Promoting Healthy Social-Emotional Development in Vulnerable Young Children: The Importance of Head Start Teachers and Centers

DISSERTATION

Presented in Partial Fulfillment of the Requirements for the Degree Doctor of Philosophy in the Graduate School of The Ohio State University

By

Jill Ashley Hoffman

Graduate Program in Social Work

The Ohio State University

2016

Dissertation Committee:

Dawn Anderson-Butcher, Advisor

Audrey Begun

Cynthia Buettner

Jessica Logan

Copyrighted by

Jill Ashley Hoffman

2016

Abstract

Children's earliest experiences are critical for health and well-being across the lifespan. These experiences shape the development of social-emotional skills which lay the foundation by which children learn to navigate the intricacies of social interactions and complex emotions. Not all children, however, develop the social-emotional skills needed for success, with between 9 and 14% of children in early childhood exhibiting some type social-emotional deficit (Brauner & Stephens, 2006). Difficulties with early social-emotional skills may lead to behavioral, academic, and social problems during early childhood, as well as later in life (Denham & Brown, 2010). Low-income children of color often face barriers that put them at risk for poor social-emotional skill development. In an effort to support these vulnerable young children, the social settings in which they spend time should be targeted. One key setting in which many young children spend time is center-based child care. Examining this setting is a growing priority, so that the contributions of child care toward child social-emotional outcomes are maximized.

Using secondary data from the Head Start Family and Child Experiences Survey (FACES) 2009, this study examined child care as a social setting that may positively influence social-emotional skill development among young low-income, children of color. Specifically, this study used multilevel modeling to explore child care center support, and also teacher emotional support and behavior management practices, and their influence on problem behaviors and social skill development among young children.

Findings revealed that neither teacher emotional support practices nor teacher behavior management practices were significantly associated with child social skills or problem behaviors. However, teacher perceived center support was significantly related to child problem behaviors among low-income children of color, with higher teacher perceived center support associated with fewer problem behaviors. In addition, results suggested that neither teacher nor center director perceived center support were significantly associated with teacher emotional support practices in the classroom. However, teacher perceived center support was significantly associated with teacher behavior management practices.

Findings from the current study highlight the importance of continued research on the influence child care settings have on the social-emotional skill development of young low-income children of color. A better understanding of these center and teacher factors, as well as their relationship to child social-emotional outcomes, will allow social workers to more effectively work with child care administrators and teachers in developing and supporting social-emotional programming in centers serving low-income children of color. In the end, this work will help to create richer child care settings that ultimately better support social-emotional skill development, fostering positive long-term outcomes for vulnerable young children. Dedication

To Mike, for his never-ending love, support, and patience.

Acknowledgments

Numerous individuals have contributed to the development of this dissertation and to my success throughout the doctoral program. First and foremost, I would like to express my sincere gratitude to my advisor and mentor Dawn Anderson-Butcher, for her continuous support, patience, and encouragement during my doctoral studies. She pushed me beyond what I thought was possible and I attribute my professional growth and development to her guidance.

Second, I would like to thank the additional members of my dissertation committee. Thank you to Audrey Begun for imparting her knowledge related to research methodology and for helping to expand my critical thinking skills. Thank you to Cynthia Buettner for her wealth of knowledge on all things early childhood. And finally, thank you to Jessica Logan, her statistical expertise has been invaluable. I have grown tremendously as a scholar because of their guidance.

In addition to my committee, I would like to thank Alicia Bunger and Mo Yee Lee for their advice, support, and encouragement throughout the doctoral program. To my fellow doctoral students, both past and present, thank you for your support, friendship, and assistance over the past five years. Last, but not least, I would like to thank my family for their endless support. In particular, thank you to my parents, Janice and Will McLeod, for instilling in me the importance of education, hard work, and perseverance. Without these qualities this dissertation would not have been possible. Thank you to my in-laws, Kathy and Jay Hoffman, for their help during the final weeks. Thank you to my husband, Mike Hoffman, for sacrificing his time and energy to help me accomplish this goal. Finally, thank you to the newest member of our family, little Ellie, for providing me with the motivation to finish!

June 2002	T.C. Williams High School
2006	B.S. Psychology, Pennsylvania State
	University
2008	M.S.W. Social Work, Temple University
2011 to present	Graduate Research Associate, College of
	Social Work, The Ohio State University

Vita

Publications

Hoffman, J. A., Bunger, A. C., Robertson, H. A., Cao, Y., & West, K. Y. (2016). Child welfare caseworkers' perspectives on the challenges of addressing mental health problems in early childhood. *Children and Youth Services Review*, *65*, 148-155. doi:10.1016/j.childyouth.2016.04.003

Cao, Y., Bunger, A., Hoffman, J., & Robertson, H. (2016). Change communication strategies in public child welfare organizations: Engaging the frontline. *Human Service Organizations: Management, Leadership & Governance, 40*(1), 37-50. doi: 10.1080/23303131.2015.1093570

Bunger, A.C., Cao, Y., Girth, A., Hoffman, J., & Robertson, H.A. (2015). Constraints and benefits of child welfare contracts with behavioral health providers: Conditions that shape service access. *Administration and Policy in Mental Health and Mental Health Services Research*, 1-12.

Joyce, H.D., Hoffman, J., Anderson-Butcher, D., & Moodie-Dyer, A. (2014). Fiscal mapping autism spectrum disorder funds: A case study of Ohio. *Journal of Social Work in Disability & Rehabilitation*, 13(4), 297-316. doi:10.1080/1536710X.2014.961114

Moodie-Dyer, A., Drew, H., Anderson-Butcher, D., & Hoffman, J. (2014). Parent/caregiver experiences with the Autism Spectrum Disorder service delivery system. *Journal of Family Social Work*, *17*(4), 344-362. doi:10.1080/10522158.2014.903581

Fortunato, L., Wilcox, M.J., Campbell, P.H., & Hoffman, J. (2013). A first look at early intervention and early childhood providers' reports of assistive technology reuse. *Journal of Special Education Technology*, 28(3), 47-55.

Anderson-Butcher, D., Hoffman, J., Rochman, D., & Fuller, M. (in press). General and specific competencies for school mental health in rural settings. In K. Michael & J.P. Jameson (Eds.), *Handbook of rural school mental health*. New York, Springer.

Fields of Study

Major Field: Social Work

Table of Contents

Abstract	ii
Dedication	iv
Acknowledgments	v
Vita	vii
Table of Contents	ix
List of Tables	xii
List of Figures	xiv
Chapter 1: Introduction	1
Disparities in Social-Emotional Skill Development	
Chapter 2: Literature Review	13
Social-Emotional Skill Development in Young Children	13
Bioecological Model of Human Development	17
Child Care Settings and Social-Emotional Skill Development	
Child Care Teacher Practices	
Child Care Organizational Factors that Influence Teacher Practices	

Conclusion	50
Purpose of Study	53
Chapter 3: Methods	56
Context of Head Start	
Head Start FACES	56
Measures	
Data Screening and Cleaning	69
Selection of Cases from FACES 2009	
Participants	
Data Analysis	
Chapter 4: Results	
Descriptive Statistics	
Multilevel Analyses	80
Chapter 5: Discussion	
Teacher and Center Factors that Influence Young Children's Social-Emo	otional Skill
Development	
Center Factors that Influence Teacher Social-Emotional Practices	126
Limitations	
Implications for Future Research	

Implications for Practice	147
Conclusion	150
References	152
Appendix A: Skewness and Kurtosis Values for Key Study Variables	174
Appendix B: Histogram of Skewed Child Problem Behaviors Variable	175
Appendix C: Correlations Among Key Study Variables	176

List of Tables

Table 1. FACES 2009 Sample Sizes.	60
Table 2. Sample Sizes for Current Study	73
Table 3. Child Level Sample Demographic Characteristics	74
Table 4. Teacher/Classroom Sample Demographic Characteristics	75
Table 5. Descriptive Statistics for Key Study Variables	80
Table 6. Teacher Reported Social Skills Unconditional Model	81
Table 7. Teacher Reported Problem Behaviors Unconditional Model	82
Table 8. Teacher Level Predictors of Child Social Skills (Emotional Support)	85
Table 9. Teacher Level Predictors of Child Social Skills (Behavior Management)	88
Table 10. Center Level Predictors of Child Social Skills (Emotional Support)	90
Table 11. Center Level Predictors of Child Social Skills (Behavior Management)	92
Table 12. Teacher Level Predictors of Child Problem Behaviors (Emotional Support)	95
Table 13. Teacher Level Predictors of Child Problem Behaviors (Behavior Managemen	t)
	98
Table 14. Center Level Predictors of Child Problem Behaviors (Emotional Support) 1	00
Table 15. Center Level Predictors of Child Problem Behaviors (Behavior Management))
	02
Table 16. Emotional Support Unconditional Model	03

Table 17. Behavior Management Unconditional Model	
Table 18. Teacher Level Predictors of Emotional Support	106
Table 19. Center Level Predictors of Emotional Support	108
Table 20. Teacher Level Predictors of Behavior Management	110
Table 21. Center Level Predictors of Behavior Management	111
Table 22. Skewness and Kurtosis Values for Key Study Variables	174
Table 23. Correlations Among Key Study Variables	

List of Figures

Figure 1. Study Model and Variables for Research Question 1	
Figure 2. Study Model and Variables for Research Question 2	55
Figure 3. Histogram of Skewed Child Problem Behaviors Variable	175

Chapter 1: Introduction

Children's earliest experiences are critical for health and well-being across the lifespan. These experiences shape the development of social-emotional skills which in turn lay the foundation by which children learn to navigate the intricacies of social interactions and complex emotions. During infancy and early childhood, young children begin to express their emotions, understand themselves and others, explore their environments, and form relationships with peers and adults (Brown & Conroy, 2011; Raver, 2002). Positive early experiences help children successfully build these social-emotional skills and support positive developmental outcomes later in life.

Not all children, however, develop the social-emotional skills needed for success, with between 9 and 14% of children in early childhood exhibiting some type socialemotional deficit such as developmentally inappropriate levels of anxiety or aggression (Brauner & Stephens, 2006). Difficulties with early social-emotional skills may lead to behavioral, academic, and social problems during early childhood, as well as later in life (Denham & Brown, 2010). In fact, social-emotional problems that are not addressed in early childhood may lead to problems with mental health, substance use, risky sexual behavior, and aggression during adolescents (Bornstein, Hahn, & Haynes, 2010; Shonkoff & Phillips, 2000; Thompson et al., 2011). Early problems also may lead to poorer health outcomes, financial troubles, and involvement with the justice system in adulthood (Currie, Stabile, Manivong, & Roos, 2008; Moffitt et al., 2011).

Certain child and contextual factors help to promote positive social-emotional skill development in young children. Maturation is a major contributor to the development of social-emotional skills. For instance, social-emotional skills typically become more complex and differentiated as children mature (Denham & Brown, 2010). Further, as children become more mature they experience advances in language and cognitive development (Denham & Burton, 2003), allowing children to talk and think about their own feelings and the feelings of others, as well as understand and participate successfully in social interactions (Brinton & Fujiki, 1993; Denham & Burton, 2003). Gender also influences social-emotional skill development, with girls tending to develop skills at earlier ages than boys (Kochanska, Murray, & Harlan, 2000; Raikes, Robinson, Bradley, Raikes, & Ayoub, 2007). Another important individual characteristic that influences social-emotional skill development is temperament (Saudino, 2005). Young children with temperaments characterized by extraversion and openness tend to have better social skills (Wanberg & Kammeyer-Mueller, 2000), whereas temperaments characterized by shyness are associated with poor social skills and more withdrawn behaviors (Greco & Morris, 2001; Saudino, 2005).

In addition to child characteristics, the adults with whom young children interact influence their development. Young children's caregivers, including parents, other family members, and child care providers, play a major role in ensuring that positive socialemotional skill development occurs, especially as these adults are responsive, consistent,

2

and sensitive to the needs of young children (Bradley, Corwyn, Burchinal, McAdoo, & Coll, 2001; Masten & Coatsworth, 1998). Touch influences social-emotional development, with affectionate touch associated with fewer problem behaviors and better social skills, while harsh touches may lead to aggression (Weiss, 2005; Weiss, Wilson, Seed, & Paul, 2001). In addition, caregivers also may provide explicit opportunities for young children to develop social-emotional skills through their teaching and reinforcement of specific skills (Branson & Demchak, 2010). Alternatively, when negative caregiving strategies such as harsh discipline are used, young children may develop problem behaviors (Dodge, Petit, & Bates, 1994).

High quality home and child care environments also promote positive socialemotional skill development in young children (Bradley, Corwyn, Burchinal, McAdoo, & Coll, 2001; Masten & Coatsworth, 1998). When environments are safe, predictable, and developmentally appropriate, positive social-emotional skill development is supported (Bronson, 2000). When supportive adults and high quality environments are not available, children may have difficulties with successful social-emotional skill development. Disparities in social-emotional skill development among low-income children of color shed light on some of these difficulties.

Disparities in Social-Emotional Skill Development

Specific groups of children are at a higher risk for poor social-emotional skill development in early childhood. For instance, as early as infancy and toddlerhood, children from low-income families are identified as having fewer social-emotional skills than children from higher income families (Halle et al., 2009). These risks often are compounded for young children of color from low-income families, those who may face risks related to poverty, but also related to broader issues related to racism,

discrimination, and oppression (Cooper, Masi, & Vick, 2009; Shonkoff, Richter, van der Gaag & Bhutta, 2012). For example, African American male preschoolers are identified as having social-emotional problems at significantly higher rates than their white male counterparts (Aratani, Wight, & Cooper, 2011). Data showcase further disparities in relation to broader negative outcomes. Specifically, low-income young children of color are overrepresented in the child welfare system (Cooper et al., 2009), are more likely to have an incarcerated parent (Wildeman, 2009), are more likely to be expelled from child care settings (Gilliam, 2005), and are less likely to be kindergarten ready (Denham, 2006). These negative outcomes indicate that children living in poverty, particularly those of color, may not get the support they need to promote social-emotional success.

Disparities in social-emotional skill development for low-income and children of color may, in part, be caused by differential access to material resources, opportunities, and services which may lead to greater family stress, a risk factor for poor socialemotional skill development (American Psychological Association, 2012; Azzi-Lessing, 2010). Furthermore, there is a higher incidence of maternal depression among lowincome women, which has been shown to decrease a mother's ability to be responsive and sensitive to her child's needs (Knitzer, Theberge, & Johnson, 2008). In addition, women of color who experience maternal depression often function at lower levels and are less likely to receive needed services as compared to white women (Ertel, Rich-Edwards, & Koenen, 2011). When poverty and depression are combined, a mother's chances of abusing alcohol or drugs and experiencing domestic violence increases (Azzi-Lessing, 2010; Pollack, Danziger, Jayakody, & Seefeldt, 2002). In addition to family violence, children living in poverty also are more likely to experience violence within their communities, both of which negatively influence social-emotional skill development (Evans, 2004). Disparities also may point to implicit or explicit biases of parents, teachers, researchers, and other adults who expect poor children of color to act in a certain way (American Psychological Association, 2012).

To summarize, low-income children of color often face barriers that put them at risk for poor social-emotional skill development. These barriers may include a lack of access to resources, poor parental mental health, exposure to risks and stressors, and discrimination. As a consequence, low-income and children of color often face more challenges that constrain their development than their higher income or white counterparts. In the end, interventions are needed to promote positive development and prevent poor social-emotional outcomes, especially for young low-income children of color. These interventions will ensure that young children have high quality early childhood experiences that foster social-emotional skill development, given their importance for positive development.

Child care as a key intervention. Early experiences with caregivers and caregiving environments play a major role in supporting social-emotional success in young children. However, many children, especially low-income children of color, face barriers that prevent positive early experiences from occurring. Therefore, these at-risk children are less likely to develop the social-emotional skills needed for success across

the lifespan. In an effort to support these vulnerable young children, the social settings in which they spend time should be targeted. Center-based child care is one key social setting in which many young children spend time is center-based child care.

Center-based child care includes any type of formalized care that occurs in a nonresidential setting. For example, center-based child care may be provided by public school systems, churches, for-profit or non-profit organizations, or Head Start. During a typical day, teachers lead children in activities designed to support cognitive, socialemotional, language, and motor skills, as well as activities of daily living including personal hygiene and feeding. Teachers and other center staff also may provide support to the families they serve by linking them to resources in the community, providing support for finding financial assistance, or helping them understand their child's developmental progress. Further, child care centers provide supervision and care during the work day for children from working families.

Further, teachers in child care settings promote social-emotional skill development by creating developmentally appropriate environments that are easily accessible, have defined play areas within the classroom, and have visual depictions of classroom rules (Artman, Hemmeter, Feeney-Kettler, & Meiler, 2011). Teachers also support social-emotional skill development by using social-emotional learning curricula in the classroom (Zinsser, Shewark, Denham, & Curby, 2014). Finally, teachers may support social-emotional skill development by engaging in emotionally supportive practices in the classroom (Hamre, Goffin, & Kraft-Sayre, 2009). These practices include

6

being sensitive and responsive to the unique needs of children, creating a positive classroom climate, and using behavior management techniques (Zinsser et al., 2014).

Teacher practices that support social-emotional skill development promote quality in child care centers. However, when teachers are not skilled in these social-emotional practices, child care quality may suffer, in turn resulting in unfavorable child socialemotional outcomes. Child care center directors play a role in enhancing teacher practices by providing a supportive organizational environment. Directors who are supportive, encouraging, and provide clear expectations have teachers who are committed to their work (Russell, Williams, & Gleason-Gomez, 2010), less likely to leave their positions (Iutovich, Fiene, Johnson, Koppel, & Langa, 1997), and display more positive affect in the classroom (Mill & Romano-White, 1999). As such, center directors and the support they provide to teachers are important parts of child care quality.

When young children attend high quality child care settings staffed by high quality teachers, their social-emotional skill development is positively impacted (Camilli, Vargas, Ryan, & Barnett, 2010). For instance, children attending high quality care tend to have higher levels of social skills (Burchinal & Cryer, 2003). This is especially true for low-income children and children of color. When children facing multiple risk factors attend high quality child care, they are less likely to engage in problem behaviors than peers attending lower quality centers (Burchinal, Roberts, Zeisel, Hennon, & Hooper, 2006). In addition, low-income children who spend higher numbers of hours in child care per week have fewer problem behaviors (Votruba-Drzal, Coley, & Chase-Lansdale, 2004). Long term, participation in child care for low-income children of color also is related to reductions in problem behaviors later on (Vortruba-Drzal, Coley, Maldonado-Carreño, Li-Grining, & Chase-Lansdale, 2010). Further, low-income children of color attending high quality child care settings are more ready for school and have better language skills than low-income children in low quality centers or children not attending formal child care (McCartney, Dearing, Taylor, & Bub, 2007).

In fact, child care may be a particularly important social setting to intervene given the number of children who participate. It is estimated that almost 5 million children in the United States from birth to five attend center-based child care between 15 to 35 hours per week (Adams, Tout, & Zaslow, 2007; Laughlin, 2013). Also, in contrast to other more clinical settings (e.g., early intervention, home visiting, or therapeutic settings), child care reaches a broader group of children and families, not just those with a previously identified developmental or clinical needs. This intervention setting is crucial to supporting the overall child, especially in relation to social-emotional skill development. One of the largest social interventions funded by the US government that targets early childhood is Head Start.

Head Start. Head Start is a comprehensive child care program for low-income children that was started in response to the negative influence of poverty on young children's learning and development (Reisch, 2014). Head Start serves vulnerable children and their families, focusing particularly on low-income families (TANF; U.S. Department of Health and Human Services, 2014a). In addition, many children served by Head Start come from racially and ethnically diverse groups (U.S. Department of Health and Human Services, 2014b). The goal of Head Start is to support the school readiness of

8

vulnerable youth, in the hopes that they enter kindergarten on equal footing with more advantaged youth. In addition to educational services Head Start provides services to the child's family to support family success (e.g., providing immunizations or nutrition advice). Presently, Head Start programs are in every state as well as in U.S. territories. Since its inception, the program has served more than 30 million young children, with 1 million children currently being served each year (U.S. Department of Health and Human Services, 2014a).

Recently, Head Start has undergone significant changes to better support the young children it serves. In 2007, the *Improving Head Start for School Readiness Act* reauthorized Head Start, making significant changes to the implementation of Head Start programs. Through this act, Head Start goals were aligned with state early learning standards, teacher qualifications were increased, monitoring of child outcomes was improved, and steps were taken to encourage programs to maintain quality by requiring a competitive grant process if certain quality standards were not met (Improving Head Start for School Readiness Act, 2007). This act has helped to create a more standardized and high quality Head Start system, providing teachers with support that extends beyond what would be expected in a typical child care setting.

In summary, experiences in early childhood can positively influence socialemotional skill development. Positive social-emotional skill development supports favorable behavioral, academic, and social outcomes throughout childhood and into adulthood. When young children do not have positive experiences in early childhood, poor social-emotional outcomes may occur, particularly for low-income children and children of color who often face adverse circumstances and stressors. Given early disparities in social-emotional skill development, the social intervention of child care has been identified as a key setting that makes a difference in the lives of young children. Head Start is one of the largest social interventions funded by the US government that targets early childhood and has recently gone through significant changes in order to improve center quality and child outcomes. Examining this setting is a growing priority, so that its contributions toward child social-emotional outcomes is maximized.

The profession of social work is ideally suited to develop, implement, and support interventions that enhance social-emotional skill development in young children. Social workers are committed to supporting well-being, particularly in vulnerable populations that face discrimination and oppression, and live in poverty (National Association of Social Workers, 2008). Young children from low-income families are particularly vulnerable, given that they may not have access to resources that allow them to get their needs met. In addition, young children of color face issues related to oppression and discrimination. Social work's focus on social justice makes it duly set to examine socialemotional skill development in young, low-income children of color. Several other values and principles central to social work also may inform research and practice. To support oppressed and impoverished populations, the social work profession uses a person-inenvironment perspective. This perspective focuses not only on individual characteristics in relation to behaviors, but also the environmental contexts within which individuals live. Using this perspective, social workers create positive social settings to enhance developmental outcomes in populations that face discrimination and oppression, and live

in poverty. One setting in which social workers may address social-emotional skill development is child care.

In child care settings social workers play a variety of roles. First, they may provide direct services to children and families by conducting assessments and providing counseling. They also may work in the classroom, implementing social-emotional programming. Further, social workers may serve in case management roles by helping families to identify and access high quality child care (Azzi-Lessing, 2010; Herman-Smith, 2012). Also, social workers may work in a consultative role within child care settings. Often social workers are employed as early childhood mental health consultants. In this role, social workers build child care center staff capacity to promote positive social-emotional development and reduce problem behaviors (Cohen & Kaufmann, 2000). They may work with teachers to specifically target behaviors in certain children, or may work with center directors to reduce overall expulsion rates within the center. Because many child care teachers struggle with symptoms of depression (Whitaker, Dearth-Wesley, & Gooze, 2015), this role also may include supporting teacher well-being through interventions that reduce teacher stress (Zhai, Raver, & Li-Grining, 2011). There are numerous ways in which social workers can be involved in child care settings. Knowledge of how specific teacher practices influence child outcomes, and how center support also influences child outcomes will help social workers identify teacher and center characteristics to target for interventions.

