing education (Pianta et al., 2009).

In a recent report, *Child Care in America* (NACCRRA, 2010), approximately 2.3 million individuals are caring for and educating children under age 5 in the United States, of which approximately 1.2 million are providing child care in formal settings, such as child care centers or family child care homes. The average age of an early childhood teacher is 39 years old (Saluja, Early, & Clifford, 2003). Consequently, this makes teacher preparation more challenging in addressing the needs of nontraditional students who are juggling work/life balance (Ackerman, 2004). Across the United States, the preparation offered to teachers in child care programs is minimal. Child care licensing agencies vary in their qualifications requirements. Most states have no requirements for pre-service training and a high school diploma or its equivalency is usual sufficient

(NACCRRA, 2010). As a result, teachers working in child care programs may not see the need to acquire a degree (Raikes et al., 2003; Saluja et al., 2003). Ackerman (2004) suggests that teachers need to see the value of education in order to be motivated to work toward a higher level of professional development. Nonetheless, preschool teachers in child care settings are responsible for providing young children with high quality care and education, which ultimately can impact their school readiness and long term academic success.

Because of the fragmented preparation system for individuals working in child care programs, the majority of individuals are forced to gain most of their professional knowledge and skills on the job. This usually includes a patchwork of uncoordinated workshops, where teachers attend a session for a few hours to learn about a topic related to their work with young children (Bowman et al., 2001). There is a serious disconnect between the preparation of preschool teachers and the expectations in their classroom to provide developmentally appropriate learning experiences for young children to be successful in the school years and beyond (Whitebook, 2003).

According to Bowman et al. (2001), what early childhood teachers know and are able to do is one of the major influences on the learning and development of young children. To that end, the child care workforce must be better prepared to provide high quality learning experiences for young children to be successful in school and ultimately in life. Consequently, the limited educational background and experience of the child care workforce calls for a more systematic approach to professional growth. A professional development approach that facilitates the rewiring of teachers understanding of their role as a caregiver and educator of young children and increases professional competence to

deliver quality early education experiences to children. To that end, there is a need to increase the professional nature of the child care field and this can happen through a comprehensive professional development approach that supports teachers through the learning process. Past early childhood professional development research had identified strategies such as increasing teachers' education level and acquisition of credentials as a way for teachers to increase their knowledge and skills to be successful in the classroom and impact child outcomes. However, there is a growing body of evidence that expands on the previous research and has identified additional components of professional development that can be effective in increasing teachers' classroom practices (Neuman & Kamil, 2010; Wei, Darling-Hammond, Andree, Richardson, & Orphanos, 2009; Zaslow et al., 2010).

In the midst of a structural climate that does not provide adequate preparation for individuals working in child care setting, professional development must become the stabilizer for this inadequate teacher preparation system. Since teachers vary in prior training and teaching qualifications, the research literature in this area has identified professional development as instrumental in affecting teacher learning and ultimately student learning in a variety of classroom settings. Simply stated, it is through effective professional development programs that early childhood teachers with no formal training or education acquire effective teaching practices, knowledge of specific content, and the confidence to implement learned practices in the classroom (Martinez-Beck & Zaslow, 2006; Zaslow et al., 2010). To illustrate this point, the next section will examine the research in this area.

Early Childhood Professional Development

Tout, Zaslow, and Berry (2006) suggest that the lack of clarity in the research literature

regarding the definition of professional development, as it relates to the categorization of

training and education, impedes our ability to identify patterns in the findings that inform

professional development best practices for the early childhood workforce. Conversely,

several researchers have attempted to provide a clear and distinctive definition of

professional development.

      Definition of professional development. Maxwell, Field, and Clifford (2006)

conducted a literature review of how professional development is defined. They

concluded that there is not a common definition of professional development. In

reviewing the literature, they found that professional development is characterized by

three components: education, training, and credentials. Education is the professional

activities which take place within the formal education system. Training refers to the

professional development that occurs outside the formal education system. In general,

training is informal and does not lead to a higher education degree. Credentials include

both licensing and certification. A clearer identification of the above mentioned

professional development components allows for a more standardized comparison of

professional development programs.

     As noted in research literature, gaining a deeper understanding of the impact of

professional development programs on improving teacher's classroom practices and

overall early childhood program quality has been complex because no common definition

of professional development exists (Maxwell et al. 2006). Contrary to the inconsistency

in the terminology, the literature suggests that professional development can have an

impact on preschool teacher's classroom practices regardless of whether it is obtained through formal education or training outside the formal education system. The subsequent section will provide an overview of the different types of professional development components and their effect on increasing teachers' effectiveness in the classroom.

Forms of Professional Development

An emerging body of evidence suggests that professional development can have a positive impact on teacher knowledge, skills and confidence. The literature reveals that it is through effective professional development programs that early childhood teachers acquire effective teaching practices, knowledge of specific content, and the confidence to implement learned practices in the classroom. Effective professional development must offer opportunities for teachers to reflect critically on their teaching practices as well as new knowledge and beliefs about content, pedagogy, and learners (Darling-Hammond & McLaughlin, 1996). However, not all professional development activities are the same. Professional development can take on various forms. As a result of past and current research on professional development of early childhood teachers there are several features that are effective in designing early childhood professional development programs that increase teachers' knowledge and practice (Zaslow, 2009).

In a recent extensive literature review to identify effective forms professional development for early childhood educators, Zaslow et al. (2010) found evidence that suggest professional development for early childhood educators is more effective in improving teachers' classroom practices when the following components are present: 1) the content of the training is very specific specialized training; 2) combination of training

with individualized modeling/coaching; 3) feedback regarding interactions with children, as well as, the ability to reflect on their practice; and 4) there is collaborative participation of the entire teaching staff within the early childhood program in professional development activities. Sheridan et al. (2009) discussed how early childhood professional development that includes sustainable high-quality professional practices and engages early childhood teachers in activities that are self-sustaining and growth producing can prove to be highly effective. This self-sustainable model of professional development ensures the transfer of knowledge from training facilitator, coach, or mentor to individuals or groups of professionals engage in professional development activities.

In addition, Sheridan et al. (2009) posits that evaluating the forms and processes of an effective professional development program is a critical next step in early childhood professional development research, in particular, professional development linked to employed ECE professionals with limited education and training. The following sections will begin to address this issue by examining various professional development components from the literature that provide evidence that a systematic professional development approach can improve teacher knowledge and practice.

Specialized training. As suggested by Maxwell et al. (2006) and Tout et al. (2006), informal training is categorized as professional development activities that occur outside of a formal education setting (i.e., college or university) and provides specific instruction to build the knowledge base and skills of on-the-job early childhood professionals. There is growing body of early childhood professional research that has shown that specialized informal training is a strong predictor of positive caregiver-child interactions and overall classroom quality (Arnett, 1989; Burchinal et al., 2002). Notably,

Sheridan and colleagues (2009) indicated that specialized training has a positive impact on teacher practice and overall classroom quality. A recent meta-analysis found that specialized training does in fact improve the competencies of early childhood teachers, including their attitudes, knowledge, and skills (Fukkink & Lont, 2007). This is in stark contrast to previous research that suggests that early childhood teachers with more formal training (i.e. higher education levels) as a better predictor of child care quality and positive child outcomes (Blau, 2001; Howes, Phillips, & Whitebook, 1992; NICHD, 2000; Phillipen, Burchinal, Howes, & Cryer, 1997). High quality informal training is provided in various modalities and is flexible and a cost effective way to enhancing or improving the knowledge and skills of early childhood teachers (Albrecht & Engel, 2007).

One of the most traditional forms of training provided to the child care workforce is workshops (Maxwell et al., 2006). Arguments against the effectiveness of one day workshops are raised by various researchers and there is a heightened concern about their effectiveness. Workshops generally are a few hours or a day. There is a consensus among early childhood experts that teachers must participate in professional development activities over an extended period of time rather than just short brief workshops or conferences; longer term activities have been statistically associated with higher student performance (Cohen & Hill, 2000; NAEYC, 1993). The length and time of training sessions strongly relates to the degree participants will be impacted (Guskey, 1986; Wiley & Yoon, 1995). In addition, the training should meet the early childhood teacher's training needs and provide information that is linked to daily classroom practice.

Notably, there are studies that provide evidence about the effectiveness of specialized training that is continuous and coherent, adds to teachers' knowledge base, and informs teaching practice. A study by Raikes et al. (2006) found that coherent and systematic training, instead of stand-alone workshops, may be closely associated with observed quality. Epstein (1993) provided supporting evidence by examining the success of a comprehensive training model known as the High/Scope training model. This training program included a comprehensive and systematic format whose training modules are interrelated and builds upon each other as well as allowing for knowledge to increase over the course of the training program. In the study, Epstein evaluated the effectiveness of the training model in 244 High/Scope and 122 non-High/Scope settings. The teachers participating in the study were highly qualified. Over 70 percent of the teachers had an early childhood degree or credential. The training model consisted of monthly interactive small group training workshops, monthly follow-up sessions to allow teachers to reflect on any problems and identify solutions to curriculum issues and teaching practice. The researcher evaluated the program using interviews, classroom observations, and child assessments. The length of the training program was more than a year and a half consisting of eight hours of training per week. The research revealed statistically significant differences between training offered by the High/Scope programs and the provided by the comparison programs. The High/Scope training model offered more training and mandated teachers to attend workshops more regularly than the comparison programs. The High/Scope teachers engaged in more follow-up sessions with trainers discussing curriculum issues, teaching practices, and child assessment. The High/Scope teachers were also more actively engaged during the training and were

receptive to changing teaching practices as a result of the training received. Overall, the High/Scope programs received higher classroom quality ratings and the training was positively associated with the quality of the classroom. In conclusion, the duration of the training in the High/Scope model was over several months which allowed time in between workshop sessions for teacher to apply concepts learned. In short, this gave teachers time to reflect on information learned and make connections on how information could apply within the context of their classroom environment. Finally, the study showed that comprehensive specialized training can benefit all levels of teachers.

In addition, a national study by Garet et al. (2001) examined the relationship between professional development features supported in the literature and self-reported change in teachers' knowledge and classroom teaching practices. The researcher found that professional development activities containing specific features, such as training focused on content matter, active learning activities, and training activities that are cohesive and link to other topic areas, have a positive effect on teacher learning and classroom practices. In the Garet study, a national sample of 1,027 teachers from 358 school districts participating in a federal professional development program, mainly for mathematics and science teachers, were surveyed to determine the effects of professional development on their learning. The survey contained detailed information about their professional development activities and asked teachers to self-report their experiences and behaviors. The researchers received responses from 1027 teachers in 358 districts. This presents a 72% response rate. The survey asked teachers the degree to which the training program offered the following: a deeper understanding of content area; the extent to which teachers engaged in active learning activities; and the degree of

coherence in professional development activities. The results of the study indicated that professional development that is sustained over time, content specific, and builds on prior experiences, had a positive effect on enhanced knowledge and teaching skills.