As such, this study examines child care, specifically Head Start, as a social setting that may positively influence young low-income, children of color's social-emotional

skill development. Factors that influence young children's social-emotional skill development, as well as factors that influence teacher social-emotional practices in the classroom, are examined. Specifically, this study explores child care center support, and also teacher emotional support and behavior management practices, and their influence on problem behaviors and social skill development. A better understanding of these center and teacher factors, as well as their relationship to child social-emotional outcomes, will allow social workers to more effectively work with child care administrators and teachers in developing and supporting social-emotional programming in centers serving low-income children of color. Further, this research will support policy makers working to improve the quality of child care settings by providing guidance on the specific types of center and teacher factors that promote positive development in young vulnerable children. In the end, this work will help to create richer child care settings that ultimately better support social-emotional skill development, fostering positive long term outcomes for vulnerable young children.

Chapter 2: Literature Review

Social-emotional skill development in early childhood is critical for behavioral, social, and academic success. When young children do not develop appropriate socialemotional skills there may be lasting consequences throughout childhood and into adulthood. Low-income children of color face additional risk factors that may negatively influence their social-emotional skill development. In order to better serve these children, a better understanding of social-emotional skill development and factors contributing to its development is needed. Many low-income young children of color spend significant amounts of time in child care. As such, understanding this particular social setting and its relationship to social-emotional skill development is important.

This chapter further delves into the research on social-emotional skill development in young children. An extensive review of the literature related to evidencebased practices in child care settings is provided. Then the role of child care teachers in promoting social-emotional skill development is described. Child care center characteristics that influence teacher practices are also considered. Last, the purpose of this study is reviewed.

Social-Emotional Skill Development in Young Children

Social-emotional skill development is defined as the ability "to form close and secure adult and peer relationships; experience, regulate, and express emotions in socially

and culturally appropriate ways; and explore the environment and learn — all in the context of family, community, and culture" (Yates et al., 2008, p. 2). Social-emotional skill development often is divided into five key domains. These domains include self-awareness, self-regulation, social awareness, responsible decision making, and relationship skills (Denham & Brown, 2010). Each domain is described below.

Self-awareness involves children's abilities to identify and label their feelings, as well as their interests and strengths. Much of the development that occurs with selfawareness happens during the preschool years (Denham & Brown, 2010). When young children do not develop age appropriate self-awareness skills they may face difficulties interacting with others and withdraw in social situations (Fantuzzo, Bulotsky-Shearer, Fusco, & McWayne, 2005). Self-awareness skills in young children have been linked to academic success in later childhood (Zafiropoulou, Sotiriou, and Mitsiouli, 2007).

Self-regulation is the process by which children control and manage their emotions, cognitions, and behaviors (Denham & Brown, 2010). Preschool children who are able to self-regulate obtain higher levels of academic achievement during their preschool years (Ponitz, McClelland, Matthews, & Morrison, 2009) as well as in kindergarten (Howse, Calkins, Anastopoulos, Keane, & Shelton, 2003) and beyond (Liew, 2012; Raver et al., 2011). These children also transition into elementary school with more success than children with poor self-regulation skills (Rimm-Kaufman, Curby, Grimm, Nathanson, & Brock, 2009). When self-regulatory skills do not develop appropriately, children may struggle with attention problems (Blair, 2002) and display externalizing behaviors, for example, defiance and aggression (Olson, Sameroff, Kerr, Lopez & Wellman, 2005).

Social awareness also is an important component of social-emotional skill development. When a child is socially aware, he or she is able to assess others feelings and use empathy (Denham & Brown, 2010). Better social awareness in preschoolers predicts positive school adjustment later on (Shields et al., 2001) and better social awareness in kindergarteners predicts academic competence in later childhood (Izard et al., 2001). Deficits in social awareness have been associated with difficulties in social situations and withdrawn behaviors (Fantuzzo et al., 2005).

Responsible decision making is another key aspect of social-emotional skill development. This skill includes a child's ability to apply problem solving skills to social situations, for example, how to react when a toy is taken away by a peer (Denham & Brown, 2010). Making responsible decisions during early childhood leads to better adjustment within the school setting and successful functioning in academic settings (Bierman et al., 2008). Young children who have difficulty with responsible decision making may have trouble with compliance with rules or requests, aggression, and inattention (Denham & Brown, 2010; Youngstrom et al., 2000).

Relationship skills are the final component of social-emotional skill development. These skills include making friends, playing well with peers, taking turns, and asking for help (Denham & Brown, 2010). Relationship skills in preschoolers are associated academic achievement and better peer relationships (Bierman, Torres, Domitrovich, Gest, and Welsh, 2009; Buhs & Ladd, 2001). When children struggle with relationship skills may exhibit withdrawn aggressive, hyperactivity, non-compliant, problem behavior (Gagnon & Nagle, 2004; Hay, Hudson, & Liang, 2010).

Together, self-awareness, self-regulation, social awareness, responsible decision making, and relationship skills comprise key components of social-emotional skill development. Although social-emotional skill development may be broken down into specific conceptual components, in reality these skills are interrelated and may be difficult to tease apart. For example, children with well-developed decision making skills also tend to be skilled in self-awareness, social awareness, and relationship skills. The interrelatedness of these concepts may explain why, in practice, social-emotional skill development is often operationalized into two distinct areas, social skills and problem behaviors (Denham & Brown, 2010).

In fact, these five components of social-emotional skill development are often combined into the broader category of social skills, while problem behaviors are considered maladaptive expression of these skills (Gresham, Elliott, Cook, Vance, & Kettler, 2010). Problem behaviors are typically divided into two types, internalizing problems and externalizing problems. Internalizing problems include anxiety, excessive sadness or loneliness, or withdrawal. Externalizing problems include behaviors such as aggression or hyperactivity (Elliott & Gresham, 1987). Regardless of how socialemotional skill development is conceptualized, positive development in this area is essential for success across the lifespan. Young children who successfully develop socialemotional skills are more likely to be ready for school (Denham, 2006), have higher levels of academic achievement (Zins & Elias, 2007), have fewer problem behaviors (Briggs-Gowan, & Carter, 2008), and better mental health (Briggs-Gowan, Carter, Bosson-Heenan, Guyer, & Horwitz, 2006).

In summary, social-emotional skills are a key component of early childhood development. These skills are divided into five domains including self-awareness, selfregulation, social awareness, responsible decision making, and relationship skills. However, in reality, social-emotional skills are often divided into two broad categories, social skills and problem behaviors. There are many factors that influence the development of social skills, problem behaviors, and ultimately social-emotional development, including characteristics of the child, the child's caregivers, and the overall environment.

Bioecological Model of Human Development

The bioecological model of human development provides a framework for further understanding children's social-emotional skill development. Proposed by Urie Bronfenbrenner, the bioecological model emphasizes the importance of individual characteristics (e.g., gender or socioeconomic status) on development, as well as the relationship between these characteristics and environmental contexts. Bronfenbrenner and Morris (2005) divided environmental contexts into four systems: the microsystem, mesosystem, exosystem, and macrosystem. The microsystem includes any setting in which an individual spends significant amounts of time, for example, the home or child care center. The mesosystem describes the relationship between multiple microsystems that exist in a person's life (e.g., the relationship between caregivers at home and teachers in child care settings). The exosystem indirectly influences individuals through the micro and mesosystems, for example, state child care policies. Finally, the macrosystem, describes the culture or society in which the individual exists (Bronfenbrenner & Morris, 2005). Important individual characteristics and contextual factors that influence children's social-emotional skill development must be considered.

Factors that influence children's social-emotional skill development. A number of factors influence the development of social-emotional skills in young children, including characteristics of the individual child and the contexts in which they live.

First, maturation is a major contributor to the development of social skills and problem behaviors. As children mature, social skills typically become more complex and differentiated (Denham & Brown, 2010). Also, as children become more mature they often experience advances in language and cognitive development (Denham & Burton, 2003). Advances in language development, in particular receptive and expressive language skills, play an important role in the development of social skills and problem behaviors. More specifically, receptive language skills allow children to understand language, while expressive language skills allow children to verbally communicate with others. The ability to understand and use language allow children to talk and think about their own feelings and the feelings of others, as well as understand and participate successfully in social interactions (Brinton & Fujiki, 1993). Similarly, improvements in cognitive development promote successful social interactions, as well as foster more complex self-awareness (Denham & Burton, 2003).

Along with maturity, gender also influences social skills and problem behaviors, with girls tending to develop social skills at earlier ages than boys (Kochanska, Murray, & Harlan, 2000; Raikes, Robinson, Bradley, Raikes, & Ayoub, 2007). In particular girls are more adept at self-regulation, relationship skills, self-awareness, and social-awareness at earlier ages than boys. However, girls may experience higher levels of internalizing problem behaviors such as anxiety and sadness; whereas boys exhibit higher rates of externalizing problem behaviors such as aggression (Zahn-Waxler, Shirtcliff, & Marceau, 2008). These gender differences in social-emotional skill development may be a result of biological differences in males and females; however, differences also may be a result of socialization processes during childhood (Zahn-Wexler et al., 2008).

Another important individual characteristic of young children that influences social-emotional skill development is temperament, or "stable, early appearing individual differences in behavioral tendencies that have a constitutional basis" (Saudino, 2005, pg. 214). In twin studies, up to 60% of the variability in temperament has been accounted for by children's genes, suggesting a strong biological component to temperament. Young children with temperaments characterized by extraversion and openness tend to have better social skills (Wanberg & Kammeyer-Mueller, 2000); whereas temperaments characterized by shyness are associated with poor social skills and more withdrawn behaviors (Greco & Morris, 2001; Saudino, 2005). Furthermore, highly active children often have trouble with externalizing problems such as aggression (Saudino, 2005).

Race also may play a role in social skill and problem behavior development. In preschool, African American males are identified as having problem behaviors at significantly higher rates than white males (Aratani, Wight, & Cooper, 2011). However, Graves & Howes (2011) did not find differences in the social-emotional skill development of African American, Latino, and white preschoolers, as rated by teachers, when teacher-child ethnic match was taken into account. This suggests that the relationship between race and social-emotional skill development is driven by social factors and that teachers may rate children differently based upon their ethnicities. Teacher backgrounds and experiences shape the ways in which they view the world, including how they view children of similar and different racial backgrounds (Padilla & Lindholm, 1995). Teachers with similar backgrounds to the children in their classrooms may rate these children in a more positive manner because they have a better understanding of the cultural practices and traditions that shape their behaviors (Jackson, 2002).

In addition to child characteristics, the contexts within which young children live influence their development. Parents and home environments play a major role in shaping young children's development. Positive parenting practices and high quality home environments promote positive social-emotional skills in young children (Bradley, Corwyn, Burchinal, McAdoo, & Coll, 2001; Masten & Coatsworth, 1998). For instance, parenting practices characterized by secure attachment, sensitivity, consistency, and responsiveness to child needs promote positive social-emotional skill development in young children. These skills may include positive relationship skills (Bohlin, Hagekull, & Rydell, 2000), self-regulation and social competence (Sroufe, 2005), as well as fewer problem behaviors (Leerkes, Blankson, & O'Brien, 2009). In addition, parents who create environments that stimulate learning and teach their children about emotions have young children with fewer problem behaviors and higher levels of self and social awareness (Bradley et al., 2001; Dunsmore & Karns, 2001). Further, parental touch influences child social-emotional development. Affectionate touch from mothers results in fewer internalizing behaviors and better self-regulatory skills in young children (Jean & Stack, 2012; Weiss, Wilson, Seed, & Paul, 2001).

Conversely, negative parenting behaviors such as harsh discipline strategies, lead to problem behaviors and fewer social skills in young children (Bayer, Hiscock, Ukomunne, Price, & Wake, 2008; Huffman et al., 2001). Further, children who receive parental touch characterized by harshness are more aggressive and have fewer adaptive behaviors (Weiss, 2005; Weiss et al., 2001). In addition, parents who minimize and respond punitively to their children's emotions have children with lower levels of emotional expressiveness and understanding (Fabes, Poulin, Eisenberg, & Madden-Derdich, 2002). Further, mothers suffering from mental health problems such as depression have children with lower levels of self and social awareness (Raikes & Thompson, 2006) and may have difficulty supporting their children's social skill development (Feldman & Eidelman, 2009).

In reflection, the bioecological model highlights individual characteristics and influences on development. In addition, home and family are central for young children's development. The bioecological model also points to the value of environmental settings outside of the home for development. Outside of the home, one such setting that many young children spend significant amounts of time in each week is child care.
Child Care Settings and Social-Emotional Skill Development

Center-based child care is one social setting where children under five develop social-emotional, as well as other skills. Center-based child care includes any type of formalized care that occurs in a non-residential setting. This may include child care provided by public school systems, churches, for-profit or non-profit organizations, or Head Start. Almost 5 million children in the United States from birth to five attend center-based child care with approximately 16% of infants, 30% of toddlers, and 51% of preschoolers spending time in care. Of these children, 27% live at or below 200% of the federal poverty line (Laughlin, 2013). Depending upon the employment status of the child's caregiver and the family poverty status, children spend between 15 to 35 hours in care per week (Adams, Tout, & Zaslow, 2007). Given that many young children spend significant amounts of time in child care, the experiences that children have in this setting have the potential to influence their social-emotional skill development. Research supports this contention.

Young children who attend high quality child care tend to have positive socialemotional outcomes such as improved social skills (Burchinal & Cryer, 2003; Camilli, Vargas, Ryan, & Barnett, 2010). For low-income children of color, high quality child care is particularly important as children attending high quality centers are less likely to engage in problem behaviors than peers attending lower quality centers (Burchinal, Roberts, Zeisel, Hennon, & Hooper, 2006). Further, fewer problem behaviors are seen in low-income children spending high numbers of hours in child care per week (Votruba-Drzal, Coley, & Chase-Lansdale, 2004). In the long run, participation in high quality child care for low-income children of color is related to reduced problem behaviors, school readiness, and improved language skills as compared to children attending low quality centers or those not attending formal child care (McCartney, Dearing, Taylor, & Bub, 2007; Vortruba-Drzal, Coley, Maldonado-Carreño, Li-Grining, & Chase-Lansdale, 2010). Clearly, high quality child care is an important social setting that has a positive influence on child development, particularly for low-income children of color.

One specific child care setting in which many low-income children of color participate is Head Start. Head Start was created in the 1960s in response to the negative influence of poverty on young children's learning and development (Reisch, 2014). This program serves vulnerable children and their families, focusing on low-income families, homeless families, foster care children, and children receiving Supplemental Security Income (SSI) or Temporary Assistance for Needy Families (TANF; U.S. Department of Health and Human Services, 2014a). In addition to serving economically disadvantaged children, many of the children served by Head Start come from racially and ethnically oppressed groups, for example 29% of the young children served during fiscal year 2013 were African American and 37% were Hispanic or Latino (U.S. Department of Health and Human Services, 2014b).

Head Start supports the school readiness of vulnerable youth, in the hopes that they enter kindergarten on equal footing with more advantaged youth. In addition to educational services, Head Start provides services to the child's family to support family success. Additional services for children and families include assistance with health insurance, providing immunizations, finding medical and dental homes, providing nutrition advice, and providing social services Presently, Head Start programs are in every state as well as in U.S. territories. Since its inception, the program has served more than 30 million young children, with 1 million children currently being served each year (U.S. Department of Health and Human Services, 2014a).

Recently, Head Start has undergone significant changes to improve the quality of its programs, thus better supporting the young children it serves. In 2007, the *Improving Head Start for School Readiness Act* reauthorized Head Start, making significant changes to the implementation of Head Start programs. Through this act, Head Start classroom curricula and professional development activities were aligned with state early learning standards in order to connect Head Start funded child care centers with non-Head Start funded centers and ultimately better prepare children attending Head Start for kindergarten. Also, teacher qualifications were targeted, indicating that at least 50% of lead teachers had to have at least a bachelor's degree in early childhood or a related field by the year 2013 (Improving Head Start for School Readiness Act, 2007).

Head Start's training and technical assistance system was redesigned with the creation of six Early Childhood National Centers for Training and Technical Assistance. These centers provide resources and support on topics such as early childhood health and wellness, teaching and learning, family and community engagement, and center quality. Further, monitoring of teacher quality and child outcomes was improved. For instance, teacher quality is now monitored with the use of the Classroom Assessment Scoring System (CLASS), an observational measure that assesses the quality of teacher instructional support, emotional support, and classroom organization. Monitoring of child

outcomes is conducted using the newly developed Head Start Early Learning Outcomes Framework that provides developmental domains and indicators important for school readiness and overall success. Finally, one additional major change was the development of a process to encourage programs to maintain quality by requiring a competitive grant submission if centers did not meet certain quality standards. With these changes Head Start programs have become more standardized and data-driven than in previous years (Improving Head Start for School Readiness Act, 2007).

In all, child care serves multiple purposes. First, it provides a safe and supportive environment for young children to stay while their parents or caregivers work. Second, child care supports children's learning and development, preparing them for kindergarten (Office of Personnel Management, 2014). During a typical day in child care teachers will lead children in activities designed to support cognitive, social-emotional, language, and motor skills, as well as activities of daily living including personal hygiene and feeding. The activities that children participate in throughout the day are often guided by state early learning standards that dictate the skills that young children should have. Teachers and other center staff also may provide support to the families they serve by linking them to resources in the community, providing support for finding financial assistance, or helping them understand their child's developmental progress. The degree to which child care settings accomplish these dual missions is dependent upon the quality of center.

Child care quality. In center-based child care, the quality of the center is important for children's learning and development. Quality of child care encompasses a variety of factors that include features of the center, classroom, and teacher. Quality has been divided into two broad categories, structural quality and process quality. Structural quality includes features of the environment and classroom set up (e.g., room arrangement or teacher-child ratio), as well as teacher qualifications (e.g., education level). The components included in structural quality are those that are typically monitored by regulatory organizations, that is, state departments of education or the National Association for the Education of Young Children (Kreader, Ferguson, & Lawrence, 2005). Alternatively, process quality in child care settings is driven by child care teachers.

Process quality. Process quality focuses on the aspects of the child care environment that support positive development and is defined by teachers' instructional practices and interactions with the children in their classrooms (Phillipsen, Burchinal, Howes, & Cryer, 1997). Examples of process quality include teacher interactions characterized by warmth, responsiveness, and attention to children's unique needs (Kreader et al., 2005) as well as practices that include feedback and modeling (Cassidy et al., 2005). Both structural and process quality characteristics influence children's development in a variety of areas, including fostering literacy, school engagement, and social skills (Howes, Phillips, & Whitebook, 1992; NICHD ECCRN, 2002; Pianta et al., 2005).

More specifically, overall classroom quality has been linked to positive socialemotional outcomes for low-income children, including improvements in social skills and reductions in problem behaviors (Burchinal, Vandergift, Pianta, & Mashburn, 2010). Quality of care also is associated with improved cognitive skills and early academic achievement (Camilli, Vargas, Ryan, & Barnett, 2010). Further, quality of care may even have an influence on children's developmental outcomes over time. For instance, higher quality care in preschool leads to improvements in social skills, academic achievement, and language skills at the end of kindergarten (Burchinal et al., 2008). In addition, the influence of high quality care may extend even further into adolescents. Adolescents who attended high quality centers in early childhood are less likely to exhibit problem behaviors and are more likely to have higher levels of academic achievement (Vandell et al., 2010). Given the immediate and long-term outcomes of attending a high quality center, it is important to explore the influence of specific aspects of quality on young children's developmental outcomes.

Although child care quality is important for children's development, there is extensive variability in the quality of care that young children receive. It is estimated that only 35% of children attending center-based care are enrolled in high quality centers (Snyder & Dillow, 2012). Furthermore, young children from low-income families are more likely to attend low quality centers (Ruzek, Burchinal, Farkas, & Duncan, 2014). Time in lower quality centers may result in fewer opportunities for the promotion of positive social-emotional development. Lower quality centers are more likely to have fewer adults per child, limiting the amount of individualized attention adults provide to each child. Having more children to watch over also may mean fewer opportunities to provide individualized and supportive interactions with children, and may lead to more harsh/disciplinary measures if teachers feel overwhelmed (Ghazvini & Mullis, 2002). Lower quality centers also may have fewer resources and less funding, leading to fewer materials for young children to engage with that could support social-emotional skill development (Mill & Romano-White, 1999). Additionally, less funding may result in higher turnover rates for teachers and more interruptions in caregiver-child relationships for children (Mill & Romano-White, 1999). With the majority of young children spending time in care that is less than high quality, it is important to explore the aspects of child care quality that are most closely related to children's social-emotional skill development. In particular, it is important to examine teacher practices in the classroom.

Two theories provide insights into how teacher practices influence child outcomes. First, Bandura's (1977) social learning theory emphasizes the influence of teachers' usage of modeling and reinforcement for children's development. Second, Vygotsky's (1978) social constructivist theory emphasizes the importance of the social environment, including the child care classroom, on development. Both of these theories inform teaching practices by describing how children learn and what strategies work best to promote children's learning and development. Each theory is detailed below.

Social learning theory. Social learning theory identifies the importance of observational learning in the development of social-emotional skills and problem behaviors. As such, the behaviors of adults and peers in young children's lives have the potential to influence social-emotional skill development. For instance, the behaviors of parents and primary caregivers greatly influence children, as children often observe their actions and subsequent consequences. Children learn positive social-emotional skills such

as cooperation, emotional expressiveness, and self-regulation when their parents display these skills in their daily interactions (Blandon, Calkins, & Keane, 2010; Denham, Mitchell-Copeland, Strandberg, Auerbach, & Blair; Silk, Shaw, Skuban, Oland, & Kovacs, 2006). In turn, children display these same skills in their interactions with peers. For example, when parents display positive emotions around their children, children also exhibit more positive emotions with peers (Denham et al. 1997). Further, parents with poor self-regulatory capacities have children with lower regulatory capacities (Silk et al., 2006).

Other children, including siblings and peers, also contribute to social-emotional development through observational learning. For instance, the problem solving strategies of young children are significantly associated with the problem solving strategies of their older siblings. Specifically, when young children observe their older siblings using compromise, they also tend to use compromise when problems solving with their peers (Dunn & Herrera, 1997). Further, when a sibling or peer uses aggression (e.g., hitting) to obtain a goal (e.g., a toy) and there are no negative consequences for this behavior, the child learns that using aggression will result in a desired goal, reinforcing the use of aggression as a way to get what he or she wants. However, if a child observes a negative consequence related to the act of aggression (e.g., the child gets sent to time out), they learn that aggression will not help them achieve their goals (Woody, 2003).