Similar to the aforementioned study, Desimone et al. (2002) examined features of professional development and its effect on changing teaching practices in mathematics and science. Two-hundred and seven teachers from 30 high poverty schools, 10 school districts in five states participated in the study. States, school districts and schools with diverse professional development models were selected. Researchers documented study participants' teaching practices in math and science before and after professional development activities. Teachers were surveyed at three different intervals to examine to what extent teaching practices changed as a result of participation in professional development activities. The researchers received responses from 75% of the teachers. The survey completed by teachers contained the following questions related to their professional development activities: (1) describe an activity that has been particularly helpful in the classroom; (2) total number of professional development hours; (3) time span for professional development; (4) extent professional development offered opportunities for active learning; (5) extent to which professional development linked to earlier professional development experiences; (6) to what extent did professional development lead to content specific teaching practices; and other variables. The teachers self-reported responses to the survey questions indicated that professional development focused on specific content and instructional practices increases teachers' application of those practices in the classroom.

While the two preceding studies examined the effect of professional development on teachers who were highly qualified (early childhood degree and/or credential), a study by Girolametto, Weitzman, Lefebvre, and Greenberg (2007) examined the impact of professional development on preschool teachers with either a high school diploma or degree in early childhood education and 4 years of experiences working in a child care setting. Sixteen preschool teachers and sixty-four children from twelve child care centers participated in the study. The educators were randomly assigned to either experimental group or control group. The study used a pre-post test design. The pretest for both experimental and control group occurred before the beginning of the training program. The posttest was administered two-weeks after the final training sessions to allow educators time to integrate new information into their daily routines. Educators in the experimental group attended a two-day in-service training program that included 12 hours of instruction (i.e., 6 hours of instruction per day). The training sessions taught educators strategies for facilitating general language development and emergent literacy skills. The format for the two-day workshops included (a) interactive lectures and videotaped examples of best practices in key strategies taught, (b) small group sessions to reflect on videotaped examples and discuss how to incorporate strategies into the classroom environment, and (c) interactive role-plays of strategies learned. In addition, educators were provided feedback about their application of strategies with children. Educators were videotaped with small groups of preschoolers during story-time and during a craft activity after reading a story. The videos were examined to determine the rates of abstract language, verbal print references, and children's responses. The control group participated in an alternative training program of the same duration and focused on

facilitating peer interaction skills. The results of the study indicated that educators in the experimental group used more strategies that facilitated talk amongst children about their emotions and past experiences during story-time in comparison to the educators in the control group. There were also more print references during the post-story activity. In addition, the two-day training program resulted in short-term changes in teachers' behavior as it related to using strategies that promote emerging children's language and literacy skills. It was noted by researchers that improving teacher's classroom practices is not related solely to education or training, but can be attributed to areas that offer opportunities for classroom practice and feedback, modeling the use of strategies in the context of the classroom environment and mentoring to promote retention of knowledge acquired (Girolametto, Weitzman, Lefebvre, & Greenberg, 2007).

Likewise, a study by Sheridan (2001) provided opportunities for preschool teachers of varying background and teaching philosophies to incorporate concepts learned in a comprehensive specialized training program focused on "competency development" into improved classroom practices, resulting in increased classroom quality. Using an experimental design, this study provides evidence of the effectiveness of a specialized training model and the positive impact on classroom quality. Teachers from nineteen preschool programs participated in various "competence development courses." The content of the training was based on teachers' needs, interest and quality indicators defined in the Early Childhood Environment Rating Scale (ECERS). Teachers in the experimental group participated in the course for over one year. The course consisted of monthly informal child development lectures and reviewing pertinent literature, forming learning teams which helped facilitated small group sharing of

knowledge and experiences, and meeting with the researcher once a month to receive

feedback and guidance. The learning teams were composed of teachers in classrooms that

varied in their level of quality as determined by their baseline ECERS evaluation. The

experimental group lectures were interactive and offered opportunities for participants to

share ideas and experiences with peers. The inactive lectures set the stage for future

lectures that were tailored to meet the need of the teachers as identified in previous

lectures. Participants also completed questionnaires about their overall learning

experiences. The comparison group participated in an alternative training program. The

researcher also used the Early Childhood Environment Rating Scale (ECERS) to

establish a baseline quality rating on classroom participation in the study. The results of

the classroom observation was used as a tool for defining preschool quality and a method

for facilitating reflection on how to improve the quality of their preschool environment.

Pretest and posttest ECERS assessments were conducted for both the intervention and

comparison preschool classrooms. The researchers encouraged teachers with varying

experience and education levels to engage in reflective sessions that allowed for sharing

with peers their experiences and efforts to improve the quality of their preschool

classrooms. Study results of teacher questionnaires indicated that opportunities for staff

to engage in reflective practice sessions with peers was very beneficial and created a

greater awareness of their thought processes guiding their classroom practices.

Additionally, post-ECERS ratings revealed that the overall impact of the competency

development training program yielded an improvement in the average ECERS scores of

the nine preschool classrooms in the experimental group in comparison to a decrease of

the average ECERS score for centers in the comparison group.

The positive impact of a specialized training program has proven to be effective in increasing the classroom quality of teachers in child care programs with limited education and experience (Raikes et al., 2006). In-depth training models that are administered over a long period of time and are linked to actual practice makes it easy for teachers to apply lessons learned through the training process. The most comprehensive and familiar specialized training program used by the child care field is the Child Development Associates (CDA). This in-depth training and credential program requires 120 clock hours of early childhood coursework in eight competency areas outlined by the Council for Early Childhood Professional Recognition. The CDA course can be provided by credit-bearing institutes or other entities that provide training, such as, Child Care Resource and Referral Agencies, Child Care Quality Improvement projects, or Child Care Quality Rating Systems. The Child Development Associate training is connected to classroom quality (Weaver, 2002), linked to improving teachers attitudes toward children over the duration of the training course, and credited for a stronger link to quality than higher formal education (Raikes et al., 2006).

In summary, specialized in-depth training has been shown to be an effective form of professional development that can result in improved teacher practice and overall classroom quality for teachers with limited education or experiences when theory is intertwined with practice (Raikes et al., 2006). Based on the previous review of literature in this area, one could conclude that training alone may not be the most effective approach for improving less experienced teachers' pedagogical skills. The research literature in this area indicates that additional features combined with comprehensive specialized training can result in effective professional development experiences for early

childhood teachers regardless of their educational background (Epstein, 1993; Garet et al., 2001; Tout et al., 2006). This emerging evidence is contradictory to the professional development research that suggests that only formal education and training increase teachers' professional growth and transfer of knowledge into practice. There is emerging research about the positive effect of training when combined with other forms of professional development. A recent publication by Wei et al. (2009) has identified a shift in the design of professional development programs to a more collaborative and collegial approach to learning. The report discusses current research that shows that this type of professional learning is a critical step in transforming schools, teachers, and increasing positive student outcomes. The following components are examples of the movement away from professional development programs that include only training as a means for increasing teacher's knowledge and skills to a more collegial and collaborative approach to teacher learning and development. The next section will further examine the impact of professional development models that consist of components such as collegial small groups and on-site coaching.

Collegial small groups. Sheridan and colleagues (2009) describes individuals who come together on the basis of a common professional interest and a desire to improve their practice in particular areas through a collaborative and collegial process. The groups can be school or center specific teaching staff or a mixture of staff from various programs and a skilled external facilitator who has a positive relationship with group members and can lead the group through the learning process (Sheridan, 2009). This approach has been used in both school and child care settings. It is considered a powerful learning environment for teachers, in particular those with limited pedagogical

knowledge and skills (Villa & Thousand, 2000). The goal is to facilitate the transfer of knowledge into practice that becomes self-sustaining over time.

The evidence base investigating the implementation and effect of this professional development format in early childhood education is small, but convincing, and the positive impact of the format is becoming more widely known and utilized (Sheridan et al., 2009). Research by Palsha and Wesley (1998) and Birman et al. (2000) has shown that engaging multiple staff members together is critical to improving and sustaining learned practices. Researchers have found increased change when teachers are prepared together, assess their own needs, engage in staff development activities over a longer period of time, and are able to apply their newly acquired knowledge and skills in the context of their classroom environment (Palsha &Wesley, 1998). Training the entire teaching staff increases the likelihood that improved changes in the classroom will result in better educational experiences for young children.

Moreover, Darling-Hammond and Sclan (1996) found that cohort group networking, combined with intensive mentoring and ongoing inquiry and opportunities to practice new knowledge, is effective in increasing teacher retention because of the collaborative and collegial culture that is developed when educators work together to create a supportive learning environment. Similar to Darling-Hammond and Sclan (1996), a study by Little (2003) examined school-based and grade-level collaborative teams to determine the specific dynamics that constitutes an effective collaborative learning community that fosters teacher growth and learning. Through interviews, observations, audio and videotaped documents of teacher interactions in school, the

researcher found that teacher learning occurred as teachers learned to describe a practice and defend or change their practices due to emerging or current quality standards.

In addition, a more recent study by Meirink, Meijer and Verloop (2007) examined the learning experiences of teachers in collaborative settings and the impact of those experiences upon change in cognition and/or behavior. Five schools participated in the study, and five different groups were formed and were instructed to meet a minimum of five times during the school year. An experienced coach well versed in the collaborative learning process attended the meetings and videotaped each session. Six teachers were selected from the five groups to participate in an in-depth study. Researchers used interviews and digital logs to obtain information about the learning activities and learning outcomes. The analysis of data collected revealed that teachers learned from getting to know other colleagues' expertise and experiences with teaching methods. However, teachers reported that the collaborative settings brought forth changes in their cognition rather than changes in their classroom behavior.

The collaborative learning approach to professional development is becoming more widely used in the field of early childhood education intervention (Wesley & Bussye, 2006). This form of professional development has been used in a various settings, including schools and child care programs. Although collegial small groups are considered to be a strong and influential professional development environment for teachers, little empirical research has been done to investigate how teachers learn in this type of settings (Borko, 2004). There is a need to further examine the impact of this form of professional development. The next form of professional development is growing in its popularity as a mode of professional development. Not surprisingly, coaching is a very

effective strategy for teachers with limited or no formal education or training (Zaslow et al., 2010).

On-site coaching. Coaching is still a relatively new approach to professional development; therefore, the research determining its effectiveness is still emerging. The Wei and colleagues (2009) suggests that professional learning should be guided, grounded in practice, linked to curriculum and embedded in how adults learn best. Coaches guide the professional development of teachers. A recent comprehensive literature review of professional development for early childhood educators by Zaslow et al. (2010) suggests that coaching can be instrumental in improving classroom quality. Coaching has been the form of professional development used in several recent research studies (Gettinger & Stoiber, 2007; Landry et al., 2006, Landry et al., 2009; Podhajski & Nathan, 2005). Duessen, Cookie, Robinson and Autio (2007) define coaching as the process by which a more knowledgeable professional works closely with another professional to increase productivity or to meet some predetermined outcomes. Coaching models are grounded in the fact that in order for professional development to take shape in teacher practices in the classroom, ongoing and targeted follow-up is needed to help teachers transfer concepts learned into classroom practices (Wei et al., 2009). Joyce and Showers (1983) suggest that 90% of learners will transfer new skill into their practice after acquiring knowledge through demonstration, practice, reflection, and feedback.

Whether coaching should be directive by telling teachers how to adjust their instruction, or collegial with the aim of enhancing self-reflection in teachers, is subject to debate (Joyce & Showers, 2002). According to research, teachers are less likely to change in directive approaches, although this type of coaching may appeal to newer teachers

(Gersten, Morvant, & Brengelman, 1995). Coaching for self-reflection is seen to be a more collaborative model in which the coach and the teacher together raise questions about the effectiveness of instruction and make decisions about changes (Deussen et al., 2007; Fountaine, Torre, Grafwallner & Underhill, 2006). Teachers should be given the opportunity to collaborate with other teachers in professional learning communities, be observed by expert mentors, and reflect on their own practices, as well as network with other teachers. Several studies suggest that coaching can change teacher practice (Landry et al., 2006; Wei et al., 2009). Teachers receiving coaching were found to be more likely to use new strategies appropriately than teachers receiving more traditional workshop approach to professional development (Showers & Joyce, 1996).

A study by Neuman and Cunningham (2009) further validates the effectiveness of the coaching model. The professional development initiative was designed to improve early childhood teachers' language and literacy instructional practices and child outcomes in programs serving Michigan's poorest children. Three-hundred and four preschool teachers (child care and family home providers) participated in the study and were randomly assigned to three groups: group one participated in a three-hour credit course in early language and literacy at their local community college; group two participated in professional development course and received coaching; group three participants were a control group with no professional development course or coaching. The professional development course consisted of 45 hours of content specific coursework aligned with core competencies and national standards from NAEYC accreditation and the International Reading Association (IRA). Coaching sessions were weekly, one-on-one and on-site for 1-1 1/2 hours. The 32 coaching sessions were designed to align with the

professional development course. Once the course was completed, coaches continued their sessions for an additional 17 weeks. Researchers examined participants' growth in knowledge about early language and literacy using a multiple choice, true-false assessment. To measure change in teacher practice, pre- and post-assessments using the Early Language and Literacy Observation (ELLCO) and the Child/Home Early Language and Literacy Observation (CHELLO) were conducted. At the start and completion of the intervention all participants were administered the Teacher Knowledge and Assessment of Early Language and Literacy Development scale. Study results showed statistically significant improvements in language and literacy teaching practices for teachers who received coursework plus coaching. This study is of substantial significance to the field of early childhood professional development as it provides strong evidence that coaching seemed to be the most critical component in a professional development design.

Likewise, Landry et al. (2006) investigated the impact of a professional development model composed of coaching. The statewide early childhood intervention focused on building preschool teachers' ability to provide quality early literacy and language instruction. Seven-hundred and fifty teachers participated in the literacy-focused professional development training over a two-year period. One of the major features of this professional development program was the coaching and mentoring of the teachers. The premise of the model was that coaching and mentoring would not only support teacher development, but have a more long term effect on their classroom practice. The mentors were to be a source of support and knowledge for the teachers in the program and to assist them with implementing the enhanced language and literacy program activities through expertise with lesson planning, assessment, and demonstration

lessons. Researchers found that teaching practices improved, as did children's knowledge in print and phonological awareness. Notably, the research presented above provides evidence that coaching is an effective approach for enhancing teachers' professional growth.

In addition, the efficacy of coaching has been questioned by researchers. For example, a study in Netherlands (Veenman et al., 2001) emphasized the importance of the preparation of coaches. Researchers stated that coaches or mentors must be equipped with the certain qualities and abilities essential for a positive and productive teacher and coach relationship. The study consisted of 35 experienced primary school teachers. Twenty teachers received training on various coaching skills while the 15 teachers assigned to the control group received no coaching skills training. Pretest and posttest training evaluation indicated that the training had a positive effect on the coaches who participated in the coaching skills training. Results also showed a significant difference between the trained coaches and the control groups' abilities to develop autonomy, feedback and encouragement of self-reflection with the teachers they coached (Veenman et al., 2001). Consequently, the quality of the coach and their coaching skills are important factors to the effectiveness of this model of professional development and should be examined further. Sheridan et al. (2009) and Zaslow et al. (2010) concur that more research is need to fully examine the efficacy of coaching.

United Way Bright Beginnings

United Way Bright Beginnings program began in 2001. The main impetuous of the program is to create a replicable child care quality improvement model that is effective in ensuring children achieve social, emotional, physical and cognitive developmental milestones through improved early learning environments in child care settings. In addition, this long-term multi-faceted child care quality improvement program aims to improve the quality of child care programs serving young children in vulnerable communities in the Greater Houston area. Bright Beginnings components included a comprehensive professional development approach based on best practices from early childhood research, infusion of quality and developmentally appropriate equipment and materials, and staff salary incentives to increase staff retention.

Over the last ten years, United Way Bright Beginnings (UWBB) has provided ongoing professional development to staff working in selected child care centers. The professional development components of Bright Beginnings are very cohesive and combine specialized training, collegial learning groups, and on-site coaching into one professional development program. The model promotes a meaningful, research-based, collaborative and collegial approach to professional development (Sheridan, 2009; Wei, 2009). As noted, there are several different components of the United Way Bright Beginnings professional development models that are linked to the research literature. This study is part of a longitudinal examination that will add to the promising impact of UWBB on improved child care quality in child care centers serving children in high-need communities. The study addresses questions concerning the impact of two distinct early childhood professional development models offered by United Way Bright Beginnings

on preschool teachers' classroom practices after a fourteen to fifteen month period. The features of a specific model increased as program developers gained insight into the needs of program participants. A detailed description of each model will be described in the next chapter.

Summary

In conclusion, past and recent professional development research has examined forms of professional development that are experimental, grounded in inquiry and reflection, connected to teachers' work with children and sustained over time (Sheridan et al., 2009; Wei et al., 2009; Zaslow et al., 2010). More importantly, the content, quantity, frequency and duration of the various forms are critical. The forms of professional development previously discussed are indicative of the movement away from the traditional one-shot workshop format to a more comprehensive and collegial approach to teacher learning. It is evident that professional development can be critical in increasing teachers' knowledge, skills, and confidence about specific content and classroom practices (Bandura & Locke, 2003; Garet et al., 2001; Landry et al., 2006; Neuman & Cunningham, 2009). However, more research is needed to truly determine what an effective professional development model looks like for an early childhood system composed of a less qualified workforce. This proposed study examines the impact of professional development models on preschool teachers with limited qualification. The United Way Bright Beginnings professional development program described below incorporates the above mentioned professional development forms into its design.

Chapter III

Methodology

Introduction

The purpose of this study was to examine the impact of two professional development models on the classroom practices of preschool teachers as measured by two nationally known and widely used classroom observation instruments. This chapter presents the research design and methodology for the study. The first section provides a description of the research design and method. The second section includes a detailed description of the study participants and the sampling procedures used to select study participants. The third section presents a thorough description of the professional development models examined in the study. A discussion of the instruments used to collect data, including insight into the validity and reliability of the instruments will be presented in the fourth section. The next section will present the data collection procedures and the final section summarizes the statistical analyses used to interpret the data and answer the research question.

Research Design

This section states the rationale for the selection of the research design. Archival pretest and posttest quantitative data was used for this study. The data was originally collected by the Institute for Urban Education at the University of Houston. The Institute has provided the independent evaluation of the United Way Bright Beginning program components and effects associated with the interventions. The researcher for this study was granted permission by United Way of Greater Houston and the University of Houston-Institute for Urban Education to use archival data collected in 2005, 2007, 2009

and 2010. The data used for this study is the property of United Way of Greater Houston and Institute of Urban Education at the University of Houston.

This study examined the impact of two professional development models on preschool teachers' classroom practices and seeks to answer the following research questions: *Is there a statistically significant difference between two professional development models' impact on preschool teachers' classroom practices as measured by the Infant/Toddler Environment Rating Scale-Revised (ITERS-R) and Early Childhood Environment Rating Scale-Revised (ECERS-R)?*

The independent variables of interest are the professional development models. The dependent variables are the scores on the ITERS-R and ECERS-R classroom quality rating scales.

Participants

This study utilized a convenience sample. The child care centers in this study were divided into different groups based on year of entry into the child care quality improvement program. At the time of this study, United Way Bright Beginnings was composed of four distinct groups or *Tiers* selected for participation in the program in 2002, 2005, 2007 and 2009, respectively. This study focuses on child care programs previously selected for participation in Bright Beginnings during 2005 and 2009. The participants are identified throughout the study as being a part of either Tier II (2005) or Tier IV (2009). The researcher chose to study the preschool teachers in Tier II and Tier IV because the professional development experiences provided to the two groups were different. A side-by-side comparison of the professional development differences are presented later. The sample for the study included 29 preschool teachers at 11 child care

centers. The programs were located in low-income communities throughout the greater Houston area. In total, there were five centers in Tier II, while Tier IV was composed of six centers. In the following sections detailed characteristics of the two groups selected to participate in the study will be described.

Tier II Teachers. This group consisted of 15 preschool teachers working in infant, toddler, and preschool classrooms serving children birth to age five. Ten classrooms served children birth through 2 ½ years old and 5 classrooms served children 2 ½ to 5 years old. All participants in this group were female. The ethnicity of the participants included African American (74%), Hispanic (13%), and White (13%). In terms of formal education and teaching experience, half of the participants (53%) had only a high school diploma. Thirteen-percent had either an associate's degree in ECE, bachelor's degree in ECE, or master's degree in ECE. As it related to college training, 13% had between 1-13 college credits. In addition, 6% of the participants had less than three years of teaching experience, 33% had between 4 to 5 years teaching experience and 60% had over 10 years teaching experience.

Tier IV Teachers. This group consisted of 14 preschool teachers working in infant, toddler and preschool classrooms in six child care centers. Nine classrooms served children birth to 2 ½ years old and 5 classrooms served children 2 ½ to 5 years old. The participants in this group were all female. The ethnicity of the participants included African American (36%), Hispanic (36%), White (14%) and Asian (14%). In terms of formal education and teaching experience, the majority of the participants (57%) reported having only a high school diploma. Fourteen percent had either an associate's degree in ECE or bachelor's degree in ECE. The teachers in Tier IV were comparable to teachers in

Tier II in terms of higher education degrees. In relation to college training, 27% had between 1-13 college credits. Additionally, 7% of the participants had less than 3 years teaching experience, 50% had between 4-9 years teaching experiences and 43% had over 10 years of teaching experience.

The characteristics of the study sample are consistent with the research literature related to the child care workforce that indicates the majority of the workforce has limited or no formal education (Barnett, 2004; Kagan, 2006; Whitebook, 2003). Table 1 displays the demographics of study participants in Tier II and Tier IV, respectively.