In addition to parents, siblings, and peers, children spend time with child care teachers. As such, child care teachers must support observational learning through modeling. Teachers may model appropriate social-emotional skills by actually completing the behavior themselves, providing a verbal description of the desired skill, or by reading books or showing videos that illustrate these skills. When children observe child care teachers who model appropriate social-emotional skills, they also observe the consequences of these actions. Children use these experiences to guide their own actions (Bronson, 2000). Teachers who not only model appropriate behaviors, but also follow through with appropriate reinforcement or consequences are teaching children appropriate social-emotional skills.

Social learning theory has been used as the theoretical basis for some interventions. For example, Second Step, a curriculum that helps teachers, from preschool through middle school, support children's social-emotional skill development, has teachers use modeling and reinforcement. In older children, teachers' use of this curriculum has reduced aggressive behaviors and increased prosocial behaviors in the classroom. However, studies with preschool children have not been conducted (Joseph & Strain, 2003). Additionally, Parent-Child Interaction Therapy (PCIT), an evidence-based intervention for young children with social-emotional problems and their families, uses social learning theory as its framework. One aspect of PCIT includes teaching parents to use appropriate reinforcement or consequences for their children's behaviors. Children who participate in PCIT have shown reduced problem behaviors in various settings (Eyberg et al., 2001; Herschell, Calzada, Eyberg, & McNeil, 2002). While PCIT is designed for parents, its effectiveness provides evidence for the usefulness of social learning theory for other caregivers of children such as child care teachers. To summarize, social learning theory provides a guide for teacher practices in the classroom by emphasizing the importance of modeling in the development of socialemotional skills. As such, teachers of young children should model appropriate socialemotional skills when interacting with children in the classroom. Further, teachers should appropriately reinforce positive social skills and provide consequences for problem behaviors. Social learning theory has successfully been used to guide curriculum and intervention development, providing a useful framework for research related to socialemotional skill development in the classroom. In addition to social learning, Vygotsky's sociocultural theory has relevance for research examining social-emotional skills.

Sociocultural theory. Given the importance of others in the development of social-emotional skills, Vygotksy's (1978) sociocultural approach has been used to describe the role that teachers and the environment play in the development of social-emotional skills. This theory emphasizes the importance of the social environment for young children's development. Interactions with others, including teachers, in the environment guide the development of social-emotional skills.

In order for children to learn new skills, these interactions should occur within the outer realms of their "zone of proximal development," or the hypothetical "difference between what the child can do independently and what she can do with help" (Bronson, 2000, pg. 20). As such, teachers must be sensitive to children's abilities and unique needs, providing support and learning opportunities that challenge children just enough.

When teachers interact within a child's zone of proximal development, first they must know what a child can and cannot do and choose appropriate skills for the child to work on. Then, they must be able to "temporarily control aspects of a task that are initially beyond the child's capacity" (p. 341), gradually allowing the child to undertake more and more of the task, as the child becomes more skilled through the teachers guidance. This process is known as scaffolding. Working with a child's zone of proximal development is also referred to as "responsive teaching" (Stremmel & Fu, 1993).

Vygotsky's work has been applied to curriculum development for young children. For example, the Tools of the Mind curriculum "emphasizes the teacher's role in guiding and supporting the child's learning" (Barnett et al., 2008; p. 300) and helps teachers improve their abilities to use scaffolding. In a randomized controlled trial of the Tools of the Mind curriculum, teachers using the curriculum increased their usage of scaffolding as well as their sensitivity to the needs of the children in their classrooms. As a result, preschool children receiving the curriculum improved their social development and problem behaviors (Barnett et al., 2008). In addition, in a small study of the curriculum, Connecting with Others: Lessons for Teaching Social and Emotional Competence program, use of the curriculum was associated with improvements in social-emotional skills and decreases in problem behaviors in the classroom. Vygotsky's concept of scaffolding is used in this curriculum by teachers (Schultz, Richardson, Barber, & Wilcox, 2011).

In summary, the sociocultural approach emphasizes the role of the social environment for the development of social-emotional skills in young children. This approach provides guidance on strategies that child care teachers can use in the classroom to positively influence children's social-emotional skills. Similar to social learning theory, the sociocultural approach also has been used to guide curriculum and intervention development, and serves as a useful tool for guiding social-emotional research in child care settings.

These theoretical approaches suggest that child care teachers play an important role in children's social-emotional skill development. The use of Bandura's social learning theory and Vygotsky's sociocultural approach in intervention and curriculum development support these theories use in research related to teacher practices and child development. Next, the specific practices that teachers may use to support socialemotional skill development in child care settings, as well as limitations in current research are discussed.

Child Care Teacher Practices

Process quality in child care settings is driven by child care teacher practices that support child development and learning. Teacher practices that support social-emotional skill development may include creating an environment that supports development through developmentally appropriate materials that are easily accessible, defined play areas within the classroom, and visual depictions of classroom or center rules (Artman, Hemmeter, Feeney-Kettler, & Meiler, 2011). Child care teachers also support socialemotional skill development through collaboration with children's parents regarding developmental concerns and linking them with additional services in the community (Davis et al., 2010). Furthermore, some child care centers provide specific socialemotional learning curricula to their teachers and require lessons from the curriculum be taught in the classroom (Zinsser, Shewark, Denham, & Curby, 2014). Finally, teachers support social-emotional skill development by engaging in emotionally supportive practices in the classroom (Hamre, Goffin, & Kraft-Sayre, 2009). These practices include sensitivity, attention to the unique needs of children, creation of a positive climate, and behavior management skills and are used throughout the day, regardless of the content of specific lessons or activities (Zinsser et al., 2014).

Although teacher practices that support social-emotional skill development are important for all children, they may be especially important for those living in poverty. For low-income children, participation in high quality child care may protect against the detrimental effects of poverty on social-emotional skill development. When children facing multiple risk factors attended high quality child care, they were less likely to engage in problem behaviors than peers attending lower quality centers (Burchinal, Roberts, Zeisel, Hennon, & Hooper, 2006). Gaining a better understanding of teacher practices will help enhance child care quality, which may then better support the socialemotional needs of young children, particularly those from low-income families.

To summarize, child care teachers use a variety of practices within in the classroom to support children's learning and development. These practices are the driving force behind process quality in child care classrooms. In order to support children's learning and development, teachers typically implement two types of practices: instructional practices and social-emotional practices. Instructional practices are defined as strategies teachers use to "effectively support cognitive and language development" (Pianta et al., 2008, p. 5). These strategies may include "discussion and activities to promote higher-order thinking skills" (p. 5), providing high quality feedback, and

modeling language. Social-emotional practices are especially relevant here, and refer to "teachers' abilities to support social and emotional functioning in the classroom" (Pianta et al., 2008, p. 3) by creating a positive classroom climate, being sensitive to children's unique needs, and taking a child-centered approach (Pianta et al., 2008). Two specific social-emotional practices of relevance here are teacher emotional support and behavior management practices.

Teacher emotional support practices. To support social-emotional skill development in young children, child care teachers may engage in emotionally supportive practices with the children in their classrooms. Emotionally supportive teachers are aware of and responsive to children's unique needs. They also create classroom climates that are enjoyable and respectful, without hostility, aggression, or anger. Also, these teachers take a child-centered approach in the classroom (Pianta, La Paro, & Hamre, 2008).

Even small differences in teacher emotional support practices may lead to differences in how teachers approach social-emotional development in their classrooms. For instance, highly supportive teachers are able to infuse the promotion of socialemotional development throughout their day in the classroom; however, moderately supportive teachers tend to treat social-emotional development like a traditional subject such as math or science (Zinsser et al., 2014). What is most important, however, is how these emotionally supportive practices contribute to child outcomes.

More specifically, in classrooms with higher levels of overall teacher emotional support practices, preschool children have higher levels of social competence and fewer problem behaviors (Howes et al., 2008; Mashburn et al., 2008). Similar results have been

found with low-income children. In centers serving low-income children, classrooms with emotionally supportive teachers have children who display fewer problem behaviors and more social skills (Burchinal, Vandergrift, Pianta, & Mashburn, 2010). Providing high levels of emotional support also reduces the influence of problem behaviors on low-income children's learning in the classroom (Domínguez, Vitiello, Fuccillo, Greenfield, & Bulotsky-Shearer, 2011).

Although these results are promising, they may not be generalized to low-income children of color attending child care centers. For example, Howes et al. (2008), Mashburn et al. (2008), and Burchinal et al. (2010) used data from only 11 states and Domínguez et al. (2011) studied children from one southeastern state. Research that focuses on teacher emotional support practices and child social-emotional skills using a nationally representative sample of low-income children of color would enhance the findings of the studies currently available. In addition, none of these studies reported the extent to which differences in child social-emotional skills could be attributed to their child care teacher or center. This information is helpful in understanding how important teachers and centers are for child social-emotional outcomes. Further, no studies have examined center characteristics that might influence social-emotional skills in low-income children of color.

Consistency in teacher emotional support practices also has been examined in preschool children. When teachers provide consistent levels of emotional support across the school year young children show higher social competence and academic achievement (Curby, Brock, & Hamre, 2013). In older children teacher emotional support practices help to support academic achievement for at-risk students (Hamre & Pianta, 2005) and also helps to reduce aggressive behaviors and improve self-control (Merritt, Wanless, Rimm-Kaufman, Cameron, & Peugh, 2012). However, Merritt et al. (2012) did not find a significant relationship between teacher emotional support practices and prosocial behaviors (e.g., helping other children) in first graders suggesting that teacher emotional support practices may be important for specific types of children's behaviors or that it may have differing influences on different ages of children. Another reason for this discrepancy also may be a result of the lack of variability in the teacher emotional support practice scores of the teachers in the sample, suggesting the need for additional studies with wider ranges of emotional support scores.

Although some research has examined the relationship between teacher emotional support practices and child social-emotional skills, there are several limitations to the knowledge base. To begin, none of the studies mentioned above used nationally representative samples of children or teachers, calling into question the generalizability of the findings from these studies. While low-income children of color were included in most teacher emotional support practice research, only the study conducted by Domínguez and colleagues (2011) focused solely on the role of teacher emotional support practices for an entirely low-income and minority sample. However, the sample size for this particular study was much smaller (n=275) than the other studies presented above; as such, its results should be interpreted with caution. In addition, Hamre & Pianta (2005) and Merritt et al. (2012) studied older children (e.g., kindergarten and first graders). Findings from both of these studies may not apply to preschool aged children. Based on

these limitations, research on teacher emotional support practices with large samples of low-income children of color is needed.

Nonetheless, teacher emotional support practices seem to be a key feature of teacher social-emotional practices in the classroom. This type of social-emotional practice may be of particular importance for young low-income children of color as high levels of this type of practice may protect against the detrimental effects of poverty and discrimination on social-emotional skill development. In addition to teacher emotional support practices, teacher behavior management practices may have a positive influence on child social-emotional skill development and are worthy of further investigation.

Teacher behavior management practices. Teacher behavior management practices are "the teacher's ability to provide clear behavioral expectations and use effective methods to prevent and redirect misbehavior" (Pianta, La Paro, & Hamre, 2008, p. 44). Teachers who are skilled in behavior management practices take proactive measures in the classroom to prevent problem behaviors before they start (Pianta & Hamre, 2009). They also set clear and consistent rules for acceptable behaviors in the classroom and highlight positive child behavior, using subtle behavioral cues to redirect misbehavior. Teachers act in a preventive manner, as opposed to being reactive to child behaviors, which allows them to anticipate and stop misbehavior before it occurs (Pianta et al., 2008). Furthermore, teacher behavior management practices may be important in settings serving vulnerable children because many Head Start teachers report concerns about problem behaviors in the children they serve (Cai, Kaiser, & Hancock, 2004; Morales & Guerra, 2006).

More specifically, teachers using effective behavior management practices have classrooms with fewer oppositional behaviors (Arnold, McWilliams, & Arnold, 1998) and more positive developmental outcomes related to literacy (Dobbs-Oates, Kaderavek, Guo, & Justice, 2011). Additionally, children are more engaged in learning within classrooms in which teachers use effective behavior management practices (Pianta & Hamre, 2009). Further, interventions aimed at improving teacher behavior management practices in the classroom also have improved children's problem behaviors, suggesting that improving teachers practice in turn improved child outcomes (Raver, Jones, Li-Grining, Zhai, Metzger, & Solomon, 2008). Although most research has identified the importance of teacher behavior management practices for a variety of social-emotional skills, some research has shown that teacher behavior management practices may only influence certain types of social-emotional outcomes. For instance, teacher behavior management practices have not been shown to influence self-control in older children (Merritt et al., 2012). It is possible that the relationship between teacher behavior management practices and social-emotional skills differ in younger and older children, or perhaps teacher behavior management practices influences certain types of socialemotional skills more readily than others.

While prior research has used diverse, low-income samples, sample sizes have been small with Arnold et al. (1998) only examining the practices of 16 teachers. In addition, other samples have been limited geographically, with Raver et al. (2008) studying child care settings in one Midwestern city. Small samples and limited geographic generalizability suggest the need for larger low-income and minority samples of children from a broader range of geographic regions. Furthermore, other research has not examined social-emotional skills (e.g., Dobbs-Oates et al., 2011, Pianta & Hamre, 2009) or has focused on older children (e.g., Merritt et al., 2012). Findings from these studies may differ from studies examining social-emotional skills with younger children. In addition, no studies have examined center characteristics that might influence socialemotional skills in low-income children of color. Based on these limitations, it is clear there is still much to learn about the relationship between teacher practices and child social-emotional skill development, particularly among low-income children of color.

Summary and limitations of child social-emotional skills literature.

Educational professionals report that they value promoting social-emotional skill development in young children; however, many face issues related to integrating these practices in the classroom due to demands on time and workload, as well as lack of knowledge and confidence (Davis et al., 2010; Buchanan, Gueldner, Tran, & Merrell, 2009). This may be especially true for teachers working in under resourced areas with children at higher risk for social-emotional problems (e.g., children living in poverty). Given the importance of child care teachers for child social-emotional skills, inability to effectively incorporate social-emotional teaching strategies into their classrooms puts children at risk for problems with future social-emotional skill development.

Although some research on the relationship between teacher emotional support and teacher behavior management practices with child social-emotional skills has been explored, more work is needed. While some research has focused specifically on teacher practices in classrooms serving low-income children, most has used mixed income samples, or samples with predominantly higher income children. Results from studies using only low-income children may differ from those that include higher income youth. Furthermore, most studies that include low-income youth are not drawn from nationally representative samples. For example, Howes et al. (2008) had a mixed income sample and sampled children from 11 states. Similarly, Raver et al. (2008) used a completely low-income sample; however, children were sampled from one Midwestern city. A nationally representative sample may provide a better picture of the relationship between teacher practices and child social-emotional skills in young low-income children of color (Mashburn et al., 2008; Raver et al., 2008).

Although many of the studies used hierarchical linear modeling (HLM) to account for similarities between children in the same classroom, some did not take the clustering of children within classrooms into account. This means that the conclusions from these studies must be interpreted with caution as estimates may be biased (Raudenbush & Bryk, 2002). More research accounting for similarities of children in the same classroom is needed to strengthen conclusions related to teacher practices and children's development (Howes et al., 2011). Similarly, the majority of the studies using HLM did not report the extent to which variability in social-emotional skills could be attributed to the child care teacher or the child care center. This information is helpful in determining how important teachers and centers are for child outcomes. Further studies that include this information are needed.

To summarize, the development of social-emotional skills is important. However, many low-income children of color face risks that hinder their abilities to develop appropriate skills. Poor social-emotional skill development has long term consequences for these children. Child care settings play an important role in supporting positive socialemotional skill development in young vulnerable children. Specifically, child care teachers and their practices in the classroom play an important role in supporting socialemotional skill development in young children. Two practices that are particularly important for social-emotional skill development are teacher emotional support practices and teacher behavior management practices. However, there are numerous limitations to current research examining teacher practices and child outcomes. These limitations indicate a need for additional studies examining the relationship between teacher emotional support practices, teacher behavior management practices, and child socialemotional skills, particularly among low-income children of color.

Additionally, further research is limited related to what influences teacher practices in the classroom. We know very little about which specific factors influence these social-emotional practices. Knowledge about factors influencing teacher practices will help support teacher professional development and training provided by child care centers and strengthen child care center quality. There is some suggestion that child care center factors may influence teacher practices, and may be worthy of further investigation.

Child Care Organizational Factors that Influence Teacher Practices

Teacher practices, such as those involving emotional support and behavior management, have the ability to positively influence child social-emotional skills. However, little is known about the specific factors that support these teacher practices. Teachers spend significant amounts of time each week in the child care centers in which they work. As such, characteristics of the child care setting may directly influence what teachers do in the classroom.

Organizational theory. To understand how child care centers influence teacher practices in the classroom, aspects of organizational climate theory and the job demands-resources model were drawn upon for this study. Using organizational theory from non-child care settings, Bloom (2010) identified ten dimensions of child care center climate including decision making, clarity, rewards, professional growth, goal consensus, task orientation, physical setting, support, collegiality, and innovativeness. This study focuses on the dimension of support provided by the center which is defined as "facilitative leadership that provides encouragement, support, and clear expectations" (Bloom 2010, p. 47). Each dimension has the potential to influence teacher well-being and practices in the classroom. In research examining the dimensions of child care center climate, Bloom notes the importance of eliciting perspectives from teachers and center administrators, as perspectives on climate are likely to be different among these two groups.

In addition to organizational climate theory, the job demands-resources model may be used to understand how center support influences teacher practices. This model proposes that child care teachers have both job demands and resources that lead to positive and negative work outcomes. This study focuses on the pathway between job resources (i.e., center support) and work outcomes (i.e., social-emotional practices in the classroom). The model proposes that the more job resources a teacher has, the more positive outcomes she will have at work (Scaufeli & Taris, 2014). Several child care center factors related to organizational climate and its relationship to teacher practices have begun to be explored. One specific aspect of climate that may be of particular importance for teacher practices is the support provided by the child care center.

Center support. The support provided by the centers in which teachers work is likely to influence teacher practices in their classrooms. Support in educational settings has been defined in various ways. For example, Bloom (2010) defines support as "the degree of facilitative leadership providing encouragement, support, and clear expectations" (p. 47) and specifies that good support should include regular feedback from program administrators. In addition, Littrell & Billingsley (1994) identified specific areas of support provided by administrators in K-12 educational settings, including emotional, instrumental, informational, and appraisal support. They propose that administrators who are emotionally supportive are interested in their teachers and openly communicate about issues within the school. In addition, administrators exhibiting instrumental support provide teachers with necessary materials and time for non-teaching administrative tasks. When administrators provide informational support, they make professional development opportunities available and use their own expertise to give guidance about classroom issues. Finally, administrators providing appraisal support provide feedback and clarity about responsibilities. Other definitions of support within educational contexts have emphasized effective supervision (Kontos & File, 1992), creation of a community feel (Sciarra & Dorsey, 2003), and a collaborative environment (Carter & Curtis, 1998). In K-12 settings, teachers report lower levels of administrative support when high numbers of low-income children attend those schools (Stipek, 2004).

44

Essentially, when teachers feel supported by administrators who are organized and dependable, they are less likely to want to leave their current teaching position and feel committed to the center in which they work (Russell, Williams, & Gleason-Gomez, 2010). This is similar in other educational type settings. For instance, K-12 teachers report higher levels satisfaction with their jobs and fewer health problems when they felt supported by their administrators; however, support may manifest differently in child care centers versus K-12 educational settings (Littrell & Billingsley, 1994). In child care centers that have low turnover and more experienced teachers, general administrative support is higher, and staff values this support (Iutovich, Fiene, Johnson, Koppel, & Langa, 1997). While much of the research on center support has focused on its relationship with teacher turnover and job commitment, little work has examined how center support influences what teachers do in the classroom. The few studies that have addressed this topic are examined next.

Supervisor support has been linked with teacher expressions of anger in the classroom (Mill & Romano-White, 1999). More specifically, teachers who perceived their supervisors to be unsupportive showed more anger in the classroom than teachers who perceived their supervisor as supportive. This relationship remained even after controlling for center turnover rates, available teaching resources, and working with more disadvantaged children (Mill & Romano-White, 1999).

Although the Mill & Romano-White (1999) study lends support to the relationship between center support and teacher practices in the classroom, the sample size was quite small (n=78) and geographically limited. Given the small sample size, the

45

authors were not able to account for the nested structure of the data, nor were they able to estimate the extent to which variability in teacher anger could be attributed to the child care center. This information is helpful in determining how important centers are for teacher outcomes. Additionally, this study was conducted with Canadian child care teachers, who may differ culturally from teachers in the U.S. Further, teachers in the sample worked predominately with higher income children. Findings from these teachers may differ from those working with predominately low-income children. In addition, the authors did not report child racial demographic information and it is unclear if the children served by teachers in the study were from minority backgrounds. Nationally representative studies of teachers of low-income children of color with large sample sizes are needed to further examine the relationship between center support and teacher practices.

While Mill & Romano-White (1999) found a significant relationship linking center support to anger in the classroom, Gerber, Whitebook, & Weinstein (2007) found a positive, but insignificant relationship between organizational climate and teacher sensitivity. Differences in these findings may be linked to differences in measurement tools used for both center support and teacher practices, as well as differences in teacher practice outcomes. This study had its limitations, for instance, its small sample size (n=41) did not allow for statistical techniques to account for the nested structure of the data, potentially leading to erroneous conclusions. Further, variability in teacher sensitivity attributed to the child care center was not estimated given the small sample. Research with larger sample sizes that examines a wider array of social-emotional practices is needed to further investigate the potential relationship between support and classroom practices. Also, only 25% of the sample of teachers studied in Gerber et al. (2007) served low-income children and the authors did not report the racial and ethnic backgrounds of the children served by the centers in the study. Research including larger numbers of centers serving low-income children of color are needed. In fact, Gerber et al. (2007) call for additional research with larger and more diverse samples.

Other research has focused on the relationship between organizational climate (including center support) and global classroom quality, which includes teacher practices. Both Hansen (2006) and Lower & Cassidy (2007) found that higher levels of organizational climate in child care centers were significantly associated with higher classroom quality. However, neither study used specific measures of center support, teacher emotional support practices, or teacher behavior management practices. Instead broader measures of organizational climate and global classroom quality were used. Studies examining the relationship between center support and social-emotional teaching practices are needed as these results may differ from results using broad measures of these constructs.

In addition, both Hansen (2006) and Lower & Cassidy (2007) assessed the relationship between organizational climate and classroom quality using correlations. Neither study further explored the positive relationships they found with additional statistical techniques. It is possible that the significant correlations found may have failed to maintain their significance with further, more in-depth analyses. Also, the centers in both studies were both from one southern state and findings may not be generalizable to

wider geographic populations. Finally, neither study reported demographic information related to the income status or racial background of the children served by the centers. As such, it is unclear if centers served predominately low-income children of color who might benefit most from teacher social-emotional practices. Presently, significant gaps in knowledge exist related to child care center characteristics that are important for teacher practices. There is still much to learn in order to determine what child care center factors influence teacher practices.

Limitations of current research on teacher social-emotional practices.

Although some aspects of the relationship between center support and teacher socialemotional practices have been explored, the limitations of the current literature suggest that there is more work to be done. To the author's knowledge, no studies have examined how center support specifically influences teacher emotional support and behavior management practices. Furthermore, studies that have been conducted have focused on global measures that include center support and teacher practices. These same relationships may not appear for the specific constructs of center support and teacher social-emotional practices. Research examining the unique dimensions of organizational climate, including center support, as well as teacher emotional support and behavior management practices, is needed (Hansen, 2006). Also, sample sizes are quite small and not generalizable to the broader population of child care teachers, for example Gerber and colleagues (2007) used a sample of 41 teachers in northern California. Larger sample sizes will allow for the use of more complex statistical techniques that account for the nested structure of the data (Gerber et al., 2007). Also, because the majority of the studies above did not report child demographic information, questions remain as to whether teachers in these studies served low-income children of color. In addition, prior studies have not examined center support in child care centers receiving Head Start funds. Given the recent investments in improving Head Start center quality through the *Improving Head Start for School Readiness Act*, the relationship between center support and teacher practices may be different for Head Start programs as compared to programs that do not receive Head Start funds. Finally, no studies have examined how center support and teacher social-emotional practices influence young children's social-emotional skill development. From these limitations of the current literature it is clear that more work needs to be done in this particular area. Research on factors influencing teacher practices that has been conducted has highlighted individual characteristics of teachers, as opposed to center characteristics. These teacher characteristics are discussed in the next section.

Factors that influence teacher social-emotional practices. Current research on factors influencing teacher social-emotional practices in the classroom has focused on the educational characteristics of teachers, including degree level, degree type, and years of experience. Teachers with a college degree tend to be more supportive in their classrooms (Howes et al., 1992; Phillipsen et al., 1997; Yates and Yates, 1990). Teachers with little experience and without a college degree tend to be less emotionally supportive and use less effective behavior management practices (Early et al., 2006; Li-Grining & Coley, 2006; Li-Grining et al., 2010). Additionally, teachers with degrees in the field of early childhood education are found to be more emotionally supportive (Pianta et al., 2005). However, in other research, years of experience, education level, and degree type were

not found to be significantly related to teacher emotional support practices (Denny, Hallam, & Homer, 2012). Differences in measurement and analyses failing to take into account the structure of the data in earlier studies (e.g., Howes et al., 1992 and Phillipsen et al., 1997) may account for these discrepancies. Additionally, other studies have focused entirely on low-income samples (e.g., Li-Grining et al., 2010), which may produce differing results than mixed or high income samples.

Related to classroom characteristics, the ratio of children and adults in the classroom may play a role in teacher practices, with fewer children for each adult resulting in more emotionally supportive practices and more effective behavior management practices. However, findings for teacher-child ratios are mixed with some studies reporting that higher adult to child ratios produce more sensitive teachers (Ghazvini & Mullis, 2002); while others report insignificant findings between these two aspects of care (Pianta et al., 2005). This may suggest that other factors contribute to the influence of teacher-child ratios on teacher practices. Research should consider these center and teacher factors more rigorously, or at the very least control for them in analyses.

Conclusion

To review, positive social-emotional skill development is critical for healthy development throughout the lifespan. However, low-income children of color often fall behind their higher income, white counterparts due to barriers related to discrimination, oppression, and missed opportunities. One important setting that contributes to the socialemotional skill development of young children, especially those living in poverty and those of color, is child care. The quality of child care plays a significant role in young children's social-emotional skill development, particularly the process quality of centers which is driven by teacher practices and interactions with children in their classrooms. Process quality may be particularly important for young children who live in poverty. As such, it is important to explore the specific practices that teachers use to support children's social-emotional skill development.

The important practices that drive process quality are teacher emotional support practices and teacher behavior management practices. While some research has examined the relationships between these practices and child social-emotional skill development outcomes, many limitations and gaps exist. The lack of research with entirely low-income children of color is one of the major limitations of this research. Furthermore, research with nationally representative samples is not available (Mashburn et al., 2008; Raver et al., 2008). In addition, very little research has been done on the contextual factors such as center support, particularly with teachers serving low-income children. Additional research, using low-income children that not only examines the influence of specific social-emotional practices on children's outcomes, but also examines contextual factors that influence these practices is needed (Hansen, 2006).

Understanding how teacher practices influence young children, and what influences teacher practices, is important. Teachers who are skilled in these socialemotional practices promote high process quality within their classroom. High quality child care classrooms have the potential to serve as a buffer against the negative influence of poverty on young children's development (Burchinal et al., 2006). As such, it is important to understand the predictors of child care teacher social-emotional practices, as well as how these practices influence young children's development, especially for lowincome children of color.

This study builds upon existing research through its use of a nationally representative sample of low-income children, their teachers, and their child care centers. The use of a nationally representative sample allows for comparison of this study's findings with those from regional samples to see if similar relationships arise. Not only did this study examine the influence of specific teacher practices on child outcomes for low-income children of color, center characteristics and their relationship to teacher practices in centers serving low-income children of color also were examined. Prior to this study, very little was known about center characteristics and their influence on teacher social-emotional practices in the classroom, especially for centers serving lowincome children of color.

There also is a need to examine center characteristics, in conjunction with teacher social-emotional practices, and explore their influence on the social-emotional skill development of low-income children of color. To date, no prior research has examined these center and teacher characteristics together. This research helps to inform child care centers about ways to better support their staff, providing insight into teacher practices within classrooms and how these practices influence low-income children of color. Further, understanding how center support influences teacher practices and then targeting interventions toward support also may help improve center quality, increasing the number of quality centers serving low-income children of color.

52

Purpose of Study

The current study examined the extent to which young low-income children of color's social-emotional skill development could be attributed to teacher and child care center characteristics. Social skills and problem behaviors, two key indicators of social-emotional skill development were examined, as well as teacher social-emotional practices and teacher and director perceived center support. It was hypothesized that higher levels of teacher emotional support and behavior management practices in the classroom as well as higher levels of center support would be associated with higher child social skills and lower problem behaviors.

Additionally, this study examined the influence of child care center characteristics on teacher social-emotional practices in centers serving low-income children of color. Specifically, the association between center support, teacher emotional support practices, and teacher behavior management practices were examined. It was hypothesized that higher levels of center support would lead to higher teacher emotional support and behavior management practices. Secondary data, collected using observational measures and questionnaires, was used to address this study's specific research questions. The proposed study's model and variables for research question 1 are outlined in Figure 1 and for research question 2 are outlined in Figure 2. The following questions were addressed:

1. What proportion of the variability in young, low-income children's socialemotional skills is associated with their child care teachers and centers?

53

1a. Do child care teacher emotional support practices, teacher behavior management practices, and perceived center support predict teacher reported child social skills?

1b. Do child care teacher emotional support practices, teacher behavior management practices, and perceived center support predict teacher reported child problem behaviors?

2. What proportion of the variability in teacher social-emotional practices in the

classroom is associated with child care center characteristics?

2a. Does perceived center support predict teacher emotional support practices in the classroom?

2b. Does perceived center support predict teacher behavior management practices in the classroom?



Figure 1. Study Model and Variables for Research Question 1



Figure 2. Study Model and Variables for Research Question 2

Chapter 3: Methods

This study used secondary data from the Head Start Family and Child Experiences Survey (FACES) 2009 to examine the study's research questions. First, the study examined the proportion of variability in young, low-income children's socialemotional skills associated with child care teachers and centers, as well as teacher and center predictors of children's social skills. Second, variability in teacher socialemotional practices associated with child care center characteristics was examined, as well as center predictors of teacher social-emotional practices. The chapter is divided into four sections. Background information on the FACES dataset is provided, including sampling and data collection procedures. Information on study measures, including independent variables, dependent variables, and covariates is provided. Data screening and cleaning procedures are described. Finally, analytic procedures relative to each research question are described.

Head Start FACES

The study examines secondary data from Head Start FACES. The FACES 2009 dataset provides a nationally representative sample of Head Start children, families, teachers, and centers. The most recent version of the survey was administered from 2009 to 2012. During each administration of the survey, information on the characteristics of Head Start children and families, as well as the quality and characteristics of Head Start classrooms, teachers, and centers are collected. This information included basic demographic characteristics of children and families, as well as characteristics of the home environment, and caregiver mental health. Head Start teacher and classroom quality, as well as teacher characteristics, also were collected. Finally, center information on services provided and staff supports were collected. Multiple methods of data collection were used including in person and phone interviews, computer and paperpencil surveys, observations, and direct assessments (Malone et al., 2013).

Previous versions of the Head Start FACES dataset have been used to conduct research on a variety of topics that are relevant to child care settings and more specifically, Head Start. The majority of this literature examines Head Start's impact on children and family outcomes such as literacy (Hammer, Farkas, & Maczuga, 2010; Zill & Resnick, 2006), general development (Zill, Resnick, & McKey, 1999), academic performance (Wen, Leow, Hahs-Vaughn, Korfmacher, & Marcus, 2012), physical activity (Marino, Fletcher, Whitaker, & Anderson, 2012), information on specific groups of children, such as Latino children (Garcia & Levin, 2001), and family involvement (Hindman, Miller, & Skibbe, 2011). In addition to children and family outcomes, some research has examined center and teacher characteristics associated with classroom quality (Resnick & Zill, 2003). The wide use of the FACES dataset suggest its value for studying early childhood related research questions.

Head Start FACES 2009 sampling and data collection procedures. Multistage cluster sampling with four levels was used to select a nationally representative sample of Head Start centers, classrooms, and children. This type of sampling is used
when a list of individual units (e.g., children) is not available but a list of higher level units (e.g., Head Start) programs is available (Singleton & Straits, 2010). For the Head Start FACES 2009 data, Head Start programs were selected first, followed by Head Start centers, teachers and classrooms, and children.

The first stage of sampling occurred at the Head Start program level. A Head Start Program is any agency that receives Head Start funding. Information on Head Start programs in the United States, including the District of Columbia, as well as Head Start programs in U.S. territories and programs that serve American Indian/Alaska Native and migrant/seasonal children is available in the Program Information Report (PIR). The PIR is produced on a yearly basis. The 2007-2008 PIR was used to obtain program level data for FACES 2009.

To enhance the representativeness of the sample, any programs located outside of the 50 states and D.C. (e.g., Puerto Rico and U.S. territories) were excluded from the sampling frame. Additionally any programs serving American Indian/Alaska Native children and children of migrant and seasonal workers also were excluded. Head Start programs that did not serve children ages three through five, e.g., Early Head Start, also were excluded. The final exclusion criteria included those programs that were no longer funded or were not currently operating at the time programs were selected. Using these exclusion criteria, 2,600 programs were included in the sampling frame. Programs were selected using probability proportional to size (PPS), which was used to enhance the representativeness of the sample by ensuring that extremely large programs were selected into the sample with a higher probability than very small programs (Singleton & Straits, 2010). Sixty Head Start programs from the sampling frame were selected and agreed to participate.

To select Head Start centers, a list of centers within each of the 60 participating programs was obtained. To be eligible for selection during this phase of sampling each center had to serve children aged three to five. Two centers within each program were selected to participate. If a program had two or fewer centers, all were selected to participate. For programs with three or more centers, two centers were selected using PPS. A total of 130 centers were selected during this stage of sampling and 129 chose to participate.

Next, classrooms were sampled. A member of the research team visited participating centers during the fall of 2009 and obtained a list of classrooms and teachers within the center, as well as additional information on classroom type (i.e., full day or half-day) and number of newly enrolled children. If a classroom did not have any newly enrolled children for the fall, it was ineligible for participation. If the center had three or fewer classrooms, all were selected to be in the sample. If there were more than three classrooms in the center, 3 classrooms were selected using PPS, to ensure that larger classrooms had a higher chance of being selected into the sample. This stage of sampling yielded a total of 486 classrooms with 439 teachers choosing to participate.

Once classrooms and teachers were selected, roughly 12 newly entering 3, 4, and 5 year old children from each participating class were selected. Eligible children were those who were new to Head Start in the fall of 2009 and were 3, 4, or 5 years old. In centers with 3 participating classrooms, 12 children were randomly selected from each

classroom. If two or fewer classrooms were participating, up to 36 eligible children were randomly selected to participate from all classes. More children were selected than was necessary to account for participant dropout, lack of parental consent, and the possible selection of siblings. Overall, about 30 children were selected and participated from each center. This yielded a total of 3,563 children with 3,349 children participating. Prior to data collection, consent was obtained from all participating individuals, centers, and programs by a member of the FACES research team. Table 1 describes the sample sizes at each level for FACES 2009.

Table 1FACES 2009 Sample Sizes

	Sample Size
Head Start Programs	60
Head Start Centers	129
Head Start Teachers	439
Children	3149

FACES data collection occurred between fall 2009 and spring 2012. Data collection in fall 2009 was conducted over nine weeks from September 2009 through November 2009. Data collection in spring 2010 occurred from April 2010 through June 2010, coinciding with the end of the Head Start school year. Similarly, spring 2011 data were collected from April 2011 through June 2011. Data also were collected in spring 2012 for those children who entered kindergarten during that year. This study did not use spring 2011 or kindergarten year data given that variables of interest were either not

collected during these time points or sample sizes were significantly reduced due to attrition.

Child social-emotional skills data collection. Child social emotional skills, including social skills and problem behaviors, were collected from teacher reports. Head Start teachers were given the option to complete either a paper-pencil or computer survey to provide social-emotional skills information for sampled children in their classrooms. Social-emotional skill data used in this study were collected from Head Start teachers during spring 2010.

Teacher social-emotional practices data collection. To obtain teacher socialemotional practice data on teacher emotional support and behavior management practices, observations were conducted within each participating classroom during spring 2010 by trained observers. Observers attended an eight-day training on how to conduct observations in the classroom, including practice sessions in local child care classrooms. Reliability was established using a gold-standard rating on three videotaped classroom observations and one field observation. To conduct observations for the FACES study observers' ratings had to match 80% of the gold-standard ratings (Malone et al., 2009).

Center characteristics data collection. Information on Head Start center characteristics, including director and teacher perceived center support was obtained through center director and teacher interviews. Center directors were interviewed, either over the phone or in-person, by a member of the research team. During the fall 2009 site visit, all possible directors were interviewed. If an interview was not possible during the site visit, the director was subsequently interviewed over the phone. Teacher interviews that included information on perceived center support were conducted in-person during the spring 2010 by a member of the research team using a structured interview guide.

Covariate data collection. Covariates were collected from children and teachers. Children's covariates (including race, gender, and age) were collected during the caregiver interview. Primary caregivers were interviewed using a structured interview guide either in-person or over the phone during the fall of 2009. Caregivers selected the method of interviewing they preferred. In-person interviews were either conducted at the Head Start center or at a location of the caregivers choosing.

Children's receptive and expressive language skills also were collected as covariates. This information was obtained through direct assessments by trained assessors. Assessors attended a one-day training session that included how to administer the assessment, videotaped practice sessions, and administration of the assessment to a child. In order to conduct assessments for the FACES 2009 study, assessor ratings on the assessments had to match at least 90% of the items on a gold-standard assessment. Assessments were conducted at the Head Start centers. Assessment data used in this study were collected during spring 2010.

Teacher covariates were collected during the teacher interview and classroom observations. Teachers provided information on their race, gender, level of education, and years of teaching experience during the fall 2009 and spring 2010 teacher interviews. A structured interview guide was used by a member of the research team. The final teacher covariate, child-adult classroom ratio, was collected during classroom observations in spring 2010.

62

Measures

Data used to answer all research questions were collected at the center, teacher, and child levels. Center variables were measured during the center director interview and key teacher variables were obtained using an observational measure, as well as during the teacher interview. Key child variables were measured using a questionnaire completed by the teacher. Key center variables included perceived center support and key teacher variables included teacher emotional support practices, teacher behavior management practices, and perceived center support. Key child variables included social skills and problem behaviors. Covariates also were included. Covariates included teacher education, teacher experience, teacher-child ratios, teacher and child demographics, and children's language skills. Each measure is described in the following sections.

Teacher emotional support practices. Teacher emotional support practices were measured using the Classroom Assessment Scoring System (CLASS; Pianta, La Paro, & Hamre, 2008), an observational measure that assesses teachers' practices in the classroom. Emotional support evaluates teachers' abilities to create a positive classroom climate, be aware of and responsive to children's needs, and take a child-centered approach in the classroom. Teacher emotional support practices are divided into four factors, including positive climate, negative climate, teacher sensitivity, and teacher regard for student perspectives. Each factor contains four items on which teachers are rated on a scale from 1 (*minimally characteristic*) to 7 (*highly characteristic*). A total score for teacher emotional support practices was obtained by averaging scores across all domains (Pianta et al., 2008). Scores may range from 1 to 7. A score of 1 or 2 indicates low teacher emotional support practices, a score between 3 and 5 indicates moderate teacher emotional support practices and a score of 6 or 7 indicates high levels of teacher emotional support practices.

The CLASS has been used extensively in diverse child care classrooms and is considered a gold standard for measuring teacher practices (Pianta et al., 2008). In fact, Head Start has used the CLASS as a way to track teacher quality since 2012. This tool has been used in settings serving diverse children and has been found to be valid in classrooms with high numbers of Latino children and dual language learners (Downer et al., 2012), as well as in international settings (Pakarinen et al., 2010). Internal consistency for the teacher emotional support practices domain was acceptable, ranging from .85 to .94 in various studies. Interrater reliability for previous ratings is 87%, which is above the standard 80% (Pianta et al., 2008). The FACES manual reports finding an alpha value of .821 for teacher emotional support practices and an average interrater reliability of 96% for overall CLASS observations in the spring 2010 and spring 2011 (Malone et al., 2013). Ratings from spring 2010 were used in this study.

Teacher behavior management practices. Teacher behavior management practices were defined as the "teacher's ability to provide clear behavioral expectations and use effective methods to prevent and redirect misbehavior" (Pianta, La Paro, & Hamre, 2008, p. 44). As with teacher emotional support practices, teacher behavior management practices were measured using the CLASS. Four key teacher behavior management practice areas were assessed, including behavior expectations, proactive strategies, redirection of misbehavior, and student behavior. Teachers were rated by an

observer on these four areas and given a score ranging from 1 (*minimally characteristic*) to 7 (*highly characteristic*) for each area. A score of 1 or 2 indicates low teacher behavior management practices, a score between 3 and 5 indicates moderate teacher behavior management practices and a score of 6 or 7 indicates high teacher behavior management practices. The FACES manual reports alpha values of .80 for spring 2010 (Malone et al., 2013). Interrater reliability from previous studies is 94% (Pianta et al., 2008).

Child social-emotional skills. Child social-emotional skills were measured using teacher reports of the Social Skills Rating System (Gresham & Elliott, 1990), the Behavioral Problems Index (Peterson & Zill, 1986), and the Personal Maturity Scale (Entwisle et al., 1987). Although caregiver ratings of these outcomes were obtained, discrepancies between teacher and caregiver ratings of children behaviors have been found in prior research. Teacher ratings of social skills were not significantly associated with caregiver ratings of social skills. Further, although teacher and caregiver ratings for problem behaviors were associated with one another, caregivers tended to rate their children as having more problem behaviors than teachers. When compared to direct assessments, teacher ratings of social skills and problem behaviors were more closely associated with assessments than caregiver ratings (Winsler & Wallace, 2002). Given these discrepancies and because this study examines teacher and child behaviors in the classroom, teacher reports were used.

Social skills. Twelve items taken from the Social Skills Rating System (SSRS; Gresham & Elliott, 1990) and the Personal Maturity Scale (Entwisle et al., 1987) were used to measure children's social skills in the classroom. Teachers rated their perceptions of sampled children's social skills. Social skills assessed included cooperation, empathy, responsibility, assertion, and self-control. Items were rated based upon the frequency of a particular children's behavior on a scale from 0 (never) to 2 (very often). Scores ranged from 0 to 24 and a total score was created by summing the answers to all items. The alpha value reported in the FACES manual for spring 2010 is .89 (Malone et al., 2013).

Problem behaviors. Problem behaviors were measured using a compilation of items from the Behavior Problems Index (BPI; Peterson & Zill, 1986) and the Personal Maturity Scale (Entwisle et al., 1987). Problem behaviors measured include externalizing behaviors such as hyperactivity and aggression, as well as internalizing behaviors such as anxious and withdrawn behaviors. Teachers rated child behaviors on a scale from 0 (not true) to 2 (very true). Scores were summed to create a total score. Score values ranged from 0 to 28 with higher scores indicating more problem behaviors. The alpha value reported in the FACES 2009 manual for spring 2010 is .87 (Malone et al., 2013).

Center support. Teacher and director perceived center support were measured by the support subscale of the Program Management Inventory (PMI; Lambert, Abbott-Shim, & Oxford-Wright, 1999). The support subscale consisted of 12-items reflecting perceptions of the support provided by the Head Start center. Respondents rated each item on a scale from 1 (strongly disagree) to 5 (strongly agree) based upon their agreement with the statements. Example statements include "your Head Start program helps teachers feel good about their jobs," and "ensures that teachers do not feel isolated." Prior research has shown an alpha value of .94 for the scale (Lambert, 2002). For this sample, Cronbach's alpha was .88 for center director perceived support and 0.92 for teacher perceived support. A total score is computed by summing the items for each question and then dividing by the total number of items. Scores may range from 1 to 5 with higher scores indicating more support.

Covariates. Additional factors that also may relate to the outcomes of interest were included. Child, classroom, and teacher level covariates are described below.

Child covariates. Basic demographic information was collected during the caregiver interview. Demographics included children's race, gender, and age. Race was reported by caregivers completing the interview. Response options included the following: white, non-Hispanic, African American, non-Hispanic, Hispanic/Latino, American Indian or Alaska native, Asian or Pacific Islander, multi-racial/bi-racial, non-Hispanic, or other race. Children's gender was reported as male or female by their caregiver. Children's age in months also was reported by the caregiver during the caregiver interview.

Children's receptive and expressive language skills also were used as a covariate due to the relationship between verbal abilities and social-emotional skill development (Brinton & Fujiki, 1993). The Peabody Picture Vocabulary Test-Fourth Edition (PPVT-4; Dunn, Dunn, & Dunn, 2006) was used to assess receptive language. A PPVT-4 score was obtained through a direct assessment in which children were asked to say the correct word that corresponded to a picture shown to the children. The test has adequate psychometric properties with alpha values of .97 and test-retest reliability scores from 0.92 to 0.96 (Dunn et al., 2006). The alpha value reported by FACES for spring 2010 is 0.95.

67

To measure expressive language the Expressive One-Word Picture Vocabulary Test (EOWPVT; Brownell, 2001) was used. Similar to the PPVT-4, the EOWPVT was measured through direct assessment. Alpha values range from .95 to .96 and test-retest reliability values ranged from .85 to .92 (Jenkins, 2006). The alpha value reported by FACES for spring 2010 was 0.80.

Classroom and teacher covariates. Teacher demographic covariates included race and gender. A question about teacher race was asked during the teacher interview. Response options included white, non-Hispanic, African American, non-Hispanic, Hispanic/Latino, American Indian or Alaska native, Asian or Pacific Islander, multi-racial/bi-racial, non-Hispanic, or other race. Gender also was asked about during the teacher interview and response options included female and male. In addition to demographic characteristics, the child-teacher ratio in the classroom was included as a covariate. This variable was conceptualized as the average number of children in the classroom divided by the number of paid staff in the classroom.