Table 1

Demographics of Participants

Demographics	Tier II	Tier IV
Female	100%	100%
African American	74%	36%
Hispanic	13%	36%
White	13%	14%
Asian	-	14%
High School Diploma Only	54%	57%
Some College (1-13 credits)	13%	29%
College Degree	33%	14%
Teaching Experience (0-3 years)	7%	7%
Teaching Experience (4-9 years)	33%	50%
Teaching Experience (10+ years)	60%	43%

Intervention

United Way Bright Beginnings has provided ongoing professional development opportunities for staff of selected program for over nine years. The overall impact of the program has been examined since its inception. The evaluations are used to assess the effectiveness of the program and improve the services provided to children, child care staff, and administrators. Since the inception of UWBB, the professional development activities have been grounded in expanding the learning experiences of early childhood teachers and connecting those experiences to their work with young children. This study seeks to compare the effects of two different professional development models on preschool teacher's classroom practices in selected child care programs. Descriptions of the two professional development models are presented separately in the following sections.

Tier II (model one). This model was administered to teachers in Tier II. The intervention for this group of teachers included months of training specifically for infant, toddler and preschool teachers and monthly in-class coaching sessions provided by early childhood consultant. Each intervention is described in greater detail below.

Specialized training. Teachers attended specialized training sessions over an extended period. The training sessions were held for one-day, generally on a Saturday lasting for 6-7 hours. The format varied from large group, age-specific sessions for infant, toddler and preschool teachers to larger group sessions composed of all teachers. The focus and content of the training sessions were centered on understanding and implementing specific early childhood curriculum, in particular, *The Creative Curriculum, Innovations: The Comprehensive Infant Curriculum*, *Innovations: The*

Comprehensive Toddler Curriculum, *Innovations: The Comprehensive Preschool Curriculum* and, *Scholastic Early Childhood Curriculum*. In addition, participants attended a session focused early childhood environments. Overall, the content of the training targeted broad and open topic areas that included an emphasis on early childhood curriculum and environments. Over the duration of 15 months, there were 13 training sessions provided to Tier II teachers. Additionally, the training sessions included actual curriculum material and content presented through interactive hands-on activities that provided participants the opportunity to engage in reflective inquiry and application of information learned during the training session. Training was conducted by well-known expert early childhood trainers. In most cases, the trainers were the developers of the curriculum presented or content experts in topic areas.

   On-site coaching. UWBB consultants provided in-class coaching and support to teachers in their individual classroom environment for a 15 month period. UWBB consultants were experienced, knowledgeable, and well-trained early childhood professionals. The consultants scheduled monthly classroom visits to child care centers. The amount of on-site coaching received by teachers varied across classrooms. The duration and frequency of the coaching sessions were based on specific classroom needs. The coaching sessions addressed items outlined on quality improvement action plans based on ITERS-R and ECERS-R observation results. The consultants worked side-by-side with the teachers observing and providing feedback, modeling and coaching teachers on appropriate classroom practices, and scaffolding teachers as they learned new skills. Consultants assisted teachers in applying skills learned through training into their classroom environments. Additionally, teachers and consultants engaged in reflective

practice sessions to dialogue about newly learned strategies and implications for their classrooms.

Tier IV (model two). This model was administered to teachers in Tier IV. During 2009-2010, the United Way Bright Beginnings program evolved into a more comprehensive professional development model. The professional development model expanded to include additional components. The components were (a) specialized training, (b) small cohort group and, (c) on-site coaching. A detailed description of the intervention for Tier IV teachers is described below.

Specialized training. Teachers in Tier IV experienced the following two specialized training formats over an extended period of time.

Quarterly conferences. Teachers in Tier IV attended quarterly training sessions. The training was delivered in a conference format. The quarterly conferences were held for one day, generally on a Saturday, lasting for 7 hours. The conferences consisted of age-specific conference tracks (infant, toddler and preschool). Each track consists of three training sessions. The focus and content of the conference tracks were centered on understanding and implementing a more narrowly focus content. For example, training focused exclusively on developmentally appropriate math and science experiences for young children; and how to integrate math and science into the curriculum. Over the duration of 14-months, there were five content specific conferences with sessions tailored toward specific age groups. In addition to training sessions, training participants were given after-training assignments and UWBB consultants followed-up on completion of assignment during on-site visits. In sum, the training for Tier IV teachers moved away from the broad and open content format to a more targeted and specific subject-matter

content. Training was conducted by expert and well-known early childhood trainers. In addition, UWBB consultants provided training for specific conference tracks. Before training sessions UWBB consultants engaged in reflective sessions with expert trainers to discuss progress of teachers and the content of training sessions. The training sessions included material that related to the topic area covered and content was presented through interactive hands-on activities that provided participants the opportunity to engage in reflective inquiry and application of information learned during the training session.

Child Development Associate (CDA) Course. A CDA course was provided for teachers electing to participate in the 120 hour training course which is the first step toward obtaining a CDA credential. The course consisted of 13 classes over four months. Each class was eight hours long, for 104 hours of specialized training. The course was provided by the UWBB team (consultants and manager). In addition to the CDA, class participants engaged in out-of-class assignments and attendance at quarterly conference sessions to obtain the additional 16 hours necessary to complete the 120 hours of required coursework. The course was taught by an experienced early childhood trainer that was familiar with CDA course content.

Small cohort groups. Lead teachers in Tier IV child care centers were selected to participate in cohort groups. There were three specific groups: infant cohort, toddler cohort and preschool cohort. The teachers participating in the cohort groups were promising teachers within their respective child care program. The cohort teachers are grouped with teachers with like roles and responsibilities. This component created a more collegial and collaborative approach to teacher professional development. Each cohort consisted of between 12-15 teachers. The teachers attended 10 training sessions over 14

months. In addition to attending the quarterly training events, cohort groups attended four additional training sessions for a total of 12 hours of training. The UWBB consultants delivered this training. In addition, the cohort groups met four times to engage in reflective inquiry and share classroom experiences with expert early childhood trainers and UWBB consultants as it related to specific conference topics. This occurred as a pre-conference session and was specifically designed for the cohort groups. In addition, the pre-conference sessions served as preparation for teachers to serve as conference session facilitators. The content of the cohort training was age-specific and based on specific subject-matter. The cohort sessions were connected to build on prior knowledge and skills acquired during other training sessions. After training, assignments along with materials were given to facilitate learning between training. UWBB consultants followed-up on completion of assignments during on-site visits. Cohort teachers received very intensive training and one requirement for participation was that they share knowledge acquired in cohort training with their peers in their program.

On-site coaching. UWBB consultants provided in-class coaching to support teachers in their individual classroom environment for 14 months. Consultants visited teacher's classrooms twice per month for two hours each visit. The coaching sessions addressed items outlined on quality improvement action plans based on ITERS-R and ECERS-R observation results. The consultants worked side-by-side with the teachers observing and providing feedback, modeling and coaching teachers on appropriate classroom practices, and scaffolding teachers' learning of new skills. Consultants assisted teachers in applying skills learned through training into their classroom environments. Additionally, teachers and consultants engaged in reflective practice sessions to dialogue about newly learned

strategies and implications in their classrooms. The table below outlines the

characteristics of both professional development models.

Table 2

UWBB Professional Development Models

Model Components	Tier II	Tier IV
Duration of professional development	15 months	14 months
# of specialized training sessions	13	28
Training Content	Very broad (open)	Targeted subject-matter
Frequency of classroom coaching visits	At least 1 visit per month	2 visits per month
Duration of classroom coaching visits	2-4 hours per month	4 hours per month
Collegial small groups sessions	No	Yes

Instrumentation

Two well-known and widely utilized measures of child care quality were used for

this study data collection: the *Infant/Toddler Environment Rating Scale-Revised*

([ITERS-R] Harms, Clifford, & Cryer, 2003) and *Early Childhood Environment Rating*

Scale-Revised ([ECERS-R]Harms, Clifford, & Cryer,1998). The ITERS-R and ECERS-R

observation scales were designed to assess the quality of the classroom environment for

young children from birth to age five. The examination of the pre- and posttest measures

of these instruments provided a means for evaluating the impact of the two professional

development models on the quality of classroom practices displayed by preschool

teachers in child care classrooms. The instruments were developed by researchers and

early childhood experts at the Frank Porter Graham Child Development Institute at the

University of North Carolina and have been widely used to assess the learning

environment for children in child care settings. ITERS-R and ECERS-R instruments have a rich and extensive history of use in numerous research studies (Clifford & Reszka, 2010). Both instruments were used as quality measures in major longitudinal child care studies: The National Child Care Staffing Study (Whitebook et al. 1993) and the Cost, Quality, and Child Outcomes Study (1995). A description of the two measures used for this study is presented in the following sections. In addition, Tables 3 and 4 provide details related to six subscales included in each instrument.

Infant/Toddler Environment Rating Scale-Revised (ITERS-R). This instrument is widely used to assess the quality of child care center classrooms serving children who range in age from birth to 30 months. ITERS-R consists of quality indicators that protect the health and safety and promote stimulating learning activities and positive and supportive teacher child interactions (Harms et al., 2003). The instrument has 32 items distributed across six subscales. The seventh subscale was not used in this study. The items on the ITERS-R are scored along a continuum of 1 (adequate) to 7 (excellent) based on classroom observation and interview with staff. The table below provides a description of the ITER-R subscales.

Table 3

ITERS Subscales

ITERS-R Subscales	Items	Description
Space and Furnishings	8	Indoor space; Furniture for routine care and play; Room arrangement, Provisions for relaxation and comfort; Child related display; Space for gross motor; Gross motor equipment
Personal Care Routines	6	Greeting/departing; Meals/snacks; Nap; Diapering/toileting; and Health and safety practices
Listening and Talking	8	Understanding and use of language; and Using books
Activities	11	Fine motor, Active physical play; Art, Music/movement; Blocks; Sand/water play; Nature /science; Use of TV, video, and or computers; and Promoting acceptance of diversity
Interactions	4	Supervision of play and learning; Peer interactions, Staff-child interactions; and Discipline
Program Structure	4	Schedule; Free play, Group play activities; and Provisions for children with disabilities.

Instrument validity and reliability. The ITERS-R has been evaluated thoroughly

through an extensive body of research. The developers of the scale, Harms et al. (2003),

report that the psychometric properties of the scales are at recommended levels. There is

empirical research that documents the reliability and the validity of the instrument in

terms of the predictive nature in relation to quality measures and child outcomes (Harms

et al., 2003). Harms et al. (2003) field tested the ITERS-R in 90 classrooms, in 45 group

settings to determine the reliability of the instrument. Several measures of reliability were calculated. In terms of indicator reliability, researchers examined all 39 items in the revised ITERS totaling 467 quality indicators. There was agreement on .92 of all indicator scores given by the raters. The observer agreement (inter-rater reliability) for 32 items and 378 indicators was .90. Instrument item reliability was tested with 32 child-related items and there was agreement 83% of the time. Finally, researchers have examined the internal consistency of the scale. This measures the extent to which the instrument appears to be measuring a specific construct (DeVellis, 2003). The scale has a high level of internal consistency with a Cronbach's alpha of .93.