Last, teacher education and experience also were used as covariates. Level of education was obtained through the teacher interview. Teachers were asked to report the highest grade or year of school they had completed. Responses could range from "up to 8th grade" through "professional degree after bachelor's (medicine/md, dentistry/dds, law/jd/llb)" or "doctorate degree." Teacher experience was measured by the number of years teaching Head Start or Early Head Start as either an assistant or a lead teacher. Teachers reported a numeric value representing number of years.

Data Screening and Cleaning

Prior to analyses the data were cleaned and screened. First, missingness was examined to determine if data were missing at random (MAR) or missing completely at random (MCAR). Doing so helped make a determination about how missing data should be treated, whether it be through deletion or estimation. Missing data analyses were conducted using SPSS 22. In SPSS, a Little's Test was performed to determine if data were MCAR. In this test a p-value greater than .05 indicates that MCAR may be assumed. A value less than .05 means that MAR or not missing at random (NMAR) may be assumed. When data are MCAR, list-wise deletion may be used without biasing results. When data are MAR, multiple imputation is appropriate (Tabachnick & Fidell, 2007).

Missing data were not analyzed for center level variables because no missing data were observed in the variables of interest. At the teacher level, 5% of the teacher emotional support practices and teacher behavior management practices variables were missing and 3% of the teacher perceived center support variables were missing. Missingness of teacher covariates ranged from 3% to 4%. Based on a statistically non-significant Little's MCAR test result (p = .74), data at the teacher level were determined to be MCAR. Teachers without social-emotional practice data and with large amounts of missing data were removed from the sample. Data for teachers with minimal amounts of missing data were kept in the sample and these values were estimated using multiple imputation. At the child level, social skills and problem behaviors were missing for 13% of the sample. Missingness on covariates ranged from

4% to 20%. Based on a statistically significant result on the Little's MCAR test (p < .001), child level data were assumed to be MAR. Therefore, multiple imputation was used for child level variables.

Multiple imputation is a technique used to estimate missing data. Existing values in the dataset are used to predict missing values, ultimately creating a complete dataset with no missing information. When conducting multiple imputation, multiple datasets are created. These datasets are then pooled together to conduct further analyses (Garson, 2015). Rubin (1996) suggests that five imputed datasets are adequate for imputation; therefore, five datasets were created for teacher and child level data. Imputation was not necessary for center level data because no missing variables were observed.

In addition, key variables were examined for outliers that might influence the results of statistical analyses, potentially causing erroneous conclusion to be drawn. Hoaglin & Iglewicz (1987)'s criteria for outlier detection was used. Based on this method, values that fall above or below 2.2 times the difference between the third and first quartiles were considered outliers. Using this criteria outliers were detected for director perceived center support, teacher emotional support practices, and child problem behaviors. Perceived center support and teacher emotional support practices outliers were removed from the data and analyses were run without these individuals. Based on the results of the normality assessment (described below), outliers were not removed from child problem behaviors. Instead, an alternate distributional assumption that could account for extreme values was used.

Normality also was examined in order to satisfy assumptions for subsequent analyses (Tabachnick & Fidell, 2007). To assess normality of key variables, skewness and kurtosis values, as well as histograms, were examined prior to analyses. Skewness and kurtosis values are provided in Table 22 in Appendix A. Based on the results of both the skweness and kurtosis values and histograms, one variable warranted further investigation: child problem behaviors. Although skewness and kurtosis values for the problem behaviors variable were not concerning, the histogram (Figure 3, Appendix B) for problem behaviors as reported by their teachers). Multiple transformations were attempted with this variable. However, no transformations sufficiently produced distributions that resembled normality. Because of this, the analyses conducted using problem behaviors as an outcome variable were conducted assuming a Poisson distribution instead of a normal distribution in order to account for this skewness as recommended by O'Connell, Goldstein, Rogers, and Peng (2008).

Finally, multicollinearity was assessed in order to satisfy assumptions for subsequent analyses (Tabachnick & Fidell, 2007). To assess potential problems with multicollinearity, correlations among key study variables were assessed. Results are provided in Table 23 in Appendix C. Only teacher behavior management practices and teacher emotional support practices were highly correlated and potentially concerning. Tabachnik & Fidell (2007) recommend not including variables with correlations above |.7| in the same analysis. The correlation for teacher emotional support practices and teacher behavior management practices was r = .65. Although this value was not above |.7| it was close. To be conservative, analyses were conducted with only one of these variables at a time. In addition, children's social skills and problem behaviors were highly correlated (r = -.64); however, because these were two outcome variables and not used in the same analyses, their high correlation was not of concern. To further address any potential issues of multicollinearity, variables without meaningful 0 values were centered, as suggested by Tabachnik and Fidell (2007).

Selection of Cases from FACES 2009

Sample selection for this study was conducted after the data were screened and cleaned. Cases were selected from the original sample of 129 Head Start centers, 439 teachers, and 3,149 children. One-hundred and twenty three Head Start centers were included in the analytic sample, 6 were removed due to outlier values. Sixty-nine teachers were removed from the original teacher sample, because they were missing social-emotional practices data. These decisions thereby reduced the teacher sample size to 370. One additional teacher was removed from the sample due to large amounts of missing data and 12 teachers were removed due to outliers using Hoaglin and Iglewicz (1987)'s criteria. This resulted in a final teacher sample size of 357 teachers. From the child level data, 682 children were removed from the dataset because their teachers were either missing social-emotional practices data or were not included in the teacher dataset. In addition, 90 children were removed based on outlier values at the teacher and center level. The final child level sample was 2,377. Table 2 provides an overview of the sample sizes for this study.

72

Sample Sizes for Current Study	
	Sample Size
Head Start Centers	123
Head Start Teachers	357
Children	2377

Participants

Table 2

Demographic information for study participants are provided in Tables 3 and 4. On average, children in this sample were 45.84 months of age, or 3.8 years old. The sample was almost evenly split in terms of gender, with slightly more female children (50.19%) in the sample than males (49.81%). Children in the sample were predominately Hispanic (38.33%) or African American (34.29%). Children's average expressive and receptive language scores were 32.97 and 84.99, respectively.

Inita Level Sample Demographic Characteristics			
	Analytic Sample		
	n=2,377		
Demographic	n	0//M(SD)	
characteristics	11	70 / IVI(SD)	
Age (months)	2377	45.84 (6.50)	
Gender			
Male	1184	49.81	
Female	1193	50.19	
Race			
African	815	34.29	
American			
Hispanic	911	38.33	
White	461	19.39	
Other race	190	7.99	
Language			
Receptive	2377	84.99 (17.10)	
Expressive	2377	32.97 (11.80)	

Table 3 Child Level Sample Demographic Characteristics

Note: Percentages may not total to one hundred due to rounding. Receptive language scores could range from 20 - 160. Expressive language scores could range from 0-70.

Table 4 presents demographic information for the teachers in the sample. Teachers in this sample were fairly well educated with most teachers having either an associate's degree, voc-tech degree (43.73%), or a bachelor's degree (38.94%). Fewer teachers had a high school education or below, or a graduate degree. Average teacher experience for the sample was roughly 13 years with a standard deviation of 8.53 years. Child-adult ratios were, on average, 7.45 children per adult in the class. Racially, most teachers were either white or African American, with the remaining teachers being of another race. Other races could include Hispanic, Asian, American Indian, or multiracial. Finally, this sample of teachers was predominately female (only 2 males were sampled).

Given the lack of variability in gender, it was not used in any further analyses and is only presented for descriptive purposes.

	Analytic Sample		
	n ^a	=357	
Demographic characteristics	n	% / M(<i>SD</i>)	
Education level			
High school or below	60	16.81	
Associates or Vocational degree	124	34.73	
Bachelor's degree	139	38.94	
Graduate degree	34	9.52	
Teaching experience (years)	357	13.06 (8.53)	
Ratio	357	7.45 (1.85)	
Race			
African American	112	31.37	
White	138	38.66	
Other Race	107	29.97	
Gender*			
Female	351	98.32	
Male	2	0.56	

Table 4

Note: Percentages may not total to one hundred due to rounding

*Gender was not imputed or used in subsequent analyses give its lack of variability

Data Analysis

Multilevel modeling (MLM) was used to answer the study's research questions. MLM is useful when data are structured hierarchically, meaning that participants are nested within groups, which are potentially nested within some other overarching structure. Traditional techniques (e.g., multiple regression) ignore the nested structure of the data and assume that all observations are independent from one another. However, the similarities that occur between units within each group violate this assumption of

independence (Goldstein, 1999). Multilevel modeling accounts for these similarities within groups (Woltman, Feldstein, MacKay, & Rocchi, 2012). All MLM analyses were conducted using HLM software (Raudenbush, Bryk, & Congdon, 2004).

In the first research question: what proportion of the variability in young, lowincome children's social-emotional skills is associated with their child care teachers and centers, children were nested within teachers as well as within child care centers. This was because children in one teacher's classroom were likely to be more similar to one another than children from another teacher's classroom. Further, children from one center were likely to be more similar to one another than children attending another center. To deal with nesting, the first step in creating a multilevel model was creating the unconditional, or empty model with no predictors in it. This model estimated the intraclass correlation (ICC), providing an estimate of the variability between groups in the sample. For research question 1, the ICC estimated the variability in social-emotional skills that occurred between teachers and between centers.

To answer research questions 1a: do child care teacher emotional support practices, teacher behavior management practices, and perceived center support predict children's social skills, and 1b: do child care teacher emotional support practices, teacher behavior management practices, and perceived center support predict children's problem behaviors, predictors were added to the model. Typically, multilevel models are built using a bottom up approach, meaning that the lowest level predictor variables are added to the model first. Once a satisfactory model is developed, the researcher moves on to the predictors at the next highest level, following this pattern until all levels have been addressed (Raudenbush & Bryk, 2002). As such, for question 1a, child level covariates were added to the model first, followed by teacher covariates, teacher emotional support practices, teacher behavior management practices, and teacher perceived center support. Finally, center director perceived center support was added to the model.

Predictors and covariates were added to the model in an identical process to answer question 1b. Variables without a meaningful zero value were centered around the mean to aid in interpretation of findings and to reduce potential problems with multicollinearity (Raudenbush & Bryk, 2002). In addition, all variables were treated as fixed because the research question was not aimed at investigating random effects (Ma, Ma, & Bradley, 2008). Analyses for questions 1a and 1b resulted in a final model describing the influence of perceived center support and teacher social-emotional practices on children's social skills and problem behaviors, after controlling for covariates.

In the second research question: what proportion of the variability in teacher social-emotional practices in the classroom is associated with child care center characteristics, teachers were nested within child care centers. Similar to research question 1, an unconditional model with no predictors in it was created. This model provided an estimate of the ICC, which estimated variability in teacher social-emotional practices that occurs between centers. Models for research questions 2a: does perceived center support predict teacher emotional support practices in the classroom and 2b: does perceived center support predict teacher behavior management practices in the classroom, followed a similar process to research questions 1a and 1b. For research question 2a, teacher perceived center support and covariates were added to the model first, followed by center director perceived center support. Predictors and covariates were added to the model in an identical process to answer question 2b. Analyses for questions 2a and 2b resulted in a final model describing the influence of perceived center support on teacher social-emotional practices, after controlling for covariates.

Power. Power estimates were computed to provide guidance on minimum detectable effect sizes. To conduct this analysis, Optimal Design software (Raudenbush et al., 2011) was used. Although this software was originally designed for use with experimental data it may be adapted for non-experimental data (Spybrook, 2008). Power estimates for all research questions are based upon a power level of .80 as well as an alpha level of .05. A power level of .80 ensures that the probability of encountering a Type II error, or failing to reject a false null, is adequately small. An alpha level of .05 ensures that the probability of making a Type I error, or incorrectly rejecting a true null, is sufficiently low (Cohen, 1988).

For the first research question involving 123 centers with an average of 3 teachers per center and 7 children per classroom, the minimum detectable effect size for a power level of .80 and ICC values of .10 and .16 (Raver et al., 2009) was estimated to be δ = .22, or a small effect (Cohen, 1988). For the second research question, involving 123 centers and an average of 3 teachers per center, the minimum detectable effect size for a power level of .80 and an ICC value of .10 (Raver et al., 2009) was estimated to be δ = .32, which is considered to be between a small and a medium effect (Cohen, 1988).

Chapter 4: Results

This chapter provides the results of both descriptive analyses and results from the main research questions. Descriptive statistics are provided first, followed by the results from research questions one and two.

Descriptive Statistics

Mean values for key study variables of children, teachers, and centers are provided in Table 5. On average, children had favorable teacher reported social skills scores, with a mean score of 17.33 on a scale ranging from 0 to 24. There were limited teacher reported problem behaviors among children in the sample, with an average score of 4.31 on a scale ranging from 0 to 28. Teacher emotional support practice scores were 5.31 on a scale of 1 to 7, indicating levels of emotional support practice were slightly higher than average. Similarly, teacher behavior management practice scores had a mean value of 5.03 on a scale of 1 to 7, indicating teacher behavior management practices were slightly higher than average. Mean teacher perceived center support values were 3.72 on a scale from 1 to 5, indicating slightly higher than average perceptions of support. Average center director perceived center support values were 4.46 on a scale from 1 to 5, indicating favorable perceived support.

	Analytic Sample			e
Key Variables	Ν	М	SD	Range
Child variables				
Teacher reported social	2377	17.33	4.51	0-24
skills				
Teacher reported problem	2377	4.31	4.50	0-28
behaviors				
Teacher variables				
Emotional support practices	357	5.31	0.47	1-7
Behavior management	357	5.03	0.74	1-7
practices				
Perceived center support	357	3.72	0.73	1-5
Center variables				
Perceived center support	123	4.46	0.48	1-5

Table 5Descriptive Statistics for Key Study Variables

Multilevel Analyses

Research question 1. To answer research question 1, what proportion of the variability in children's social-emotional skill development was associated with teacher and child care center characteristics, two unconditional models with no predictors were fit. The first model was for teacher reported child social skills and the second model was for teacher reported child problem behaviors. For children's social skills, results from the unconditional model indicated that 17.59% of the variability in children's social skills could be attributed to the teacher and 6.35% could be attributed to the Head Start center. Variability in average social skills scores across teachers ($\chi^2 = 521.23$, p < .001) and Head Start centers ($\chi^2 = 215.62$, p < .001) was statistically significant, suggesting that adding in predictors at both the teacher and center level may help explain between

teacher and center differences. The results of this unconditional model are provided in

Table 6.

Table 6

Teacher Reported Social Skills Unconditional Model

Fixed Effects	Coefficient (SE)	t(d	lf) p
Intercept (social skills) (γ ₀₀₀)	17.16 (0.21)	80.18	(122) < .001
Random Effects	Variance	df	Chi-square
Var. between children (e_{ijk})	15.14		
Var. between teachers (r_{0jk})	3.50	234	521.23 (<i>p</i> < .001)
Var. between centers (u_{00k})	1.26	122	215.62 (<i>p</i> < .001)
Variance Decomposition	Percentage by	Level	
Child level	76.07%	1	
Teacher level	17.59%	1	
Center level	6.35%	1	

Next, to determine the proportion of variability in problem behaviors associated with teacher and center characteristics, an unconditional model with no predictors was fit for children's problem behaviors. As noted in chapter 3, the teacher reported problem behaviors variable was highly skewed and a normal distribution could not be assumed. As such, a Poisson distribution was assumed for all analyses involving children's problem behaviors, as recommended by O'Connell et al. (2008). Results from the unconditional model indicate that 6.26% of the variability in teacher reported child problem behaviors could be attributed to their teacher and 1.88% could be attributed to the Head Start center. Variability in average problem behavior scores across teachers ($\chi^2 = 221.63$, p < .001) and Head Start centers ($\chi^2 = 221.63$, p < .001) was significant, suggesting that predictors at both the teacher and center level may help explain between

teacher and center differences. The results of the unconditional model for problem

behaviors are provided in Table 7.

Table 7

Teacher Reported Problem Behaviors Unconditional Model					
Fixed Effects	Coefficient (SE)	t(d	df) p		
Intercept (problem behaviors) (γ ₀₀₀)	1.40 (0.05)	27.06	(122) < .001		
Random Effects	Variance	df	Chi-square		
Var. between children (e_{ijk})	3.27				
Var. between classrooms (r_{0jk})	0.22	234	599.84 (<i>p</i> < .001)		
Var. between centers (u_{00k})	0.07	122	221.63 (<i>p</i> < .001)		
Variance Decomposition	Percentage by I	Level			
Child level	91.86%				
Teacher level	6.26%				
Center level	1.88%	1			

To answer research question 1a, do perceived center support, teacher emotional support practices, and teacher behavior management practices predict teacher reported child social skills, all child level covariates were added into the model at level 1, followed by teacher level covariates and teacher predictors. Child level variables included race, gender, age in months, receptive language, and expressive language. Teacher variables included child-adult ratio, years of experience, education level, race, and teacher perceived center support. For both child and teacher race, white was used as the reference group. Teacher emotional support practices and teacher behavior management practices also were included in the teacher level model. Children's age, receptive language, teacher emotional support practices, teacher behavior management practices, teacher perceived center support, and child-adult ratio were

centered around the group mean to reduce potential problems with multicollinearity and aid in interpretation of results, as suggested by Raudenbush and Bryk (2002). Further, teacher emotional support practice and teacher behavior management practice variables were included in separate models because they were highly correlated with one another. Given the nature of the research question (i.e., random effects were not central to the primary research question), all variables were treated as fixed (Ma et al. 2008). The model including teacher emotional support practices is reported first:

SocialSkills_{ijk} = $\gamma_{000} + \gamma_{010}$ *EmotionalSupport_{jk} + γ_{020} *CenterSupport(teacher)_{jk} + γ_{030} *Ra tio_{jk} + γ_{040} *YearsExperience_{jk} + γ_{050} *HighSchool_{jk} + γ_{060} *Associates_{jk} + γ_{070} *Graduate_{jk} + γ_{080} *AfricanAmerican_{jk} + γ_{090} *OtherRace_{jk} + γ_{100} *Female_{ijk}+ γ_{200} *AfricanAmerican_{ijk} + γ_{300} *Hispanic_{ijk} + γ_{400} *OtherRace_{ijk} + γ_{500} *Age_{ijk} + γ_{600} *ReceptiveLang_{ijk} +

 γ_{700} *ExpressiveLang_{ijk} + r_{0jk} + u_{00k} + e_{ijk}

After controlling for child and teacher covariates, teacher emotional support had an insignificant effect on teacher reported child social skills ($\beta = 0.25$, p = .605). Teacher perceived center support also had an insignificant effect on teacher reported child social skills ($\beta = 0.28$, p = .353). Among teacher covariates, race was a significant predictor of teacher reported social skills, but only for African American teachers. Specifically, having an African American teacher was negatively associated with teacher reported child social skills ($\beta = 1.00$, p = .029) as compared to children with white teachers. For child covariates, gender, race, age, receptive language, and expressive language, were all significantly and positively associated with teacher reported social skills. Children who were female ($\beta = 1.83$, p < .001), Hispanic ($\beta = 1.05$, p = .003), older ($\beta = 0.14$, p < .001), had higher receptive language skills ($\beta = 0.03$, p < .001), and higher expressive language skills ($\beta = 0.05$, p < .001) also had higher levels of teacher reported social skills.

In comparison to the unconditional model, the model including child and teacher variables reduced variability in teacher reported social skills by 16.78% at the child level and by 5.98% at the teacher level. This suggests that the variables included in this model help to explain some of the variability in teacher reported child social skills, in comparison to the unconditional model. However, results from the random effects portion of the model suggested that significant variability existed at the teacher level (χ^2 =569.13, p < .001), meaning that additional teacher predictors could be added to the model to further reduce variability in teacher reported social skills. Results from the social skills model including teacher emotional support practices are provided in Table 8.

		$\sim npp \circ np$	
Fixed Effects	Coefficient (SE)	t(df)	р
Intercept (social skills) (γ_{000})	16.28 (0.47)	34.31 (122) <.001
Teacher level variables			
Emotional support practices (γ_{010})	0.25 (0.48)	0.52 (225)	.605
Center support (teacher perceived)	0.28 (0.30)	0.93 (225)	.353
(7020)			
Child-adult ratio (γ ₀₃₀)	0.24 (0.15)	1.60 (225)	.111
Years of experience (γ_{040})	-0.01 (0.02)	-0.24 (225)	.813
High school or below (γ_{050})	-0.57 (0.49)	-1.16 (225)) .249
Associates/Voc-tech (γ_{060})	0.51 (0.40)	1.25 (225)	.211
Graduate degree (y070)	-0.48 (0.63)	-0.77 (225)	.442
African American (γ ₀₈₀)	-1.00 (0.46)	-2.19 (225)	.029
Other race (γ_{090})	-0.63 (0.45)	-1.40 (225)	.164
Child level variables			
Female (γ_{100})	1.83 (0.19)	9.46 (1890) <.001
African American (γ_{200})	0.16 (0.35)	0.45 (1890)) .655
Hispanic (_{y300})	1.05 (0.36)	2.94 (1890)	.003
Other race (γ_{400})	0.59 (0.43)	1.36 (1890)) .176
Age (γ_{500})	0.14 (0.02)	6.70 (1890)) <.001
Receptive language (γ_{600})	0.03 (0.01)	3.34 (1890)) <.001
Expressive language (γ_{700})	0.05 (0.01)	3.50 (1890)) <.001
Random Effects	Variance	df	Chi-square
Var. between children	12.60		
Var. between teachers	3.29	225 569	.13 (p < .001)
Var. between centers	1.24	122 223	.79 (<i>p</i> < .001)
	Amount of addition	ıal variability	v explained
Child level	16.78%		
Teacher level	5.98%		
Center level	2.10%		

Teacher Level Predictors of Child Social Skills (Emotional Support)

Table 8

A separate model including teacher behavior management practice was investigated as well in order to prevent issues with multicollinearity between teacher emotional support practices and teacher behavior management practices. The model including teacher behavior management practices is described below:

ProblemBehaviors_{*ijk*} = $\gamma_{000} + \gamma_{010}$ *BehaviorManagement_{*jk*} + γ_{020} *CenterSupport(teacher)_{*jk*} + γ_{030} *Ratio_{*jk*} + γ_{040} *YearsExperience_{*jk*} + γ_{050} *HighSchool_{*jk*} + γ_{060} *Associates_{*jk*} + γ_{070} *Graduate_{*jk*} + γ_{080} *AfricanAmerican_{*jk*} + γ_{090} *OtherRace_{*jk*} + γ_{100} *Female_{*ijk*} + γ_{200} *AfricanAmerican_{*ijk*} + γ_{300} *Hispanic_{*ijk*} + γ_{400} *OtherRace_{*ijk*} + γ_{500} *Age_{*ijk*} + γ_{600} *ReceptiveLang_{*ijk*} + γ_{700} *ExpressiveLang_{*ijk*} + r_{0 *jk* $}$ + u_{00k} + $e_{$ *ijk*

After controlling for child and teacher covariates, teacher behavior management practices had an insignificant effect on teacher reported child social skills ($\beta = 0.35$, p = .236). Teacher perceived center support also had an insignificant effect on teacher reported child social skills ($\beta = 0.33$, p = .280). Among teacher covariates, race was a significant predictor of teacher reported social skills, but only for African American teachers. Specifically, having an African American teacher was negatively associated with teacher reported social skills ($\beta = 1.00$, p = .029), as compared to having a white teacher. For child covariates, gender, race, age, receptive language, and expressive language, were all significantly and positively associated with teacher reported social skills. Children who were female ($\beta = 1.83$, p < .001), Hispanic ($\beta = 1.06$, p = .003), older ($\beta = 0.14$, p < .001), had higher receptive language skills ($\beta = 0.03$, p < .001), and higher expressive language skills ($\beta = 0.05$, p < .001) also had higher levels of teacher reported social skills.