The Early Childhood Environment Rating Scale- Revised (ECERS-R). The Early Childhood Environment Rating Scale-Revised is widely used to assess the quality of child care center classrooms serving children who range in age from 30 months to 5 years. The scale is similar to the ITERS-R; however, the ECERS-R places a distinct emphasis on growing trends and issues in child care, such as inclusion of children with disabilities and cultural diversity (Harms, Clifford, & Cryer, 1998). There are 37 items distributed between six subscales. The seventh subscale was not used in this study. Each item is scored on a seven-point scale from 1 (inadequate) to 7 (excellent) based on classroom observation and interview with staff. The next table provides a description of the ECER-R subscales.

Table 4
ECERS-R Subscales

ECERS-R Subscales	Items	Description
Space and Furnishings	8	Indoor space; Furniture for routine care and play; Room arrangement, Provisions for relaxation and comfort; Display for children
Personal Care Routines	6	Greeting/departing; Meals/snacks; Nap; Toileting/Diapering; Health /Safety practices
Language and Reasoning	4	Books and pictures; Encouraging children to communicate; Using language to develop reasoning skills, Informal us of language
Activities	10	Fine motor; Art, Music/movement; Blocks; Sand/water play; Dramatic play; Nature /science; Math/number, Use of TV, video, and or computers; and Promoting acceptance of diversity
Interactions	5	Supervision of gross motor activities; General supervision of children; Staff-child interactions; Interactions among children
Program Structure	4	Schedule; Free play, Group time; and Provisions for children with disabilities.

Instrument validity and reliability. The psychometric properties of the ECERS-R are

also at recommended levels. Similar to the ITERS-R scale, the ECERS-R has been

examined through extensive research to determine a high level of predictive validity.

Harms et al. (1998) report inter-rater reliability across 470 indicators at 86.1 and at .71 at

the item level, based on a sample of 21 classrooms. Internal consistency ranged from .71

to .88 at the subscale level and .92 for the total. The *ECERS-R* has become the "highest

standard" for evaluating and guiding quality improvement processes as a result of the

scale's well-established reliability and validity.

Data Collection

For the purpose of this study, the researcher was granted permission by United Way of Greater Houston and the Institute for Urban Education at the University of Houston to use existing archival data collected as a result of a larger-scale evaluation of the United Way Bright Beginnings program. The data are the property of the Institute of Urban Education and United Way of Greater Houston. Staff of the Institute of Urban Education maintains the confidentiality of the data collected. Data was coded and stored as a dataset in the Statistical Package for the Social Sciences (SSPS). Permission was granted to use data for the purpose of examining professional development components and classroom teaching practices. The University of Houston's Protection of Human Subjects Committee has examined and approved the observation instruments, consent letters and data collection procedures. Since inception in 2002, the committee has approved the research study annually.

A highly qualified early childhood professional and the UWBB consultants were responsible for assessing selected classroom. The observers were previously trained by the developers of the ITERS-R and ECERS-R scales and additional trainers from the Frank Porter Graham Child Development Institute at the University of North Carolina. The observers participated in three-day comprehensive training on the scales. The training consisted of a thorough explanation of each scale, examination of instructional videos and practice sessions that allowed observers in teams of two to conduct assessments in child care settings. After the practice sessions, observers engaged in debriefing sessions with a trainer. The sessions provided an opportunity for observers to compare ratings and reflect on the meaning of various scale items. Inter-rater reliability

between observers was calculated. Observation teams were required to achieve an 85%

agreement to establish inter-rater reliability. Once inter-rater reliability was established,

observers contacted center directors to schedule a time for classroom observations.

Observers spent 3-4 hours in each classroom conducting observations using either the

ITERS-R scale or ECERS-R- scale. For Tier II, pretest data was collected in July and

August, 2005 prior to intervention and posttest data in January and February 2007, after

the professional development program. For Tier IV, pretest data was collected in August

and September 2009 prior to intervention and posttest data in December 2010 after the

professional development program.

Data Analysis

This final section presents quantitative analyses of archival data collected as part

of a larger study to answer the following research question: *Is there a statistically*

significant difference between two professional development models' impact on

preschool teachers' classroom practices as measured by the Infant/Toddler Environment

Rating Scale-Revised (ITERS-R) and Early Childhood Environment Rating Scale-

Revised(ECERS-R)?

The Statistical Package for the Social Sciences (SPSS) was used to analyze the pretest

and posttest mean differences for the ITERS-R and ECERS-R observation scales. First,

descriptive statistics, including means and standard deviations for subscale items on the

ITERS-R and ECERS-R observations were examined. Next, independent samples t-tests

were conducted to compare the pretest and posttest mean differences between the two

professional development models. The independent variables were the two professional

development models. The dependent variables for the study were the pretest and posttest

ITERS-R and ECERS-R classroom observations change scores between teachers

participating in UWBB professional development model one (Tier II) and UWBB

professional development model two (Tier IV).

<center>**Chapter IV**</center>

<center>**Results**</center>

Introduction

      The purpose of this study was to gain a deeper understanding of effective professional development models for preschool teachers with little or no formal education or training working in child care settings. The study participants included 29 preschool teachers from 11 child care centers located in low-income communities. Participants had varied in their educational background and teaching experiences with the majority (55%) having only a high school diploma. This study used archival data collected as part of a larger longitudinal study collected in two phases. The data collected for the study examined the impact of multiple forms of professional development when combined into a comprehensive professional development model and attention is given to the content, quantity, frequency, and duration of the various forms of professional development. The following question guided this research: *Is there a statistically significant difference between two professional development models' impact on preschool teachers' classroom practices as measured by ITERS-R and ECERS-R Rating Scale?*

      To address the research question, independent-sample t-tests were conducted to compare the mean differences between two professional development models' impact on preschool teachers' classroom practices as measured by either the ITERS-R or ECERS-R. Before conducting inferential analysis, a descriptive analysis was conducted to determine pretest and posttest mean scores and mean differences for ITERS-R and ECERS-R subscales.

Infant/Toddler Environment Rating Scale-Revised Results

Table 5 reports preliminary analysis of ITERS-R results by professional

development model. In addition, Table 6 captures the results of independent samples t-

test for ITERS-R total mean differences between comparison groups.

Table 5

ITERS-R Descriptive Statistics by Comparison Group (N=19)

Tier II (n= 10) and Tier IV (n= 9)

ITERS-R Subscale	PD Model	Pretest		Posttest		Mean
		M	*SD*	*M*	*SD*	Difference
Space and Furnishing	Tier II	2.46	1.08	5.54	0.99	3.08
	Tier IV	2.18	0.78	5.51	0.83	3.33
Personal Care and Routines	Tier II	2.46	0.77	4.81	0.34	2.35
	Tier IV	2.75	1.15	5.25	0.73	2.50
Listening and Talking	Tier II	2.16	0.68	4.39	1.07	2.23
	Tier IV	3.33	1.24	5.47	0.92	2.15
Activities	Tier II	2.08	0.76	4.48	0.78	2.41
	Tier IV	1.94	0.45	5.78	0.95	3.84
Interactions	Tier II	3.07	1.72	5.70	0.91	2.62
	Tier IV	3.75	1.40	6.52	0.64	2.77
Program Structure	Tier II	2.36	1.74	5.68	0.98	3.32
	Tier IV	2.11	0.75	6.11	0.98	4.00

Mean scores for ITERS-R between 1 and 2.99 imply *inadequate* quality; ratings

between 3 and 4.99, *minimal to adequate* quality; and from 5 to 7, *good t*o *excellent*

quality (Cryer, 2003). Results indicated there were relatively large pre-posttest mean

scores and mean differences on ITERS-R subscales for both comparison groups. Tier IV

yielded higher posttest mean scores in all subscales, except for *Space and Furnishing* (*M* = 5.51). However, the change score between pretest and posttest was higher than the Tier II group for this subscale (*M* = 3.33 and *M* = 3.08, respectively). Additionally, the Tier IV group mean differences were higher for all ITERS-R subscales, except *Listening and Talking* (*M* = 2.15). Tier IV had the largest posttest mean score on the *Interactions* subscale (*M* = 6.52) as compared to Tier 2 (*M* = 5.78). *Activities* and *Program Structure* had the highest growth in mean score for Tier IV. The average score increased for the *Activities* subscale from 1.94 to 5.78, which is an increase of 3.84 points on a 7 point scale. For *Program Structure*, the average score for the Tier IV group increased from 2.11 to 6.11. This represents an increase of 4 points on a 7 point scale. The lowest change in mean scores occurring amongst all groups was *Listening and Talking* (*M* = 2.23 and *M* = 2.15). The Tier II group had the highest posttest mean in *Interactions* (*M* = 5.70). The highest mean difference for this group was seen in *Program Structure* from a mean score of 2.36 to 5.58, representing an increase of 3.32 points at posttest. This subscale represented the greatest gain for both groups. Overall, both groups had mean score increases that resulted in observable changes in classroom quality that changed from the *inadequate* and *minimal quality* ratings to the *good quality* ratings on the ITERS-R classroom quality measure.

Independent samples t-test was conducted to compare the pretest and posttest mean differences in classroom observation scores between the two comparison group (Tier II and IV, respectively) on the *Infant-Toddler Environment Rating Scale-R* (see Table 6).

Table 6

Results from Independent Samples T-Test on ITERS-R Total Pretest and Posttest Mean

Differences Between Comparison Groups (N=19)

Environment Rating Scale	Tier II		Tier IV				
	M	*SD*	*M*	*SD*	*t*	*df*	*p*
ITERS-R	2.61	0.72	3.21	0.85	-1.68	17	0.11

Results indicate that there was no statistically significant difference in the total

ITERS-R pretest and posttest mean growth between the Tier II (*M* = 2.61) and Tier IV (*M*

= 3.21) comparison groups; *t*(17) = -1.68, *p* = 0.11. The t-test results do not show a

significant *p* value at .05, indicating that the null hypothesis cannot be rejected. Although

teachers who received professional development model two (Tier IV) scored higher on

posttest ratings for five of the six subscales, a t-test determined that there were no

significant difference in the pre-posttest total mean differences between teachers who

received professional development model one (Tier II) and professional development

model two (Tier IV). Conducting further analysis using findings from Table 5, a t-test

was utilized to determine if mean differences at the subscale level were statistically

significant (see Table 7).

Table 7

Results from Independent Samples T-Test on ITERS-R Subscales Pretest and Posttest

Mean Differences Between Comparison Groups (N = 19)

ITERS-R Subscales	Tiers	*M*	*SD*	*t*	*df*	*p*
Space and Furnishing	Tier II	3.08	0.98	-.547	17	0.59
	Tier IV	3.33	0.98			
Personal Care and Routines	Tier II	2.35	1.46	-.200	17	0.84
	Tier IV	2.50	1.73			
Listening and Talking	Tier II	2.23	1.16	.134	17	0.89
	Tier IV	2.15	1.54			
Activities	Tier II	2.41	0.75	-3.25	17	.005*
	Tier IV	3.84	1.15			
Interactions	Tier II	2.62	2.01	-.168	17	0.87
	Tier IV	2.77	1.85			
Program Structure	Tier II	3.32	1.83	-1.18	17	0.32
	Tier IV	4.00	0.89			

*denotes significance at *p* < .05.