In comparison to the unconditional model, the model with child and teacher variables reduced variability in teacher reported social skills by 16.78% at the child level

and by 7.35% at the teacher level. This suggests that the variables included in this model help to explain some of the variability in teacher reported child social skills, in comparison to the unconditional model. However, results from the random effects portion of the model suggested that significant variability existed at the teacher level (χ^2 =563.91, p < .001), meaning that additional teacher predictors could be added to the model to reduce variability in teacher reported social skills. Results from the social skills model including teacher behavior management practices are provided in Table 9.

5	(0 /		
Fixed Effects	Coefficient (SE)	t(df)	р	
Intercept (social skills) (y ₀₀₀)	16.28 (0.47)	34.45 (122)	<.001	
Teacher level variables				
Behavior management practice (γ_{010})	0.35 (0.30)	1.19 (225)	.236	
Center support (teacher perceived)	0.33 (0.30)	1.08 (225)	.280	
(γ ₀₂₀)				
Child-adult ratio (γ_{030})	0.25 (0.15)	1.65 (225)	.101	
Years of experience (γ_{040})	-0.01 (0.02)	-0.26 (225)	.792	
High school or below (γ_{050})	-0.54 (0.49)	-1.12 (225)	.265	
Associates/Voc-tech (y060)	0.52 (0.40)	1.28 (225)	.201	
Graduate degree (γ_{070})	-0.49 (0.62)	-0.79 (225)	.432	
African American (γ ₀₈₀)	-1.00 (0.45)	-2.19 (225)	.029	
Other race (γ_{090})	-0.65 (0.45)	-1.45 (225)	.150	
Child level variables				
Female (γ_{100})	1.83 (0.19)	9.46 (1890)	<.001	
African American (γ_{200})	0.16 (0.35)	0.46 (1890)	.646	
Hispanic (_{y300})	1.06 (0.36)	2.96 (1890)	.003	
Other race (γ_{400})	0.60 (0.43)	1.38 (1890)	.168	
Age (γ_{500})	0.14 (0.02)	6.70 (1890)	<.001	
Receptive language (γ_{600})	0.03 (0.01)	3.34 (1890)	<.001	
Expressive language (γ_{700})	0.05 (0.01)	3.50 (1890)	<.001	
Random Effects	Variance	df	Chi-square	
Var. between children	12.60			
Var. between teachers/classrooms	3.24	225 563.9	91 (p < .001	
Var. between centers	1.26	122 226.4	42 (<i>p</i> < .001	
<i></i>	mount of additiond	al variability e	xplained	
Child level	16.78%			
l eacher level	7.35%			
Center level	+0.08%			

Teacher Level Predictors of Child Social Skills (Behavior Management)

Table 9

Finally, center director perceived center support was added into the model. Similar to the previous models with child and teacher variables, teacher emotional support practices and teacher behavior management practices were run in separate _

models given their high correlation with one another. The center level model including teacher emotional support practices is provided below:

SocialSkills_{ijk} = $\gamma_{000} + \gamma_{001}$ *CenterSupport(Director)_k + γ_{010} *EmotionalSupport_{jk} + γ_{020} *Ce nterSupport(Teacher)_{jk} + γ_{030} *Ratio_{jk} + γ_{040} *YearsExperience_{jk} + γ_{050} *HighSchool_{jk} + $_{060}$ *Associates_{jk} + γ_{070} *Graduate_{jk} + γ_{080} *AfricanAmerican_{jk} + γ_{090} *OtherRace_{jk} + γ_{100} *Fe male_{ijk} + γ_{200} *AfricanAmerican_{ijk} + γ_{300} *Hispanic_{ijk} + γ_{400} *OtherRace_{ijk} + γ_{500} *Age_{ijk} + γ_{60} o*ReceptiveLang_{ijk} + γ_{700} *ExpressiveLang_{ijk} + r_{0jk} + u_{00k} + e_{ijk}

Results from the above model are provided in Table 10. After controlling for child covariates, as well as teacher covariates and predictors, director perceived center support had an insignificant effect on teacher reported child social skills ($\beta = 0.33$, p = .461). No additional covariates were added to the model. As such, results for teacher and child covariates remained the same, with teacher race, as well as child gender, race, age, receptive language, and expressive language, significantly associated with teacher reported social skills.

In comparison to the model with child and teacher variables, the center level model did not explain any additional variance in teacher reported social skills at the center level. In fact, variability at this level increased by 0.64%, providing further evidence that center director perceived center support was not a significant predictor of teacher reported child social skills. Further, results from the random effects portion of the model suggested that there was still significant variability in teacher reported child social skills at the center level (χ^2 =224.25, p < .001), indicating that additional center level variables are needed to further reduce variability in teacher reported social skills.

Center Level Predictors of Child Social	Skills (Emotional	Support)		
Fixed Effects	Coefficient (SE)	t(df)	p	
Intercept (social skills) (γ ₀₀₀)	14.81 (2.03)	7.27 (121)	<.001	
Center level variables				
Center support (director perceived)	0.33 (0.45)	0.74 (121)	.461	
(7001)				
Teacher level variables				
Emotional support practices (γ_{010})	0.26 (0.48)	0.53 (225)	.595	
Center support (teacher perceived)	0.28 (0.30)	0.94 (225)	.346	
(γ ₀₂₀)				
Child-adult ratio (γ_{030})	0.24 (0.15)	1.60 (225)	.111	
Years of experience (γ_{040})	-0.01 (0.02)	-0.30 (225)	.763	
High school or below (γ_{050})	-0.58 (0.49)	-1.18 (225)	.238	
Associates/Voc-tech (γ_{060})	0.50 (0.40)	1.24 (225)	.216	
Graduate degree (γ_{070})	-0.46 (0.63)	-0.74 (225)	.462	
African American (γ ₀₈₀)	-0.97 (0.46)	-2.12 (225)	.035	
Other race (γ_{090})	-0.63 (0.45)	-1.40 (225)	.163	
Child level variables				
Female (γ_{100})	1.83 (0.19)	9.46 (1890)	<.001	
African American (γ_{200})	0.15 (0.35)	0.44 (1890)	.662	
Hispanic (_{y300})	1.04 (0.36)	2.89 (1890)	.004	
Other race (γ_{400})	0.58 (0.43)	1.35 (1890)	.178	
Age (γ ₅₀₀)	0.14 (0.02)	6.70 (1890)	<.001	
Receptive Language (γ_{600})	0.03 (0.01)	3.33 (1890)	<.001	
Expressive Language (γ_{700})	0.05 (0.01)	3.50 (1890)	<.001	
Random Effects	Variance	df	Chi-square	
Var. between children	12.60			
Var. between teachers/classrooms	3.27	225 568.	72 (p < .001)	
Var. between centers	1.24	121 224.2	25 (<i>p</i> < .001)	
	Amount of additional variability explained			
Child level	0.54%			
Teacher level	0.01%			
Center level	+0.64%			

 Table 10

 Center Level Predictors of Child Social Skills (Emotional Support)

The center level model including teacher behavior management practices is provided below:

SocialSkills_{ijk} = $\gamma_{000} + \gamma_{001}$ *CenterSupport(Director)_k + γ_{010} *BehaviorManagement_{jk} + γ_{020} *CenterSupport(Teacher)_{jk} + γ_{030} *Ratio_{jk} + γ_{040} *YearsExperience_{jk} + γ_{050} *HighSchool_{jk} + γ_{060} *Associates_{jk} + γ_{070} *Graduate_{jk} + γ_{080} *AfricanAmerican_{jk} + γ_{090} *OtherRace_{jk} + γ_{100} * Female_{ijk} + γ_{200} *AfricanAmerican_{ijk} + γ_{300} *Hispanic_{ijk} + γ_{400} *OtherRace_{ijk} + γ_{500} *Age_{ijk} + γ_{600} *ReceptiveLang_{ijk} + γ_{700} *ExpressiveLang_{ijk} + r_{0jk} + u_{00k} + e_{ijk}

Results from the above model are provided in Table 11. After controlling for child covariates, as well as teacher covariates and predictors, center director perceived center support had an insignificant effect on teacher reported social skills ($\beta = 0.34$, p = .451). No additional covariates were added to the model. As such, results for teacher and child covariates remained the same, with teacher race, as well as child gender, race, age, receptive language, and expressive language, significantly associated with teacher reported social skills.

In comparison to the model with child and teacher predictors, the center level model did not reduce variability in teacher reported social skills between centers. In fact, variability increased slightly by 0.59%, suggesting that center director perceived center support was not a significant predictor of teacher reported child social skills in this sample. Further, results from the random effects portion of the model suggested that significant variability still existed at the center level (χ^2 =226.87, *p* < .001), indicating that additional center level variables could be added into the model to reduce variability in teacher reported social skills.

91

TD 11	1 1
Table	

Center Level Predictors of Child Social Skills (Behavior Management)

Fixed Effects	Coefficient (SE)	t(df)	р	
Intercept (social skills) (γ_{000})	14.78 (2.04)	7.24 (121)	<.001	
Center level variables				
Center support (director perceived)	0.34 (0.48)	0.76 (121)	.451	
(7001)	~ /	~ /		
Teacher level variables				
Behavior management practice (γ_{010})	0.35 (0.29)	1.20 (225)	.230	
Center support (teacher perceived)	0.33 (0.30)	1.10 (225)	.273	
(γ020)				
Child-adult ratio (γ_{030})	0.25 (0.15)	1.65 (225)	.100	
Years of experience (γ_{040})	-0.01 (0.02)	-0.33 (225)	.740	
High school or below (γ_{050})	-0.56 (0.49)	-1.14 (225)	.254	
Associates/Voc-tech (γ_{060})	0.51 (0.40)	1.27 (225)	.206	
Graduate degree (γ_{07})	-0.47 (0.63)	-0.75 (225)	.452	
African American (γ_{080})	-0.96 (0.45)	-2.12 (225)	.035	
Other race (γ_{090})	-0.65 (0.45)	-1.45 (225)	.148	
Child level variables				
Female (γ_{100})	1.83 (0.19)	9.46 (1890)	<.001	
African American (γ_{200})	0.16 (0.35)	0.45 (1890)	.653	
Hispanic (γ_{300})	1.04 (0.36)	2.91 (1890)	.004	
Other race (γ_{400})	0.59 (0.43)	1.37 (1890)	.170	
Age (γ_{500})	0.14 (0.02)	6.70 (1890)	<.001	
Receptive Language (γ_{600})	0.03 (0.01)	3.34 (1890)	<.001	
Expressive Language (γ_{700})	0.05 (0.01)	3.50 (1890)	<.001	
Random Effects	Variance	df (Chi-square	
Var. between children	12.60			
Var. between teachers/classrooms	3.23	225 563. [°]	52 (p < .001)	
Var. between centers	1.27	121 226.	87 (<i>p</i> < .001)	
	Amount of additional variability explained			
Child level		0.01%		
Teacher level		0.55%		
Center level	+0.59%			

To answer question 1b, do perceived center support, teacher emotional support practices, and teacher behavior management practices predict teacher reported child problem behaviors, all child level covariates were added into the model at level 1, followed by teacher level covariates and teacher predictors. The process for creating these models followed a similar process to the children's social skills models. The only exception was that a Poisson distribution was used given the highly skewed nature of the problem behavior outcome variable, as recommended by O'Connell et al. (2008). Similar to the social skills models, child level variables included race, gender, age in months, receptive language, and expressive language. Teacher variables included child-adult ratio, years of experience, education level, race, and teacher perceived center support. For both child and teacher race, white was used as the reference group. Teacher emotional support practices and teacher behavior management practices also were included in the teacher level model. Again, separate models were fit for each variable given that they were highly correlated. Children's age, receptive language, and expressive language, teacher emotional support practices, teacher behavior management practices, perceived center support, and child-adult ratio, were all centered around the group mean. All variables were treated as fixed. The model including teacher emotional support is reported first: ProblemBehaviors_{*ijk*} = $\gamma_{000} + \gamma_{010}$ **EmotionalSupport_{jk}* + γ_{020} **CenterSupport(teacher)_{jk}* + γ $_{030}$ **Ratio_{ik}* + γ_{040} **YearsExperience_{ik}* + γ_{050} **HighSchool_{ik}* + γ_{060} **Associates_{ik}*
+ γ_{070} **Graduate_{jk}*+ γ_{080} **AfricanAmerican_{jk}*+ γ_{090} **OtherRace_{jk}*+ γ_{100} *Female_{ijk} + γ_{200} *AfricanAmerican_{ijk} + γ_{300} *Hispanic_{ijk} + γ_{400} *OtherRace_{ijk} + γ_{500} *Age_{ijk} + γ_{600} *ReceptiveLang_{ijk} + γ_{700} *ExpressiveLang_{ijk} + r_{0jk} + u_{00k}

Results from the above model are provided in Table 12. After controlling for child and teacher covariates, teacher emotional support practices had an insignificant effect on teacher reported child problem behaviors ($\beta = -0.09$, p = .449). However, teacher perceived center support had a negative and significant effect on teacher reported child problem behaviors ($\beta = -0.14$, p = .045), meaning that for every one-unit increase in teacher perceived center support, a 13% decrease in the rate of children's problem behaviors would be expected. Among covariates, no teacher variables were significant predictors of teacher reported child problem behaviors. For child covariates, gender, race, age, receptive language, and expressive language, were all significantly and negatively associated with teacher reported problem behaviors. Children who were female ($\beta = -$ 0.47, p < .001), Hispanic ($\beta = -0.30$, p < .001), older ($\beta = -0.02$, p < .001), had higher receptive language skills ($\beta = -0.01$, p = .002), and higher expressive language skills ($\beta =$ -0.01, p < .001) also had decreased rates of teacher reported problem behaviors.

In comparison to the unconditional model, the model with child and teacher variables reduced differences in teacher reported problem behaviors between children by 15.91% and between classrooms by 14.00%. This suggested that the variables included in this model helped to explain more of the variability in child problem behaviors, in comparison to the unconditional model. However, results from the random effects portion of the model suggested that significant variability existed at the teacher level (χ^2 =615.73,

p < .001), thus indicating that additional teacher level variables could be added to the model to reduce variability in teacher reported problem behaviors.

Table 12

Teacher Level Predictors of Child Problem Behaviors (Emotional Support)

Fixed Effects	Coefficient (SE)	t(df)	p	
Intercept (problem behaviors) (γ_{000})	1.70 (0.11)	14.87 (122)	< .001	
Teacher level variables				
Emotional support practice (γ_{010})	-0.09 (0.12)	-0.76 (225)	.449	
Center support (teacher perceived)	-0.14 (0.07)	-2.02 (225)	.045	
(γ020)				
Child-adult ratio (γ ₀₃₀)	-0.04 (0.04)	-1.13 (225)	.259	
Years of experience (γ_{040})	0.01 (0.01)	1.63 (225)	.104	
High school or below (γ_{050})	-0.08 (0.12)	-0.64 (225)	.525	
Associates/Voc-tech (γ_{060})	-0.11 (0.10)	-1.11 (225)	.268	
Graduate degree (γ_{070})	-0.01 (0.16)	-0.10 (225)	.924	
African American (γ_{080})	-0.18 (0.11)	-1.67 (225)	.096	
Other race (γ_{090})	-0.10 (0.11)	-0.92 (225)	.358	
Child level variables				
Female (γ_{100})	-0.47 (0.05)	-9.81 (1890)	<.001	
African American (γ_{200})	-0.01 (0.08)	-0.19 (1890)	.850	
Hispanic (γ_{300})	-0.30 (0.08)	-3.60 (1890)	<.001	
Other race (γ_{400})	-0.18 (0.10)	-1.86 (1890)	.063	
Age (γ ₅₀₀)	-0.02 (0.01)	-3.46 (1890)	<.001	
Receptive language (γ_{600})	-0.01 (0.002)	-3.10 (1890)	.002	
Expressive language (γ_{700})	-0.01 (0.003)	-4.77 (1890)	<.001	
Random Effects	Variance	df (Chi-square	
Var. between children	2.75			
Var. between teachers/classrooms	0.19 2	615 .	73 (p < .001)	
Var. between centers	0.08	247.	76 (<i>p</i> < .001)	
	Amount of additional variability explained			
Child level	15.91%			
Teacher level	14.00%			
Center level	+24.86%			

Similar to the social skills models, teacher behavior management practices were included in a separate model in order to prevent issues with multicollinearity between teacher emotional support and behavior management practices. The model with child and teacher variables that included teacher behavior management practices is provided below: ProblemBehaviors_{*ijk*} = $\gamma_{000} + \gamma_{010}$ **BehaviorManagement_{jk}* + γ_{020} **CenterSupport(teacher)_{jk}* + γ_{030} **Ratio_{jk}* + γ_{040} **YearsExperience_{jk}* + γ_{050} **HighSchool_{jk}* + γ_{060} **Associates_{jk}* + γ_{070} **Graduate_{jk}* + γ_{080} **AfricanAmerican_{jk}* + γ_{090} **OtherRace_{jk}* + γ_{100} *Female_{*ijk*} + γ_{200} *AfricanAmerican_{*ijk*} + γ_{300} *Hispanic_{*ijk*} + γ_{400} *OtherRace_{*ijk*} + γ_{500} *Age_{*ijk*} + γ_{600} *ReceptiveLang_{*ijk*} + γ_{700} *ExpressiveLang_{*ijk*} + r_{0jk} + u_{00k}

Results from the above model are provided in Table 13. After controlling for child and teacher covariates, teacher behavior management practices had an insignificant effect on teacher reported child problem behaviors ($\beta = -0.11$, p = .099). Teacher perceived center support had a negative and significant effect on teacher reported child problem behaviors ($\beta = -0.16$, p = .025), meaning that for every one-unit increase in teacher perceived center support, a 15% decrease in the rate of children's problem behaviors would be expected. Among covariates, no teacher variables were significant predictors of teacher reported child problem behaviors. For child covariates, gender, race, age, receptive language, and expressive language, were all significantly and negatively associated with teacher reported problem behaviors. Children who were female ($\beta = -$ 0.47, p < .001), Hispanic ($\beta = -0.30$, p < .001), older ($\beta = -0.02$, p < .001), had higher receptive language skills ($\beta = -0.01$, p = .002), and higher expressive language skills ($\beta = -0.01$, p < .001) also had decreased rates of teacher reported problem behaviors. In comparison to the unconditional model, the model including child and teacher variables reduced variability in teacher reported problem behaviors among children by 15.85% and among teachers by 18.14%. This suggested that the variables included in this model help to explain some of the variability in teacher reported child problem behaviors, in comparison to the unconditional model. However, results from the random effects portion of the model suggested that significant variability exists at the teacher level (χ^2 =592.91, *p* < .001), indicating that additional teacher variables could be added to the model to reduce variability in teacher reported problem behaviors.

Fixed Effects	Coefficient (SE)	t(df)	<u>p</u>	
Intercept (problem behaviors) (γ ₀₀₀)	1.70 (0.11)	14.95 (122	() < .001	
Teacher level variables				
Behavior management practice (γ_{010})	-0.11 (0.07)	-1.65 (225) .099	
Center support (teacher perceived)	-0.16 (0.07)	-2.25 (225) .025	
(γ020)		`	,	
Child-adult ratio (γ_{030})	-0.04 (0.04)	-1.20 (225) .230	
Years of experience (γ_{040})	0.01 (0.01)	1.73 (225)	.086	
High school or below (γ_{050})	-0.08 (0.12)	-0.67 (225) .503	
Associates/Voc-tech (γ_{060})	-0.11 (0.10)	-1.14 (225) .255	
Graduate degree (y ₀₇₀)	-0.02 (0.14)	-0.12 (225) .909	
African American (γ_{080})	-0.18 (0.11)	-1.69 (225) .092	
Other race (γ_{090})	-0.10 (0.11)	-0.89 (225) .377	
Child level variables	~ /		<u>, </u>	
Female (γ_{100})	-0.47 (0.05)	-9.79 (1890)) <.001	
African American (γ_{200})	-0.01 (0.08)	-0.19 (1890) .852	
Hispanic (γ_{300})	-0.30 (0.08)	-3.62 (1890)) <.001	
Other race (γ_{400})	-0.18 (0.10)	-1.88 (1890	.060	
Age (γ_{500})	-0.02 (0.01)	-3.45 (1890)) <.001	
Receptive language (γ_{600})	-0.01 (0.002)	-3.11 (1890	.002	
Receptive language (γ_{700})	-0.01 (0.003)	-4.77 (1890) <.001	
Random Effects	Variance	df	Chi-square	
Var. between children	2.75		1	
Var. between teachers/classrooms	0.18	225 592	2.91 (p < .001)	
Var. between centers	0.09	122 256	5.47 (p < .001)	
	Amount of additional variability explained			
Child level	+15.85%			
Teacher level	18.14%			
Center level	+34.17%			

Table 13Teacher Level Predictors of Child Problem Behaviors (Behavior Management)

Finally, center director perceived center support was added into the model. Similar to the model with child and teacher variables, teacher emotional support and behavior management practices were run in separate models given their high correlation with one another. The center level model including teacher emotional support practices is provided below:

ProblemBehaviors_{*ijk*} = $\gamma_{000} + \gamma_{001}$ *CenterSupport(Director)_{*k*} + γ_{010} **EmotionalSupport_{jk}* + γ_{020} **CenterSupport(Teacher)_{jk}* + γ_{030} **Ratio_{jk}* + γ_{040} **YearsExperience_{jk}* + γ_{050} **HighSchool_{jk}* + γ_{060} **Associates_{jk}* + γ_{070} **Graduate_{jk}* + γ_{080} **AfricanAmerican_{jk}* + γ_{090} **OtherRace_{jk}* + γ_{100} * Female_{*ijk*} + γ_{200} *AfricanAmerican_{*ijk*} + γ_{300} *Hispanic_{*ijk*} + γ_{400} *OtherRace_{*ijk*} + γ_{500} *Age_{*ijk*} + γ_{600} *ReceptiveLang_{*ijk*} + γ_{700} *ExpressiveLang_{*ijk*} + r_{0jk} + u_{00k}

Results from the center level problem behaviors model including teacher emotional support practices are provided in Table 14. After controlling for child covariates, as well as teacher covariates and predictors, director perceived center support had an insignificant effect on teacher reported child problem behaviors (β = -0.16, p = .162). No additional covariates were added to the model. As such, results for teacher and child covariates remained the same, child gender, race, age, receptive language, and expressive language, significantly associated with teacher reported problem behaviors.

In comparison to the model with child and teacher variables, the center level model explained 10.01% additional variance at the center level. However, results from the random effects portion of the model indicated that there was significant variability in child problem behaviors at the center level (χ^2 =239.29, *p* < .001), suggesting that additional center level variables are needed to further reduce variability in teacher reported problem behaviors.

Fixed Effects	Coefficient (SE)	t(df)	<u>р</u>
Intercept (problem behaviors) (γ_{000})	2.40 (0.51)	4.75 (121	.) <.001
Center level variables			
Center support (director perceived)	-0.16 (0.11)	-1.41 (12)	1) .162
(7001)	· · · · · · · · · · · · · · · · · · ·	× ×	,
Teacher level variables			
Emotional support practices (γ_{010})	-0.09 (0.12)	-0.77 (225	5) .442
Center support (teacher perceived)	-0.14 (0.07)	-2.02 (225	5) .045
(γ020)			
Child-adult ratio (γ_{030})	-0.04 (0.04)	-1.13 (225	5) .258
Years of experience (γ_{040})	0.01 (0.01)	1.71 (225	5) .089
High school or below (γ_{050})	-0.08 (0.12)	-0.62 (225	5) .533
Associates/Voc-tech (γ_{060})	-0.11 (0.10)	-1.12 (225	5) .265
Graduate degree (y070)	-0.02 (0.15)	-0.11 (225	5) .916
African American (γ_{080})	-0.20 (0.11)	-1.83 (225	5) .069
Other race (γ_{090})	-0.10 (0.11)	-0.90 (225	5) .370
Child level variables			
Female (γ_{100})	-0.47 (0.05)	-9.82 (189	0) <.001
African American (γ ₂₀₀)	-0.01 (0.08)	-0.18 (189	0) .859
Hispanic (_{y300})	-0.29 (0.08)	-3.51 (189	0) <.001
Other race (γ_{400})	-0.18 (0.10)	-1.86 (189	0) .063
Age (γ ₅₀₀)	-0.02 (0.01)	-3.45 (189	0) <.001
Receptive Language (γ_{600})	-0.01 (0.002)	-3.08 (189	0) .002
Expressive Language (y700)	-0.01 (0.003)	-4.77 (189	0) <.001
Random Effects	Variance	df	Chi-square
Var. between children	2.75		
Var. between teachers/classrooms	0.19 2	2 25 61	6.06 (p < .001)
Var. between centers	0.08	121 23	9.29 (p < .001)
	Amount of addition	nal variabil	ity explained
Child level	+	-0.03%	
Teacher level	+	-1.64%	
Center level	J	0.01%	

Table 14

Center Level Predictors of Child Problem Behaviors (Emotional Support)

The center level model including teacher behavior management practices is provided below:

ProblemBehaviors_{*ijk*} = $\gamma_{000} + \gamma_{001}$ *CenterSupport(Director)_{*k*} + γ_{010} *BehaviorManagement_{*jk*} + γ_{020} *CenterSupport(Teacher)_{*jk*} + γ_{030} *Ratio_{*jk*} + γ_{040} *YearsExperience_{*jk*} + γ_{050} *HighSchool_{*jk*} + γ_{060} *Associates_{*jk*} + γ_{070} *Graduate_{*jk*} + γ_{080} *AfricanAmerican_{*jk*} + γ_{0} 90*OtherRace_{*jk*} + γ_{100} *Female_{*ijk*} + γ_{100} *AfricanAmerican_{*ijk*} + γ_{300} *Hispanic_{*ijk*} + γ_{400} *Other Race_{*ijk*} + γ_{500} *Age_{*ijk*} + γ_{600} *ReceptiveLang_{*ijk*} + γ_{700} *ExpressiveLang_{*ijk*} + r_{0 *jk* + u_{00k}

Results from the model above are provided in Table 15. After controlling for child covariates, as well as teacher covariates and predictors, director perceived center support had an insignificant effect on teacher reported child problem behaviors ($\beta = -0.16$, p = .164). No additional covariates were added to the model. As such, results for teacher and child covariates remained the same, child gender, race, age, receptive language, and expressive language, significantly associated with teacher reported problem behaviors. In comparison to the model with child and teacher variables, the center level model reduced variability in problem behaviors between centers by 9.49%. However, results from the random effects portion of the model indicated that significant variability existed at the center level ($\chi^2=247.67$, p < .001), suggesting that additional center level variables could be added to the model to reduce variability in teacher reported problem behaviors.

Center Level Predictors of Child Problem Behaviors (Behavior Management)				
Fixed Effects	Coefficient (SE)	t(df)	p	
Intercept (problem behaviors) (γ_{000})	2.40 (0.51)	4.71 (121) <.001	
Center level variables				
Center support (director perceived)	-0.16 (0.11)	-1.40 (121	.) .164	
(7001)				
Teacher level variables				
Behavior management practice (γ_{010})	-0.11 (0.07)	-1.66 (225	5) .099	
Center support (teacher perceived)	-0.16 (0.07)	-2.25 (225	5) .026	
(γ020)				
Child-adult ratio (γ_{030})	-0.04 (0.04)	-1.21 (225	5) .229	
Years of experience (y040)	0.01 (0.01)	1.80 (225) .073	
High school or below (γ_{050})	-0.08 (0.12)	-0.66 (225	5) .513	
Associates/Voc-tech (γ_{060})	-0.11 (0.10)	-1.15 (225	5) .252	
Graduate degree (γ_{070})	-0.02 (0.15)	-0.12 (225	5) .902	
African American (γ ₀₈₀)	-0.20 (0.11)	-184 (225) .067	
Other race (γ_{090})	-0.10 (0.12)	-0.86 (225	5) .390	
Child level variables				
Female (γ_{100})	-0.47 (0.05)	-9.80 (189	0) <.001	
African American (γ_{200})	-0.01 (0.08)	-0.18 (189	0) .860	
Hispanic (γ_{300})	-0.30 (0.08)	-3.53 (189	0) <.001	
Other race (γ_{400})	-0.18 (0.10)	-1.88 (189	0) .061	
Age (γ ₅₀₀)	-0.02 (0.01)	-3.45 (189	0) <.001	
Receptive Language (γ_{600})	-0.01 (0.002)	-3.09 (189	0) .002	
Expressive Language (γ_{700})	-0.01 (0.003)	-4.77 (189	0) <.001	
Random Effects	Variance	df	Chi-square	
Var. between children	2.75		*	
Var. between teachers/classrooms	0.19	225 59.	3.32 (p < .001)	
Var. between centers	0.08	121 24	7.67 (p < .001)	
	Amount of addition	onal variabil	lity explained	
Child level		+0.03%		
Teacher level		+1.67%		
Center level	9.49%			

Table 15

Research question 2. To answer research question 2, what proportion of the variability in teacher social-emotional practices in the classroom is associated with child care center characteristics, two unconditional models with no predictors were fit. One model was for teacher emotional support practices and one model explored teacher behavior management practices. Results from the unconditional model for teacher emotional support practices indicated that 18% of the variability in teacher emotional support practices could be attributed to the teacher's Head Start center. There also was considerable variability in the average teacher emotional support practice scores across Head Start centers ($\chi^2 = 225.65$, p < .001), suggesting that including center level predictors in the model could help explain between center differences in teacher emotional support practices. The results of the teacher emotional support practices unconditional model are provided in Table 16.

Coefficient		t(df)	р
	(SE)		
	5.32 (0.03)	184.72(122)	< .001
Variance	e df	Chi-sqt	uare
0.04	122	225.65 (p <	<.001)
0.17			
81.54%			
18.46%			
	Variance 0.04 0.17 81.54% 18.46%	Coefficient (SE) 5.32 (0.03) Variance df 0.04 122 0.17	Coefficient (SE) t(df) 5.32 (0.03) 184.72(122) Variance df Chi-square 0.04 122 225.65 (p < 0.17)

Table 16 Emotional Support Unconditional Model

Results from the unconditional model for teacher behavior management practices indicate that 12% of the variability in teacher behavior management practices could be attributed to their Head Start center. There also was considerable variability in average teacher behavior management practices scores across Head Start centers ($\chi^2 = 193.01$, p < .001), suggesting that additional predictors at the center level may help explain between center differences. The results of the teacher behavior management practices unconditional model are provided in Table 17.

Behavior Management Unconditional Mo	odel			
Fixed Effects		Coefficient	t(df)	р
		(SE)		-
Intercept (Behavior Management) (γ_{00})		5.04 (0.04)	114.20 (122)	< .001
Random Effects	Variance	e df	Chi-squ	are
Var. between centers	0.06	122	193.01 (p	<.001)
Var. between teachers	0.47			
Variance decomposition				
Teacher level	87.88%			
Center level	12.12%			

Table 17Behavior Management Unconditional Model

To answer research question 2a, does perceived center support predict teacher emotional support practices in the classroom, teacher level covariates and predictors were added into the model first. Teacher variables included race, education level, years of teaching experience, child-teacher ratio, and teacher perceived center support. For teacher race, white was used as the reference group. Given the lack of variability in the gender variable (i.e., the sample only included two males), gender was not used as a covariate of teacher emotional support or behavior management practices as originally intended. Perceived center support and child-teacher ratio were centered around the group mean and all effects were held as fixed. For teacher emotional support practices, the first model fit was as follows:

EmotionalSupport_{ij} = $\gamma_{00} + \gamma_{10}$ **CenterSupport(teacher)*_{ij} + γ_{20} **Ratio*_{ij} + γ_{30} **YearsExper* ience_{ij} + γ_{40} **HighSchool*_{ij} + γ_{50} **Associates*_{ij} + γ_{60} **Graduate*_{ij} + γ_{70} **AfricanAmerican*_{ij} + γ_8 $_0$ **OtherRace*_{ij} + u_{0j} + r_{ij}

The results of the above model are provided in Table 18. After controlling for teacher covariates, the overall effect of teacher perceived center support on teacher emotional support practices was insignificant ($\beta = -0.06$, p = .148). Among covariates, teacher race was a significant predictor of teacher emotional support practices. Specifically, being African American was negatively associated with teacher emotional support practices ($\beta = -0.26$, p < .001), in comparison to white teachers. In comparison to the unconditional model, the teacher level model explained 2.75% of the variance in teacher emotional support practices at the teacher level. This suggests that the variables included in this model helped to explain some of the variability in teacher emotional support practices, in comparison to the unconditional model.

105

Fixed Effects	Coefficient (SE)	t(df)	p	
Intercept (emotional support) (γ_{00})	5.45 (0.06)	90.87 (122)	< .001	
Teacher level variables				
Center support (teacher perceived)	-0.06 (0.04)	-1.45 (226)	.148	
(γ ₁₀)				
Child-adult ratio (γ_{20})	-0.02 (0.02)	-0.95 (226)	.341	
Years of experience (γ_{30})	-0.001 (0.003)	-1.17 (226)	.865	
High school or below (γ_{40})	-0.08 (0.07)	-1.11 (226)	.267	
Associates/Voc-tech (γ_{50})	0.01 (0.06)	0.09 (226)	.927	
Graduate (γ_{60})	-0.14 (0.08)	-1.81 (226)	.072	
African American (γ ₇₀)	-0.26 (0.06)	-4.12 (226)	<.001	
Other race (γ_{80})	-0.11 (0.06)	-1.84 (226)	.067	
Random Effects	Variance	df	Chi-square	
Var. between centers	0.03	122 206.0	06 (<i>p</i> < .001)	
Var. between teachers	0.16			
	Amount of additional variability explained			
Teacher level	2.75%			
Center level	26.88%			

Table 18Teacher Level Predictors of Emotional Support

Next, director perceived center support was added into the model. The equation for this model was:

EmotionalSupport_{*ij*} = $\gamma_{00} + \gamma_{01}$ *CenterSupport(director)_{*j*} + γ_{10} *CenterSupport(teacher)_{*ij*} + γ_{20} *Ratio_{*ij*} + γ_{30} *YearsExperience_{*ij*} + γ_{40} *HighSchool_{*ij*} + γ_{50} *Associates_{*ij*} + γ_{60} *Graduate_{*ij*} + γ_{70} *AfricanAmerican_{*ij*} + γ_{80} *OtherRace_{*ij*} + u_{0j} + r_{ij}

After controlling for teacher covariates, director perceived center support had an insignificant effect on teacher emotional support practices in the classroom ($\beta = 0.04$, p = .553). No additional covariates were added to the model. As such, findings related to covariates remained the same, with teacher race as a significant predictor of teacher

emotional support practices. In comparison to the model with only teacher variables, the center level model explained 1.23% additional variance at the center level, suggesting that the center level model helped to explain some of the variability in teacher reported child social skills, in comparison to the unconditional model. However, results from the random effects portion of the model suggested that there was still significant variability in teacher emotional support practices at the center level (χ^2 =205.36, *p* < .001), thus indicating that additional center level variables are needed to further reduce variability in teacher emotional support practices. The results of this model are provided in Table 19.

	support		
Fixed Effects	Coefficient (SE)	t(df)	p
Intercept (emotional support) (γ_{00})	5.29 (0.28)	18.77 (121)	<.001
Center level variables		()	
Center support (director perceive (γ_{01})	ed) 0.04 (0.06)	0.59 (121)	.553
Teacher level variables			
Center support (teacher perceived (γ_{10})	d) -0.06 (0.04)	-1.44 (226)	.151
Child-adult ratio (γ_{20})	-0.02 (0.02)	-0.95 (226)	.341
Years of experience (γ_{30})	-0.001 (0.003)	-0.22 (226)	.824
High school and below (γ_{40})	-0.08 (0.07)	-1.13 (226)	.261
Associates/Voc-tech (γ_{50})	0.01 (0.06)	0.09 (226)	.930
Graduate (γ_{60})	-0.14 (0.08)	-1.78 (226)	.077
African American (770)	-0.26 (0.06)	-4.06 (226)	<.001
Other race (γ_{80})	-0.11 (0.06)	-1.87 (226)	.063
Random Effects	Variance	df	Chi-square
Var. between centers	0.03 1	21 205	.36 (p < .001)
Var. between teachers	0.16		
	Amount of additional	l variability	explained
Teacher level	+0.	06%	
Center level	1.2	.3%	

Table 19Center Level Predictors of Emotional Support

To answer question 2b, does perceived center support predict teacher behavior management practices in the classroom, teacher level covariates and predictors were added into the model first and followed the same procedures as the models fit for teacher emotional support practices. Teacher level covariates and predictors included race, education level, years of teaching experience, child-teacher ratio, and teacher perceived center support. For teacher race, white was used as the reference group. Perceived center support and child-teacher ratio were centered around the group mean. All effects were held as fixed. The model for teacher behavior management practices was as follows: BehaviorManagement_{ij} = $\gamma_{00} + \gamma_{10}$ **CenterSupport(teacher)*_{ij} + γ_{20} **Ratio*_{ij} + γ_{30} **YearsExpe rience*_{ij} + γ_{40} **HighSchool*_{ij} + γ_{50} **Associates*_{ij} + γ_{60} **Graduate*_{ij} + γ_{70} **AfricanAmerican*_{ij} + γ ₈₀**OtherRace*_{ij} + u_{0j} + r_{ij}

The results of the above model are provided in Table 20. After controlling for covariates, the overall effect of teacher perceived center support on teacher behavior management practices was negative and this estimate was significantly different from zero ($\beta = -0.19$, p = .008). Among covariates, race was significant predictor of teacher behavior management practices. Specifically, being African American was negatively associated with teacher behavior management practices ($\beta = -0.29$, p = .004), in comparison to white teachers. With the addition of teacher perceived center support and teacher covariates, variability in teacher behavior management practices between teachers was reduced by 3.45% as compared to the unconditional model. This suggests that the variables included in this model helped to explain some of the variability in teacher behavior management practices, in comparison to the unconditional model.

Fixed Effects	Coefficient (SE)	t(df)	р	
Intercept (behavior management) (γ_{00})	5.17 (0.10)	53.92 (12	.2) < .001	
Teacher level variables				
Center support (teacher perceived)	-0.19 (0.07)	-2.67 (22	6) .008	
(γ10)				
Child-adult ratios (γ_{20})	-0.03 (0.04)	-0.74 (22	6) .463	
Years of experience (γ_{30})	-0.002 (0.005)	-0.35 (22	6) 0.729	
High school and below (γ_{40})	-0.08 (0.11)	-0.72 (22	6) 0.470	
Associates or voc-tech (γ_{50})	0.02 (0.09)	0.22 (22)	6) 0.826	
Graduate (γ_{60})	-0.18 (0.13)	-1.37 (22	6) 0.174	
African American (γ ₇₀)	-0.29 (0.10)	-2.88 (22	6) .004	
Other race (γ_{40})	-0.03 (0.10)	-0.28 (22	6) .783	
Random Effects	Variance	df	Chi-square	
Var. between centers	0.05	122 18	$33.04 \ (p < .001)$	
Var. between teachers	0.45			
	Amount of additi	onal variab	ility explained	
Teacher level	3.45%			
Center level	22.41%			

Table 20Teacher Level Predictors of Behavior Management

Next, center director support was added into the model. The equation for this model was:

 $BehaviorManagement_{ij} = \gamma_{00} + \gamma_{01}*CenterSupport(director)_{j} + \gamma_{10}*CenterSupport(teacher)$ $_{ij} + \gamma_{20}*Ratio_{ij} + \gamma_{30}*YearsExperience_{ij} + \gamma_{40}*HighSchool_{ij} + \gamma_{50}*Associates_{ij} + \gamma_{60}*Gradua$ $te_{ij} + \gamma_{70}*AfricanAmerican_{ij} + \gamma_{80}*OtherRace_{ij} + u_{0j} + r_{ij}$

After controlling for teacher covariates, director perceived center support had an insignificant effect on teacher behavior management practices in the classroom ($\beta = 0.10$, p = .321). No additional covariates were added to the model. As such, findings related to covariates remained the same with teacher race as a significant predictor of teacher

behavior management practices. In comparison to the model with only teacher variables, the center level model explained an additional 6.28% of the variability at the center level. Further, significant results from the random effects portion of the model indicate that additional center variables could be added to the model to reduce variability in teacher behavior management practices. The results of this model are provided in Table 21.

TD 1 1		0.1	
Tah		21	
1 au	LU.	41	

Contor I	ovol Proc	lictors of	Rehavior	Management
Center L			Denuvior	Munuzemeni

Center Level I redictors of Denavior Man	ugemeni			
Fixed Effects	Coefficient (SE)	t(df)	р	
Intercept (behavior management) (y ₀₀)	4.74 (0.44)	10.78	<.001	
		(121)		
Center level variables				
Center support (director perceived)	0.10 (0.10)	1.00 (121)	.321	
(γ01)				
Teacher level variables				
Center support (teacher perceived)	-0.19 (0.07)	-2.66 (226)	.008	
(γ10)				
Child-adult ratio (γ_{20})	-0.03 (0.04)	-0.73 (226)	0.464	
Years of experience (γ_{30})	-0.002 (0.005)	-0.44 (226)	0.659	
High school and below (γ_{40})	-0.08 (0.11)	-0.74 (226)	0.459	
Associates/voc-tech (γ_{50})	0.02 (0.09)	0.22 (226)	0.828	
Graduate (γ_{60})	-0.17 (0.13)	-1.30 (226)	0.194	
African American (770)	-0.28 (0.10)	-2.80 (226)	.006	
Other race (γ_{80})	-0.03 (0.10)	-0.32 (226)	.746	
Random Effects	Variance	df	Chi-square	
Var. between centers	0.05 1	21 180	.87 (p < .001)	
Var. between teachers	0.45			
	Amount of addition	nal variabili	ty explained	
Teacher level	+0.33%			
Center level		6.28%		

Chapter 5: Discussion

This study begins to explore the role of child care settings in promoting socialemotional development in early childhood. Experiences during this period shape socialemotional skills throughout childhood and into adulthood (Shonkoff, Boyce, & McEwen, 2009). Young children living in poverty and those of color are more at risk for the development of poor social-emotional skills, especially given the additional factors and influences they face related to poverty, discrimination, and oppression (Aratani, Wight, & Cooper, 2011; Halle et al., 2009).

There are many factors in early childhood that play a role in the development of positive social-emotional skills. These factors may be of particular importance for young low-income children of color as they have the potential to buffer the negative influences of risk factors on development. Child care is one social setting that has the potential to positively influence social-emotional skills (Camilli, Vargas, Ryan, & Barnett, 2010). Specifically child care teachers and their practices in the classroom, as well as child care center characteristics, may play a role in the development of positive social-emotional skills in young low-income children of color. This study explored these relationships, as well as addresses several gaps in the research in this area. Most notably, studies examining low-income and diverse samples of children are lacking, nationally representative samples have not been studied, and many studies have not used statistical

techniques that account for the nested structure of child care center data. Further, studies that include center characteristics, specifically perceived center support, are limited. The present study addressed these gaps by using a nationally representative sample of lowincome children of color. In addition, hierarchical linear modeling was used to account for nested data, and perceived center support was included in the study models.

First, this study examined the extent to which characteristics of child care centers and teachers serving low-income children of color were important for social-emotional skill development. Specific center and teacher characteristics examined included perceived center support, teacher emotional support practices, and teacher behavior management practices. Second, the extent to which characteristics of center support were important for teacher social-emotional practices in classrooms also was examined, specifically in relation to teacher emotional support and behavior management practices. In the end, knowledge generated may assist social workers, child care administrators and teachers, and early childhood policymakers in developing, implementing, and supporting high quality child care programs that best meet the needs of young vulnerable children. Study findings are presented in this chapter, specifically in relation to the two research questions. In addition, limitations are identified and future directions for research are discussed. Finally, implications for social work practice and childcare settings serving low-income children of color are reviewed.

Teacher and Center Factors that Influence Young Children's Social-Emotional Skill Development

The study first explored the importance of child care teachers and center qualities in relation to young children's social skills and problem behaviors, as reported by their teachers, two critical indicators of social-emotional skill development. Specifically, the research explored the proportion of the variability in young, low-income children's social-emotional skills that was associated with their child care teachers and centers. In addition, the relationship between teacher emotional support practices, teacher behavior management practices, teacher perceived center support, and director perceived center support with teacher reported child social skills and problem behaviors was examined. Findings related to teacher and center qualities associated with teacher reported child social skills and problem behaviors are discussed first, followed by findings related to center qualities associated with teacher emotional support and behavior management practices.