The results indicate that there was a statistically significant difference in the mean

differences on the ITERS-R *Activities* subscale between the Tier II professional

development model (*M* = 2.41) and Tier IV (*M* = 3.84) professional development model;

t(17) = -3.25, p = .005. These results suggest the professional development model for

Tier IV had a greater effect on observable changes for the ITERS-R *Activities* subscale.

Overall, the results indicated that both professional development models were equally

effective in improving infant and toddler teachers' classroom practices and there was a

statistically higher observable difference in pretest and posttest mean scores on the

Activities subscale for teachers in Tier IV.

Early Childhood Environment Rating Scale-Revised Results

Table 8 summarizes pretest and posttest mean scores for the ECERS-R subscales

before and after professional development activities for Tier II and Tier IV comparison

groups. Similar to ITERS-R, mean scores for ECERS-R between 1 and 2.99 imply

inadequate quality; ratings between 3 and 4.99, *minimal to adequate* quality; and from 5

to 7, *good to excellent* quality.

Table 8

ECERS-R Descriptive Statistics by Comparison Groups (N =10)

Tier 2 (n = 5) and Tier 4 (n = 5)

ECERS-R Subscale	PD Model	Pretest		Posttest		Mean Difference
		M	*SD*	*M*	*SD*	
Space and Furnishing	Tier II	2.98	1.16	5.73	0.49	2.76
	Tier IV	2.25	0.46	4.84	0.46	2.59
Personal Care and Routines	Tier II	2.90	1.14	4.46	1.36	1.57
	Tier IV	2.29	0.27	4.89	0.72	2.60
Language and Reasoning	Tier II	3.60	0.84	5.20	0.73	1.60
	Tier IV	2.83	0.84	5.75	0.35	2.92
Activities	Tier II	3.22	0.58	5.38	0.67	2.16
	Tier IV	2.19	0.94	5.16	0.57	2.98
Interactions	Tier II	3.64	1.40	5.96	0.69	2.32
	Tier IV	2.94	1.04	5.68	0.65	2.74
Program Structure	Tier II	3.40	1.47	5.68	1.13	2.20
	Tier IV	2.13	1.94	5.58	0.70	3.45

The results indicated substantial gains in mean scores on ECERS-R subscale for Tier II and Tier IV, respectively. Tier II had higher mean scores in four of the six subscales. The lowest mean score for Tier II was in *Personal Care and Routines* ($M = 4.46$) and *Language and Reasoning* ($M = 5.20$). The highest posttest mean score for Tier II was *Interactions* (M=5.96). Although Tier II has higher observable change on posttest observations for the majority of the subscales, Tier IV showed the greater mean differences for all subscales. Considerable gains appeared in *Interactions* from 2.83 to 5.75, which represents an increase of 2.74 points on a 7 point scale. The *Activities* subscale mean score for Tier IV at pretest with a 2.19 at posttest mean score increased to 5.16, indicating an increase of 2.97 points.

Last, *Program Structure* mean scores for teachers receiving Tier IV professional development model increased from 1.94 to 5.58, representing an increase of 3.45 points. This subscale represented the highest mean difference for Tier IV. The lowest posttest mean score for Tier IV occurred in the *Personal Care and Routine* subscale ($M = 4.89$). In the same way the ITERS-R resulted in observable change in classroom practices, both professional development groups had mean score increases that resulted in an observable classroom quality that changed from the *inadequate* and *minimal quality* ratings to the *good quality* ratings on ECERS-R classroom quality measure.

Table 9 presents the results of the independent samples t-test conducted to compare the pretest and posttest mean differences in classroom observation scores between the two comparison group (Tier II and IV, respectively) on *the Early Childhood Environment Rating Scale-R*.

Table 9

Results from Independent Samples T-Test on ECERS-R Pretest and Posttest Total Mean

Differences Between Comparison Groups (N = 10)

Environment Rating Scale	Tier 2		Tier 4				
	M	*SD*	*M*	*SD*	t	*df*	*p*
ECERS-R	2.19	0.38	2.84	0.53	-2.23	8	.06

Test results indicate there was no statistically significant difference in ECERS-R

pretest and posttest growth score at the .05 level between Tier II professional

development group (*M*=2.19) and Tier IV professional development group (*M* = 2.19),

t(8) = -2.23, *p* =.06. The null hypothesis is not rejected at *p* =.05. Further analysis was

conducted using the mean differences by subscale found in Table 8 to determine if there

was a statistically significant difference between the professional development models at

the subscale level on the ECERS-R (see Table 10).

Table 10

Results from Independent Samples T-Test on ECERS-R Subscales Pretest and Posttest

Mean Differences Between Comparison Groups (N = 10)

ECERS-R Subscales	Tiers	*M*	*SD*	*t*	*df*	*p*
Space and Furnishing	Tier II	2.76	0.81	.367	8	0.72
	Tier IV	2.59	0.62			
Personal Care and Routines	Tier II	1.57	1.42	-1.81	8	0.11
	Tier IV	2.60	0.57			
Language and Reasoning	Tier II	1.60	0.63	-2.31	8	0.05
	Tier IV	2.92	1.11			
Activities	Tier II	2.16	0.47	-2.42	8	0.04*
	Tier IV	2.98	0.57			
Interactions	Tier II	2.32	0.89	-0.71	8	0.50
	Tier IV	2.74	0.99			
Program Structure	Tier II	2.20	0.51	-2.01	8	0.08
	Tier IV	3.45	1.30			

*denotes significance at $p < .05$.

The results indicated that there was a statistically significant difference in the mean differences on the ECERS-R *Activities* subscale between the Tier II professional development model (*M* = 2.16) and Tier IV (*M* = 2.98) professional development model; $t(8)$ = -2.42, p = .04. This analysis is consistent with the results found on the ITERS-R. The overall results suggest that both professional development models were effective in improving teachers' classroom practices measured by the ECERS-R classroom

observation. Moreover, results suggest the professional development model for Tier IV

had a greater effect on observable changes for the ECERS-R *Activities* subscale.

Summary

Overall, descriptive results in this study indicated that both professional

development models had an impact on improved classroom practices for teachers

participating in the UWBB program. Although t-tests results did not indicate statistically

significant differences between the two groups in terms of overall gains in ratings

between pretest and posttest on the ITERS-R and ECERS-R classroom observations, Tier

IV showed higher gains in total mean score growth for both ITERS-R and ECERS-R than

the comparison group (Tier II). Further analysis at the subscale level determined that

there was a statistically higher difference in gains on the ITERS-R *Activities* subscale for

Tier IV professional development model, $M = 2.41$, versus $M = 3.84$, $t(17) = -3.25$, p =

.005. Additionally, there was statistically higher gains on posttest mean score on the

ECERS-R *Activities* subscale for Tier IV professional development model, $M = 2.16$

versus $M = 2.98$, $t(8) = -2.42$, p = .04. No other subscale differences were significant at

the .05 level. Chapter 5 will provide a discussion of the research findings within the study

and will address implications for future research.

Chapter V

Discussion

Child care is considered one of the largest systems of early care and education for millions of young children birth through age five. Research linking the quality of early childhood education to children's school readiness has sparked an influx of attention on the quality of child care (Camilli et al., 2010; Peisner-Feinberg et al., 2001). However, the landscape of child care is marked by marginal quality and a fragmented preparation system for teachers working in these settings. The research literature indicates that there is a very strong correlation between the quality of the early education program and the qualifications level of the classroom teacher (Burchinal et al., 2002; CQCO Study Team, 1995; Whitebook, 2003). Subsequently, current and past research suggests that professional development has a positive impact on preschool teachers' acquisition of effective classroom teaching practices (Zaslow et al., 2010).

The goal of this research study was to gain a deeper understanding of effective professional development approaches for the child care workforce that is composed of teachers with varying qualifications and teaching experiences. Specifically, the goal was to understand the effect two different professional development models had on the classroom environment. An increased knowledge base in this area could be the stabilizer for an inadequate teacher preparation system. Effective professional development models can serve as pathways for teachers to acquire the knowledge and skills needed to create quality learning environments that support young children's skill acquisition and increase preparedness for school entry.

For this study, the effectiveness of United Way Bright Beginnings (UWBB), a child care quality improvement initiative focused on improving the quality of preschool teachers' classroom practices, was examined. The research question guiding this study investigated the format and content of two professional development models offered by UWBB to determine if one model had a greater impact on teacher's observable classroom practices with regards to the environment established by the teachers. Two global child care quality measures were used to answer this question, the Infant/Toddler Environment Rating Scale-Revised (ITERS-R) and the Early Childhood Environment Rating Scales-Revised (ECERS-R). These quality child care rating scales assess quality indicators such as health and safety practices, developmentally appropriate activities, positive adult-child interactions, promotion of positive social interactions and emotional growth (Cryer, 2003).

Archival data was utilized for this study that was originally collected by the Institute of Urban Education at the University of Houston in 2005, 2007, 2009 and 2010. The Institute of Urban Education provides the independent evaluation of the United Way Bright Beginning program. For this study, pretest and posttest ITERS-R and ECERS-R mean scores for classroom observations were analyzed using descriptive and inferential analyses to ascertain if there were statistically significant differences in the impact of the professional development models on teachers' classroom practices. The intent of this chapter is to interpret the results presented in the preceding chapter and to provide the framework for the study's findings through associations to past significant and relevant professional development studies. Additionally, this chapter will discuss the limitations of the study and implications for further research.

Summary of Findings

The results presented in the previous chapter clearly show that professional development matters. It matters to a workforce that is expected to deliver quality learning experiences that prepare millions of preschool children for school. The research question that guided this study yielded null findings on the overall statistical significance between the two professional development models impact on classroom quality measures. The small sample size for this study ($N= 29$) is perhaps the more realistic account for the lack of statistical significance between the model's impact. Additional results indicated that there were statistically significant differences found at the subscale level for both ITERS-R and ECERS-R; however, the small sample size limits the ability to conclude that a real difference between the impact of the two models exists.

Previous studies with larger sample sizes have examined the impact of professional development models. Fiene (2001) found significant differences between two professional development groups on the ITERS at the subscale level. One group received training and mentoring and the comparison group did not receive the mentoring intervention. The mentoring group had a significant increase at posttest on the *Activities* subscale. These results validate the positive effect of a professional development model that combines training and coaching. In addition, research studies with larger sample sizes have examined the effectiveness of training and mentoring/coaching (Garet et al., 2001; Landry et al., 2009). These studies indicated that coaching is an effective form of professional development in improving teachers' classroom practices. Both UWBB professional development models offered an intensive coaching component.

The study participants reflected the diverse educational backgrounds and teaching experiences that permeates the child care field. The majority of the participants had only high school diploma and no college coursework. Results from this study support previous findings that professional development is effective in improving the classroom quality of teachers in child care programs with limited education and experience (Maxwell et al., 2007; Raikes et al., 2006). Finally, study findings clearly indicate that professional development is more than just a one-shot workshop, but rather a collaborative process that is 1) sustained over time, 2) consists of in-class support and 3) allows teachers to reflect critically on their practices within the context of their classroom environments (Garet et al., 2001; McCutchen et al., 2002).

Positive changes occurred as a result of teachers participating in professional development experiences offered by United Way Bright Beginnings. It is recommended that further in-depth research be conducted to fully examine the impact of UWBB on improving preschool teachers' classroom practices. Findings from further research could add substantial evidence to the research literature on professional development and provide developers of professional development programs with a proven, replicable model of professional development.

Limitations of the Study

There are strengths to the data described in this study, however the findings should be considered within the context of its limitations. First, the ability to generalize the results across similar populations is inhibited by a significant level of sample attrition. The attrition of teachers is indicative of the staff turnover experienced by the child care field. Although attrition affected the sample size for this study, the results support the

research literature discussed in this paper related to the effectiveness of combined forms of professional development on improving teacher' classroom practices. Additionally, the lack of statistical power due to the small sample size hindered the examination of significant differences through a more complex quantitative analysis (Leech, Barrett & Morgan, 2008; Mertler & Vannatta, 2005). The population under study consisted of 29 preschool teachers. Future investigation of this research question should be done with a larger sample size.

Second, a large majority of the results are descriptive in nature and this form of research cannot be used to draw firm conclusions; however, this study does offer descriptions of noteworthy variations between two professional development models' impact on preschool teachers' classroom practices and what these differences might suggest. A more in-depth examination in a more controlled study design is warranted.

A third limitation for the study is the utilization of a convenience sample. This reduced the ability to make generalizations and inferences across the child care population. A study using an experimental design might provide more definitive evidence to answer the research question for this study.

Implications for Future Research

Although there are many strengths and several limitations to the data described in this study, this study adds to the research literature about the most effective forms of professional development for improving the teaching practices of teachers with limited or no formal education. However, more professional development studies are needed to address the ongoing debate regarding the qualifications of early childhood teachers and the need for bachelor degreed professionals. Future professional development studies

should examine in greater detail variables such as teacher experience and education level and their effect on improved classroom practices. Does teacher education level matter?

Another area that deserves further examination is the impact of collegial small groups on enhancing teachers' knowledge and teaching practices. The evidence base is small, but growing. More studies would add to the research base and provide developers of professional development programs with more insight into the benefits of this form of professional development and its ability to sustained quality within early childhood settings.

Coaching is still an under-researched area. Findings from this study suggest that coaching may play a critical role in facilitating improved classroom practice. The research is clear that training alone does not have the greatest impact on improving classroom quality. Future studies should investigate the impact of coaching/mentoring to determine the effectiveness of this form of professional development. This form of professional development can be associated with increased cost; therefore, the more research that provides evidence for the effectiveness of this approach, the developers of professional development programs can justify that the benefits of this form of professional development outweigh the cost.

More experimental research should examine the interactions between various forms of professional development and their effect on improving teaching practices. What aspect(s) have the greatest effect? A final area of investigation would be to replicate this study with a stronger design and random sampling of participants. In addition, this investigation should include an examination of child outcomes in relation to improved classroom practices. This would add to the large evidence base about the

quality of early childhood education and child outcomes. Is the United Way Bright Beginnings program having a substantial effect on child outcomes?

Summary

The results of this study support other research that indicates that professional development is a promising practice for a child care workforce that is composed of teachers with limited educational backgrounds and teaching experience. This research study and others that focus on the use of multiple forms of professional development to provide evidence about the best practices to improve teachers' knowledge and skills to deliver high quality learning experiences for young children. The developers of United Way Bright Beginnings offer a model of professional development that focuses on depth not breadth. This approach is indicative of the movement away from the traditional form of professional development that is composed of a patchwork of uncoordinated workshops. Due to the evidence that improvement in practice has occurred in classrooms despite the model used, the financial investment in the United Way Bright Beginnings program is a wise investment that will have a lasting impact on the child care community served by the program.

Compelling research has shown that the education gap starts early and high quality early childhood investment can serve as the force that closes this gap for many young children. However, early childhood teachers need quality professional development that has a sustained impact on their teaching practices. All teachers, especially preschool teachers should have access to professional development similar to United Way Bright Beginnings given the scientific research that points to the importance of quality early education. Young children deserve the best possible early learning

experiences delivered by highly qualified, skilled, and confident teachers. The question

remains as to the most effective professional development pathway for the child care

workforce.

References

Ackerman, D. J. (2004). States' efforts in improving the qualifications of early care and

education teachers. *Educational Policy, 18*, 311-337.

doi:10.1177/0895904803262145

Albrecht, K. M., & Engel, B. (2007). Moving away from a quick-fix mentality to

systematic professional development. *Young Children, 62*, 18-25.

Arnett, J. (1989). Caregivers in day-care centers: Does training matter? *Journal of

Applied Developmental Psychology*, *10*, 541-552.

Bandura, A., Locke, E.A. (2003). Negative self-efficacy and goal effects revisited.

Journal of Applied Psychology, 88, 87-99.

Barnett, W.S. (2004). Better teachers, better preschools: Student achievement linked to

teacher qualifications. *Preschool Policy Facts, 2.* New Brunswick, NJ: NIEER.

Blau, D. M. (2001). *The child care problem.* New York: Sage.

Belsky, J., Vandell, D., Burchinal, M., Clarke-Stewart, K. A., McCartney, K., Owen, M.

T., B, & the NICHD Early Child Care Research Network. (2007). Are there long

term effects of early child care? *Child Development, 78*, 681-701.

Borko, H. (2004). Professional development and teacher learning: Mapping the terrain.

Educational Researcher, 33, 3–15.

Bowman, B., Donovan, S., & Burns, S.(2001. *Eager to Learn: Educating our

Preschoolers*. Washington, DC: National Academy Press. Bray, J. N., Lee, J.,

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

Camilli, G., Vargas, S., Ryan, S., & Barnett, W. S (2010). Meta-analysis of the effects of early education interventions on cognitive and social development. Retrieved from http://http://www.tcrecord.org/Content.asp?ContentID=15440.

Cohen, D. K., & Hill, H. C. (2000). Instructional policy and classroom performance: The mathematics reform in California. *Teachers College Record, 102*, 294-343.

Cost, Quality & Child Outcomes Study Team (1995). *Cost, Quality, and Child Outcomes in Child Care Center*, Public Report (2nd ed.). Denver: Economics Department, University of Colorado at Denver.

Darling-Hammond, L. & McLaughlin, M.W. (1996). Policies that support professional development in an era of reform. In M.W. McLaughlin & I. Oberman (Eds.), Teacher learning: New policies and new practices (pp. 202-218). New York: Teachers College Press.

Darling-Hammond, L., & Sclan, E. M. (1996). Who teaches and why: Dilemmas of building a profession for twenty-first century schools. In Handbook of Research on Teacher Education, 2nd eds., J. Sikula, T. J. Buttery, & E. Guyton (Eds.), pp 67-101. New York. Macmillian.

Desimone, M. L., Porter, C. A., Garet, S. M., Yoon, S. K., & Birman, F. B. (2002). Effects of professional development on teachers' instruction: Results from a three-year longitudinal study. *Educational Evalution and Policy Analysis, 24*, 81-112.

Duessen, T., Coskie, T., Robinson, L., & Autio, E. (2007). "Coach" can mean many things: Five categories of literacy coaches. *Reading First (Issues & Answers Report, REL 2007-No. 005).*

Early, D. M., Perez, J., Peisner-Feinberg, E., Zill, N., Alva, S., & Maxwell, K. L. (2007). Teachers' education, classroom quality, and young children's academic skills: Results from seven studies of preschool programs. *Child Development*, *78*, 558-580. doi:10.1111/j.1467-8624.2007.01014

Epstein, A. S. (1993). *Training for quality: Improving early childhood programs through Systematic in-service training* (Monographs of the High Scope Educational Foundation, 9). Ypsilanti, MI: High Scope Press.

Fiene, R. (2001). Improving child care quality through an infant caregiver mentoring project. *Child & Youth Care Forum*, *31*, 79-87. doi:10.1023/A: 1015318501688

Fontaine, N. S., Torre, L. D., Grafwallner, R., & Underhill, B. (2006). Increasing quality in early care and learning environments. *Early Child Development and Care*, *176*, 157-169.

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

Gardner, D. M., Ramey, S. L., Skinner, M. L., Ramey, C. T., Campbell, F. A., & Burchinal, M. (2000). Persistent effects of early childhood education on high-risk children and their mothers. *Applied Developmental Science, 4*, 2-14.

Garet, M.S., Porter A.C., Desimone, L., Birman, B.F., Yoon, K.S. (2001). What makes professional development effective? Results from a national sample of teachers. *American Educational Research Journal, 38*, 915-945.

Gersten, R., Morvant, M., & Brengelman, S. (1995). Close to the classroom is close to the bone: Coaching as a means to translate research into classroom practice. *Exceptional Children, 62*, 52-66.

Gettinger, Maribeth, & Karen Stoiber. 2007. Applying a response–to–intervention model for early literacy development in low–income children. *Topics in Early Childhood Special Education, 27*, 198–213.

Girolametto, L., Weitzman, E., Lefebvre, P., & Greenberg, J. (2007). The effects of in-service education to promote emergent literacy in child care centers: a feasibility study. *Language, Speech & Hearing Services in Schools, 38*, 72-83.

Guskey, T.G. (1986). Staff development and the process of teacher change. *Educational Researcher*, 155-12. doi:10.3102/0013189x015005005

Harms, T., Clifford, R. M., & Cryer, D. (1998). *Early Childhood Environment Rating Scale, Revised Edition*. New York: Teachers College Press.

Harms, T., Cryer, D., & Clifford, R. M. (2003).*The Infant/Toddler Environment Rating Scale, Revised Edition*. New York: Teachers College Press.

Heckman, J. J., & Masterov, D. V. (2007). The productivity argument for investing in young children. Review of Agricultural Economics, 29, 446-493.

Howes, C., Phillips, D. A., & Whitebook, M. (1992). Teacher characteristics and effective teaching in child care: Findings from the national child care staffing study. Child & Youth Care Forum, 21, 399-414. Doi:1007/BF00757371

Joyce, B., & Showers, B. (1996). The evolution of peer coaching. *Educational Leadership, 53*, 12-16.

Joyce, B., & Showers, B. (2002). *Student achievement through staff development: Fundamentals of school renewal*. White Plains, NY: Longman.

Kagan, S.L., Kauerz, K., &Tarrant, K. (2008). The early care and education teaching workforce at the fulcrum: An agenda for reform. New York, NY: Teachers College Press.

Landry, S. H., Anthony, J. L., Swank, P. R., & Monseque-Bailey, P. (2009). Effectiveness of comprehensive professional development for teachers of at-risk preschoolers. *Journal of Educational Psychology*, *101*, 448-465. doi:10.1037/a0013842

Landry, S. H., Swank, P. R., Smith, K. E., Assel, M. A., & Gunnewig, S. B. (2006). Enhancing early literacy skills for preschool children: Bringing a professional development model to scale. *Journal of Learning Disabilities, 39*, 306-324.

Leech, N. L., Barrett, K. C., & Morgan, G. A. (2008). *SPSS for Intermediate Statistics: Use and Interpretation.* New York, NY: Lawrence Erlbaun Associates.

Little, J. W. (2003). Inside teacher community: Representations of classroom practice. *Teacher College Record, 105,* 913-945.

Lundy-Ponce, G., Griffin, D., & American Federation of Teachers (2002). *At the starting line: Early childhood education programs in the 50 states.* Washington, DC.: American Federation of Teachers.

Martinez-Beck, I., & Zaslow, M. (2006). Introduction: The context for critical issues in early childhood professional development. In M. Zaslow & I. Martinez-Beck (Eds.), *Critical issues in early childhood professional development* (pp. 1-16). Baltimore: Paul. H. Brookes Publishing Co.

Maxwell, K. L., Field, C. C., & Clifford, R. M. (2006). Defining and measuring professional development in early childhood research. In M. Zaslow & I. Martinez-Beck (Eds.), *Critical issues in early childhood professional development* (pp. 21-48). Baltimore: Paul. H. Brookes Publishing Co.

McCutchen, D., Abbott, R. D., Green, L. B., Beretvas, N., Cox, S., Potter, N. S., Quiroga, T., & Gray, A. L. (2002). Beginning literacy: Links among teacher knowledge, teacher practice, and student learning. *Journal of Learning Disabilities*, *35*, 69.

Meichtry, Y., & Smith, J. (2007). The impact of a place-based professional development program on teachers' confidence, attitudes, and classroom practices. *Journal of Environmental Education, 38*, 15-31.

Meirink, A. J., Meijer, P. C., Verloop, N. (2007). A closer look at teachers' individual learning incollaborative settings. *Teachers and Teaching: Theory and Practice, 13,*, 145-164.

Mertler, C. A., & Vannatta, R. A. (2005). *Advanced and Multivariate Statistical Methods.* Glendale, CA: Pyrczak Publishing.

National Association for the Education of Young Children. (1993). *Conceptual Framework for Early Childhood Professional Development*. Retrieved from http://naeyc.org/files/naeyc/file/positions/PSCONF98.pdf/

National Association of Child Care Resource and Referral Agencies (2010). Child Care in America: 2010 State Fact Sheets. http://www.naccrra.org/randd/

National Institute of Child Health and Human Development. (2000). Characteristics and quality of child care for toddlers and preschoolers. *Applied Developmental Science, 4*, 116-135.

NICHD Early Child Care Research Network. (2002). Early child care and children's development prior to school entry: Results from the NICHD Study of Early Child Care. *American Education Research Journal, 39*, 133 – 164.

NICHD Early Child Care Research Network. (2003). Child care and mother-child Interaction from 36 months through first grade. *Infant Behavior and Development, 26*, 345-370.

NICHD Early Child Care Research Network. (2009). *Do effects of early child care extend to age 15 years?* Paper symposium biennial meeting SRCD, Denver, CO.

National Scientific Council on the Developing Child (2007). *The science of early childhood development: Closing the gap between what we know and what we do.* http://www.developingchild.net/pubs/persp/

Neuman, S. B., & Cunningham, L. (2008). The impact of professional development and coaching on early language and literacy instructional practices. *American Educational Research Journal, 46,* 532-566.

Neuman, S. B., & Kamil, M. L. (2010). *Preparing teachers for early childhood classroom: Proven models & key principles.* Baltimore, Maryand: Paul H. Brookes Publishing Company.

Palsha, S. A., & Wesley, P. W. (1998). Improving quality in early childhood environments through on–site consultation. *Topics in Early Childhood Special Education, 18,* 243–253.

Pianta, R. C., Burchinal, M., Barnett, W. S., & Thornburg, K. R. (2009). The effects of Preschool education: What we know, how public policy is or is not aligned with the evidence base, and what we need to know. *Psychological Science in the Public Interest, 10*, 49-88. doi:10.1177/1529100610381908

Peisner-Feinberg, E.S., Burchinal, M.R., Clifford, R.M., Culkin, M.L., Howes, C., Kagan, S. L., Yazejian, N., Byler, P., Rustici, J., & Zelazo, J. (2000). *The children of the cost, quality, and outcomes study go to school: Technical report.* Chapel Hill: University of North Carolina at Chapel Hill, Frank Porter Graham Child Development Center.

Perlman, M., Jenkins, J., Schaack, D., & Bisceglia, R. (2009). Examining the psychometric properties of the Infant-Toddler Environment Rating Scale-Revised Edition in a high-stakes context. *Early Childhood Research Quarterly, 24*, 121-132. doi:10.1016/j.ecresq.2009.02.001

Phillipsen, L. C., Burchinal, M., Howes, C., & Cryer, D (1997). The prediction of process

    quality from structural features of child care. *Early Childhood Research*

    Quarterly, 12, 281-303.

Podhajski, B., & Nathan, J. (2005). Promoting early literacy through

    professional development for childcare providers. *Early Education and*

    Development, 16, 23–41.

Raikes, H., Torquati, J. C., Hegland, S., Raikes, H. A., Scott, J., Messner, L., et al.

    (2006). Studying the culture of quality early education and care: A cumulative

    approach to measuring characteristics of the workforce and relations to quality in

    four Midwestern states. In M. Zaslow& I. Martinez-Beck (Eds.), *Critical issues in*

    early childhood professional development (pp. 111-136). Baltimore: Paul H.

    Brookes.

Ramey, S. & Ramey, C. (2006). Early educational interventions: Principles for effective

    and sustained benefits from targeted early education programs. In D. Dickinson &

    S. Neuman (Eds.), *Handbook of early literacy research: Vol. 2 (*pp. 445-459).

    New York: Guilford.

Raver, C. C., Jones, S. M., Li-Grining, C. P., Metzger, M. W., Smallwood, K., Sardin, L.,

    et al. (2008). Improving preschool classroom processes: Preliminary findings

    from a randomized trial implemented in Head Start settings. *Early Childhood*

    Research Quarterly, *23*, 10–26.

Reynolds, A. J. (2000). *Success in early intervention: The Chicago Child-Parent Centers*.

    Lincoln: University of Nebraska Press.

Reynolds, A. J., Temple, J. A, Robertson, D. L., & Mann, E. A. (2002). Age 21 cost benefit analysis of the Title I Chicago Child-Parent Centers. *Educational Evaluation and Policy Analysis, 24*, 267-303.

Ruopp, R., Travers, J., Glantz, F., & Coelen, G. (1979). *Children at the Center: Final Report of the National Day Care Study* Cambridge, MA: Abt Associates.

Saluja, G., Early, D. M., & Clifford, R. M. (2003). Demographic characteristics of early childhood teachers and structural elements of early care and education in the United States. *Early Childhood Research and Practice,* Retrieved from http://ecrp.uiuc.edu/v4n1/saluja.html.

Schweinhart, L. J., J. Montie, Z. Xiang, Barnett, W. S., Belfield, C. R., & M. Nores, *Lifetime effects: The High Scope Perry Preschool study through age 40.* Ypsilanti, Mich.: High Scope Press, Monographs of the High/Scope Educational Research Foundation, 14, 2005.

Sheridan, S. (2001*).* Quality evaluation and quality enhancement in preschool: A model of competence development. *Early Child Development and Care, 166,* 7–27.

Sheridan, S. M., Edwards, C., Marvin, C. A., & Knoche, L. L. (2009). Professional development in early childhood programs: Process issues and research needs. *Early Education & Development*, *20*, 377-401. doi:10.1080/10409280802582795

Shonkoff, J. P. & Phillips, D. , & Board on Children, Youth, and Families (U.S.).

 Committee on Integrating the Science of Early Childhood Development (2000).

 From neurons to neighborhood: The science of early childhood development.

 Washington, DC. National Academy Press.

Temple, J. A., & Reynolds, A. J. (2006). Benefits and costs of investments in preschool

 education: Evidence from the child-parent centers and related

 programs. *Economics of Education Review, 26*, 126-144.

 doi:10.1016/j.econedurev.2005.11.004.

Tout, K., Zaslow, M., & Berry, D. (2006). Quality and qualifications: Links between

 professional development and quality in early care and education settings. In M.

 Zaslow& I. Martinez-Beck (Eds.), *Critical issues in early childhood professional*

 development (pp. 77–110). Baltimore: Paul. H. Brookes Publishing Co.

Vandell, D. L., Belsky, J., Burchinal, M., Steinberg, L., Vandergrift, N. and NICHD

 Early Child Care Research Network. (2010). Do effects of early child care extend

 to age 15 years? Results from the NICHD Study of Early Child Care and Youth

 Development. *Child Development, 81*, 737–756. doi: 10.1111/j.1467-

 8624.2010.01431

Veenman, S., Denessen, E. & Kenter, J. (2001), Evaluation of a coaching programme for

 cooperating teachers. *Educational Studies*, *27,* 317-340.

Villa, R. & Thousand, J. (Eds). (2000). *Restructuring for Caring and Effective*

 Education: Piecing the Puzzle Together (2nd ed.). Baltimore: Paul Brookes.

Weaver, R. H. (2002). Predictors of quality and commitment in family child care: Provider education, personal resources, and support, Early Education and Development, 13, 265–282.

Wei, R. C., Darling-Hammond, L., Andree, A., Richardon, N., & Orphanos, S. (2009). *Professional learning in the learning profession: A status report on teacher development in the United States and abroad*. Dallas, TX: National Staff Development Council.

Wesley, P. W., & Buysse, V. (2004). Consultation as a framework for productive collaboration in early intervention. *Journal of Educational and Psychological Consultation, 15*, 127–150.

Whitebook, M. (2003). *Bachelor's degrees are best: Higher qualifications for prekindergarten teachers lead to better learning environments for children.* Washingston, DC. Trust for Early Education.

Whitebook, M., Howes, C., & Phillips, D. (1990).*Who cares: Child care teachers and the quality of care in America: Final report of the National Child Care Staffing Study.* Oakland, CA: Child Care Employee Project.

Wiley, D., & Yoon, B. (1995).Teacher reports of opportunity to learn: Analyses of the 1993 California learning assessment system. *Educational Evaluation and Policy Analysis, 17,* 355-370.

Wright, S. P., Horn, S. P, Sanders, W. L. (1997). Teacher and classroom context effects on student achievement: Implications for teacher evaluation. *Journal of Personnel Evaluation in Education, 11*, 57-67.

Yazejian, N., & Bryant, D. M. (2010). *Promising early returns: Educare implementation study data, January, 2010*. Chapel Hill: FPG Child Development Institute, UNC-CH.

Zill, N., &West, J. (2001). *Entering kindergarten: A portrait of American children when they begin school.* Washington, DC: National Center for Education Statistics, U.S. Department of Education.

Zaslow, M. J. (2009). Strengthening the conceptualization of early childhood professional development initiatives and evaluations. *Early Education & Development, 20*, 527-536. doi:10.1080/10409280902908833

Zaslow, M., Tout, K., Halle, T., Vick, J., & Lavelle, B. (2010). *Toward the identification of features of effective professional development for early childhood educators: A review of the literature.* Report prepared for the U.S. Department of Education.