Teacher emotional support and behavior management practices. Teacher practices, including emotional support and behavioral management practices, that may influence child social-emotional skills were first examined. Findings from this study differ from the original hypothesized relationship proposing that teacher emotional support practices and teacher behavior management practices would be positively associated with teacher reported social skills and negatively associated with teacher reported problem behaviors in low-income children of color. Instead, results suggest that after controlling for child and teacher demographic characteristics, neither teacher

114

emotional support practices nor teacher behavior management practices were significantly associated with teacher reported child social skills or problem behaviors. Although social learning theory (Bandura, 1977) emphasizes aspects of teacher emotional support and behavior management practices (e.g., modeling, reinforcement, and sensitivity) for child development, this study did not identify their importance for young low-income children of color. Further, these results suggest that other aspects of child care process quality, which is thought to play a role in child development (Phillipsen et al., 1997), may be more salient for child social-emotional outcomes. Findings are discussed below in light of current literature.

Previous literature examining teacher practices and their relationship to child social-emotional skills shows mixed results for the relationship between teacher socialemotional practices and child social-emotional skills. Similar to the current study's findings, Domínguez et al. (2011) found an insignificant relationship between teacher emotional support practices and children's approaches to learning. Although Domínguez and colleagues did not examine the specific constructs of social skills or problem behaviors, instead examining the ways in which children respond to learning situations, their findings may shed light on the insignificant relationships found in the present study. The authors suggest that child developmental outcomes may differ based on individual child perceptions of teacher practices in the classroom. This suggestion is aligned with the bioecological model, which emphasizes the importance of interactions between individuals and their environment. The current study did not measure child perceptions of teacher practices, instead measuring global observations of teacher practices. This perhaps resulted in the present study's insignificant findings. These findings suggest that teacher social-emotional practices, as measured in the present study, may not be important for child social-emotional skill development. However, insignificant findings may have been due to other research design factors, such as measurement of teacher practices. Measuring individualized practices between teachers and specific children using tools like the inCLASS (Downer et al., 2010) may be more useful than tools that capture global ratings of teacher practices for the entire classroom, such as the CLASS, which was used in the present study.

In contrast to these insignificant findings, Mashburn et al. (2008) found that teacher emotional support practices were significantly related to both social skills and problem behaviors in a relatively diverse sample (where nearly half of the children were from low-income families). However, data were drawn from a select number of states that had invested significant resources in their pre-kindergarten programs. Therefore, teachers in the Mashburn et al. (2008) study may have received supports, such as professional development and coaching, to improve their practices in the classroom, potentially making them more skilled at teacher emotional support practices than the teachers in the present study. In support of this contention, Burchinal et al. (2010) found that teacher emotional support practices were a significant predictor of child social skills and problem behaviors only when teachers were highly skilled in these practices. The current study did not categorize teachers by skill level, which may have resulted in insignificant findings. In other words, this study may not have found significance

between teacher emotional support practices, teacher reported social skills, and teacher reported problem behaviors because there was no control for teacher skill level.

In addition to accounting for teacher skill level, some studies suggest that examining subsets of children yield different results. For instance, Myers and Morris (2009) found that teacher-child closeness, which is similar to teacher emotional support practices, was significantly associated with social-emotional skills for high risk children but not for low risk children. Further, teachers who used sensitive teaching techniques, which is one aspect of teacher emotional support practices, had classrooms where children had fewer problem behaviors. However, this relationship was only true for children with socially bold temperaments (Rimm-Kaufmann, 2002). These findings highlight the work of Bronfenbrenner and Morris (2005), emphasizing the interaction between individual characteristics (e.g., temperament) and the environment (e.g., teacher practices). The current study did not analyze specific groups of children, but instead examined all children included in the sample, which may have in turn contributed to the insignificant findings. As such, teacher practices in this study may have been significantly associated with certain subgroups of children (e.g., children with high numbers of problem behaviors), but not for the sample as a whole. As such, a relationship between teacher practices, teacher reported child social skills, and teacher reported child problem behaviors was not found. Perhaps if the current study had more closely examined targeted groups of children, different results would have been found.

Conducting follow-up analyses to explore these differences in this study would have been challenging. More specifically, analyses would be difficult because the number

117

of children with poor social-emotional skills in the sample was limited. As previously mentioned, less than 1% of the children in this study had 20 or more problem behaviors, as reported by their teachers. The majority of children had very few reported problem behaviors; thus, the available sample of children with numerous problem behaviors would have been quite small, making analyses such as HLM difficult.

An additional reason that the current study found insignificant associations between teacher social-emotional practices, teacher reported child social skills, and teacher reported child problem behaviors may have been related to length of time the children were in child care. By the time child social-emotional skills and teacher socialemotional practices were measured in the FACES, children in the present study had attended their Head Start programs for at least seven months. Perhaps, these children entered Head Start with poorer social-emotional skills initially and over time improved. Conversely, children may have entered Head Start with more positive social-emotional skills and declined over time. This study's use of data collected at a single point in time, as opposed to change scores, may have been the cause of insignificant findings.

Insignificant findings also may have been driven by limited variability in child social-emotional outcomes, particularly for child problem behaviors. Few teachers reported children with high numbers of problem behaviors, while most reported children having one or no problem behaviors. Lack of variability may have made it difficult to identify patterns in the relationship between problem behaviors and teacher practices, leading to insignificant findings. Studies that include children with a wide range of social-emotional skills are needed.

One final explanation for insignificant findings may be related to the child socialemotional outcomes used in the present study. Other studies suggest that teacher emotional support and behavior management practices are important for the development of some specific social skills and problem behaviors but not other outcomes. For instance, Merritt et al. (2012) found that in older children, high levels of teacher emotional support practices were related to low levels of child aggression and high selfcontrol, but not prosocial behaviors. Knafo and Plomin (2006) suggest that for certain social-emotional skills (e.g., prosocial skills), child characteristics are more important for development than teachers or child care centers. Thus, for skills such as prosocial behaviors, relationships between teacher practices, center characteristics, and child skills are likely to be insignificant. The present study's use of broad social-emotional measures (i.e., social skills and problem behaviors) as opposed to specific constructs (e.g., prosocial skills) may have contributed to insignificant findings. Instead of simplifying social-emotional skills into two broad constructs, a more detailed conceptualization of social-emotional skills, as proposed by Denham and Brown (2010), may be warranted.

Perceived center support. In addition to teacher social-emotional practices, teacher perceived center support, and director perceived center support were explored in relationship to child social-emotional skill outcomes. Findings from this study differ somewhat from the original hypothesized relationship proposing that teacher and director perceived center support would be positively associated with teacher reported social skills and negatively associated with teacher reported problem behaviors in low-income children of color. Results suggest that after controlling for child and teacher demographic characteristics, neither teacher perceived center support nor director perceived center support were significantly associated with teacher reported child social skills. Similarly, director perceived center support was not significantly associated with child problem behaviors. However, teacher perceived center support was significantly related to child problem behaviors in low-income children of color, with higher teacher perceived center support associated with fewer problem behaviors. Findings are discussed below in light of current literature.

To the author's knowledge, no studies have examined teacher or director perceived center support and its relationship with child social-emotional skills. This study is one of the first to explore this potential connection. Insignificant findings suggest that both teacher and director perceived center support are not important for some child social-emotional skills among the low-income children of color in this sample. However, significant findings provide evidence for a connection between teacher perceived center support and child problem behaviors. Specifically, teachers who perceived that their centers provided higher levels of support had classrooms where children had fewer problem behaviors.

One explanation for this finding is that teachers who perceive their centers as being supportive may have more resources available to them, which in turn enhances their well-being, teaching and instruction, and ultimately child problem behaviors. The job demands-resources model proposed by Schaufeli and Taris (2014) suggests that the more resources individuals have, the higher their well-being will be, which will then improve their performance at their job. Jennings and Greenberg's (2009) prosocial classroom model complements the job demands-resources model by linking teacher wellbeing with child social-emotional skills. In the case of this study, teachers with more resources (i.e., higher perceived center support) may have had higher levels of wellbeing, which may have improved their performance in the classroom, and in turn reduced problem behaviors.

An alternative explanation is that these significant findings are driven by common method bias. In the current study, teacher perceptions were used to measure both child outcome variables (i.e., social skills and problem behaviors), as well as center support. Research suggests that when two variables are rated by the same individual these variables are likely to be associated with one another, even when a relationship between the two variables does not exist (Organ & Ryan, 1995). For example, in this study teachers who rated children's problem behaviors positively, may have been more likely to rate center support in a positive manner, simply because these teachers view the world in a more positive light. Therefore, the relationship between teacher perceived center support and child problem behaviors may not have been the result of an actual relationship between center support and problem behaviors, but instead due to the tendency of teachers in this sample having positive perceptions about the variables in question. However, the analytic technique used in this study (i.e., HLM), is able to assess how much of a problem common method bias may be through ICC estimates of variability for teachers. Variability in child problem behaviors attributed to the teacher was only 6%. If common method bias was truly a concern one would expect this estimate

121

to be much larger. As such, the relationship between teacher perceived center support and child problem behaviors may be valid.

Future research examining the specific pathway between perceived center support and child problem behaviors is needed. For instance, one pathway might examine if perceived center support improves teacher well-being, which then improves teacher social-emotional practices, and in turn social-emotional skill development in young lowincome children of color. Nonetheless, the current study enhances the literature by providing evidence of a potential link between perceived center support and child socialemotional skills in low-income children of color, a connection not previously made in the research.

Variability in teacher reported child social skills and problem behaviors. This study found significant variability in teacher reported child social skills at both the teacher and center levels. Specifically, nearly 18% of the variability in the social skills of young low-income children of color was attributed to the teacher, while just over 6% of variability in social skills was attributed to the center. Significant variability at the teacher and center levels also was found for child problem behaviors. Just over 6% of the variability in child problem behaviors could be attributed to the teacher, while almost 2% could be attributed to the child care center. These findings highlight the role that both centers and teachers have in child social-emotional skill development, as proposed by Vygotsky's (1978) sociocultural theory which emphasizes the importance of others and the social environment for social-emotional skill development.

122

As previously discussed, however, variability at both the center and teacher levels remained after accounting for key center and teacher variables. This finding suggests that additional center and teacher variables are needed to further explain the remaining differences in social skills and problem behaviors. Social learning theory can be used to guide additional teacher level variables that may explain this additional variability. For instance, because children learn, in part, through observations, teachers who have positive social-emotional skills themselves and display these skills in the classroom may have children with more positive social-emotional skills (Buettner, Jeon, Hur, & Garcia, 2016). Also, teachers who explicitly teach social-emotional skills through modeling, providing opportunities to practice these skills, and providing positive feedback may have classrooms where social-emotional skills are higher. Because peers also serve as models in the classroom, the social-emotional skills of these children may help to explain variability in child social-emotional outcomes.

Further, Jennings & Greenberg (2009), suggest that teacher well-being may be associated with child social-emotional outcomes. Whitaker et al. (2015) estimate that 24% of all Head Start teachers are depressed. Teacher depression has been linked to problem behaviors in the classroom (Jeon, Buettner, & Snyder, 2014). As such, teacher depression may also have contributed to variability in social-emotional skills and should be examined further. Finally, teacher social-emotional practice skill levels (Burchinal et al., 2010) may help to further explain variability in social-emotional skills.

At the center level, the bioecological model, which emphasizes the importance of environmental factors on development, can be used to identify additional variables that may explain variability in social-emotional skills. Center level variables for further study could include structural features of the center (Gerber et al., 2007), as well as the individual dimensions of organizational climate (Hansen, 2006). In addition, the organizational culture of the child care center, as well as the environment in which the center is located could play a role in the development of the children who attend the center. For example, centers in urban versus rural areas may influence child development differently. Also, characteristics of the immediate neighborhood (e.g., safety) may relate to child development.

Despite significant variability estimates, the majority of the variability in teacher reported child social skills and problem behaviors was related to the children themselves. This suggests that while some teacher and center variables may be important for child social-emotional skill development, individual child characteristics are most salient. This study chose to focus on child care as a setting that influences child social-emotional skills; however, individual child characteristics, parents, and other family members, may be most important for this type of development.

Findings related to the proportion of variability in social skills attributed to teacher characteristics are similar to prior literature. Studies examining teacher contributions to social skills have found that teachers account for between 12% and 23% of the variability in social skills in young children (Curby et al., 2013; Merritt et al., 2012; Myers & Morris, 2009). This study's findings fall within this range of values, with 18% of the variability in social skills attributed to teacher characteristics. To date, no studies have reported significant variability in social skills at the child care center level, which was found in the current study. This study enhances the literature by providing an estimate of this variability. In addition to variability in social skills, variability in problems behaviors also was examined.

In comparison, the amount of variability in problem behaviors attributed to teachers and centers was much lower than variability in social skills. This study estimated that just over 6% of the variability in child problem behaviors could be attributed to the teacher, while almost 2% could be attributed to the child care center. Others have found higher estimates. For instance, Raver et al. (2008) examined variability at both the teacher and center level for two specific types of problem behaviors, internalizing and externalizing behaviors. Variability estimates in this study were much larger than the ones found in the current study. Between 13% and 16% of the variability in externalizing and internalizing behaviors respectively were attributed to the teacher and between 20% and 10% were attributed to the center. This suggests that centers and teachers played a larger role in child problem behaviors in the Raver et al. (2008) study were the recipients of an intervention targeting practices in the classroom. The intervention may have contributed to these higher variability estimates.

In addition, in the present study the number of children with high numbers of problem behaviors was quite low (i.e., less than 1% of the children in this study had 20 or more problem behaviors). The majority of children had very few reported problem behaviors. The low levels of problem behaviors in the current study may have contributed to the lower variability estimates found for centers and teachers and in turn, the insignificant findings associated with center and teacher variables. Perhaps in a more high risk group of children, center and teacher variables of interest would have more value and importance.

Center Factors that Influence Teacher Social-Emotional Practices

The study also explored the importance of perceived center support for teacher emotional support practices and teacher behavior management practices. Specifically, the proportion of variability in child care teacher social-emotional practices in the classroom associated with child care centers was examined. In addition, the relationship between teacher perceived center support, director perceived center support, teacher emotional support practices, and teacher behavior management practices were explored. Findings related to teacher and director perceived center support are discussed first, followed by variability in teacher social-emotional practices findings.

Perceived center support. Center director perceived center support and teacher perceived center support were examined to determine their influence on teacher emotional support practices and behavior management practices. Findings from this study differ from the original hypothesized relationship which proposed that director and teacher perceived center support would be positively associated with teacher emotional support practices and behavior management practices. Instead, results suggest that neither teacher nor center director perceived center support were significantly associated with teacher emotional support practices in the classroom. Similarly, center director perceived center support was not significantly associated with teacher behavior management practices. Although the job demands-resources model proposed by Schaufeli and Taris (2014) highlights the relationship between job resources and work performance, this study did not find a relationship between perceived center support and teacher practices. Perhaps other job resources (e.g., access to high quality professional development) influence teacher practices more so than center support, or a mediating variable such as teacher well-being, is masking a significant relationship. However, teacher perceived center support was significantly associated with teacher behavior management practices in the classroom. Contrary to the hypothesized relationship, higher teacher perceived center support was associated with lower levels of teacher behavior management practices in the classroom. These findings are discussed next in relation to current literature.

Literature related to perceived center support and teacher practices in the classroom is mixed. Similar to the present study, Gerber et al. (2007) found an insignificant relationship between teacher perceived organizational climate, including center support, and teacher sensitivity, which is an aspect of teacher emotional support practices. Findings from Gerber et al. (2007), in conjunction with the present study, provide evidence that perceived center support may not be important for teacher emotional support practices in child care centers serving low-income children of color. Although perceived center support may be relevant for other teacher related variables, for example job satisfaction or teacher turnover (Russell et al., 2010), it does not appear to influence teacher emotional support practices in the classroom. Gerber et al. (2007) suggest that in order to influence teacher practices, particularly teachers serving low-income children of color, child care centers need to address a variety of center level

factors, not just one aspect. These may include supervision, collaboration between staff, and worker stability. Further, other more structural features of the center, such as accreditation status and center size also may be more important for teacher practices (Gerber et al., 2007). Future research should examine these center characteristics in combination.

In contrast, Hansen (2006) and Lower & Cassidy (2007) found that higher levels of teacher perceived organizational climate in child care centers were significantly correlated with higher classroom quality (which includes teacher emotional support practices). These findings suggest that the broader measure of organizational climate is important for global classroom quality, but the specific measures of center support and teacher emotional support practices are not of importance. One explanation for the difference in findings in the current study and the studies by Hansen (2006) and Lower and Cassidy (2007) is that both studies examined overall classroom quality, not the specific construct of teacher emotional support practices, as the current study did. In addition, these studies examined teacher perceived organizational climate, and not the specific dimension of teacher or director perceived center support. The use of global measures may have resulted in different findings. Research examining the additional dimensions of organizational climate and classroom quality is needed (Hansen, 2006).

An additional explanation for the differences in findings is related to the analytic techniques used in the current study in comparison to the studies by Hansen (2006) and Lower and Cassidy (2007). Both Hansen (2006) and Lower and Cassidy (2007) analyzed their data using correlations, which is useful for identifying potential relationships

between variables. Correlational data, however, are limited in that analyses cannot control for possible confounding variables or account for nesting. For instance in the present study, both teacher and director perceived center support were significantly correlated with both teacher emotional support practices and teacher behavior management practices. However, upon further exploration with HLM that controlled for covariates and accounted for nesting, this significant correlation no longer appeared. Perhaps, if the studies conducted by Hansen (2006) and Lower and Cassidy (2007) had used analytic techniques that accounted for the nested structure of their data as well as covariates, their findings may have become insignificant.

One additional study examining center support and teacher practices also found contrasting results. Mill & Romano-White (1999) found that teachers who perceived their supervisors to be unsupportive showed more anger in the classroom than teachers who perceived their supervisor as supportive. Similar to the studies by Hansen (2006) and Lower and Cassidy (2007), the Mill & Romano-White (1999) study suggests that center support does influence teacher practices in the classroom, specifically in relation to teacher anger. The authors also noted that teacher perceived center support was lower in for-profit centers with larger class sizes, lower salaries, and more children receiving subsidies. In other words, centers with certain characteristics may promote lower levels of perceived support, and in turn negative teacher practices in the classroom. As such, teachers who receive lower wages, have larger class sizes, and work with at-risk children may feel frustrated with their centers, and perceive lower levels of center support.
Frustration, mixed with low levels of perceived support may lead to anger in the classroom (Mill & Romano-White, 1999).

Another explanation for these contradictory findings may be related to outcomes of interest. Mill and Romano-White (1999) measured teacher anger, and not teacher emotional support practices or teacher behavior management practices. Teacher anger is a different construct than both teacher emotional support and behavior management practices, which may explain why the current study's findings differ from Mill and Romano-White (1999). If the present study had instead measured teacher anger in the classroom, as opposed to teacher emotional support and behavior management practices, perhaps different results would have been found.

Finally, this study's results are the first to show a negative relationship between teacher perceived center support and teacher behavior management practices, finding that teachers who perceived higher levels of support had lower teacher behavior management practices. One possible explanation for this unexpected finding is that teachers who struggle with teacher behavior management practices may require more support in the classroom. In turn, centers may provide this support, leading these teachers to perceive higher levels of center support as compared to teachers who excel at teacher behavior management practices. Additional research examining teachers with lower levels of teacher behavior management practices would be helpful in explaining this unexpected finding. The present study adds to the current literature by providing evidence that perceived center support may be important for some teacher practices and not others in centers serving low-income children of color. Variability in teacher emotional support practices and behavior management practices. This study found significant variability in teacher emotional support and behavior management practices at the center level, highlighting the importance of center characteristics for teacher social-emotional practices in the classroom. Nearly 18% of the variability in teacher emotional support practices was attributed to factors at the center level, while 12% of the variability in teacher behavior management practices was attributed to the center. This suggests that certain characteristics of child care centers play a role in teacher social-emotional practices in the classroom, other factors not measured in this study. However, despite significant variability estimates, the majority of the variability in teacher emotional support practices and behavior management practices was related to the teachers themselves. This means that while some center variables may be important for teacher social-emotional practices, individual teacher characteristics seem to be most salient.

Ultimately, literature related to variability in teacher social-emotional practices is extremely limited. Small sample sizes have prevented previous studies from estimating the percentage of variability in teacher social-emotional practices attributed to center level factors. As such, variability estimates are not available for comparison. The current study, however, provides a first look at the extent to which teacher practices in the classroom might be attributed to center factors. Additional studies are needed to determine if the estimates found in the current study are similar in other studies.

Significant Covariates

One additional finding emerged when examining results from analyses related to both research questions. Findings point to interesting relationships among covariates and outcome variables, especially in relation to various teacher and child characteristics. More specifically, several covariates significantly predicted teacher reported child social skills, teacher reported child problem behaviors, teacher emotional support practices, and teacher behavior management practices. Race was the only teacher covariate that was significantly associated with both teacher emotional support and behavior management practices. Specifically, being African American was negatively associated with both teacher emotional support and behavior management practices. Teachers who were African American had lower teacher emotional support and behavior management practices in comparison to white teachers.

This finding suggests that there may be a cultural component to teacher practices in the classroom. Prior research suggests that teacher race influences teachers' interpretations of child behaviors in the classroom (Graves & Howes, 2011; Jackson, 2002). Teachers' interpretations of child behaviors may, in turn, positively or negatively influence how teachers interact with the children in their classrooms. In fact, additional covariate analyses suggest that children with African American teachers had lower reported social skills. It is possible that these lower ratings influenced teacher socialemotional practices, leading to lower observed ratings of emotional support and behavior management. It is also possible that poorer teacher reported social skills in the children in these classrooms made it harder to use more positive social-emotional strategies. These findings point to the need for further exploration of these relationships using structural equation modeling (SEM).

Child covariates significantly associated with both teacher reported child social skills and problem behaviors included gender, race, age, receptive language, and expressive language. These covariates were positively associated with teacher reported child social skills and negatively associated with child problem behaviors. These findings are consistent with prior research illustrating that girls typically have higher social skills and lower problem behaviors than boys (Raikes et al., 2007), older children have higher social skills and fewer problem behaviors (Denham & Brown, 2010), and children with better language skills have higher social skills and fewer problem behaviors (Brinton & Fujiki, 1993; Denham & Burton, 2003). Prior literature on child race has predominately examined differences between African American and white children, as opposed to Hispanic children. Findings from this study identified that Hispanic children in this sample had higher social skills and lower problem behaviors as compared to white children. However, as evidenced by Graves & Howes (2011), this relationship might have been negated had teacher-child racial match been taken into account. Further studies examining social-emotional skill development in Hispanic children may be warranted.

In summation, some center characteristics may be important for teacher socialemotional practices. It is unclear, however, if and how the specific characteristic of perceived center support influences teacher emotional support practices and teacher behavior management practices. When attempting to improve teacher practices in centers serving low-income children of color, center characteristics should be included.

However, more research is needed to determine which specific characteristics are vitally important. Continued study of center support, both as a perceptual and observational measure, is needed. Further, study of additional center level characteristics, for instance the global measure of organizational climate, along with its unique dimensions (Hansen, 2006), as well as structural features of the child care center such as accreditation status, non-profit status, and center size is needed (Gerber et al., 2007).

Limitations

Although the current study enhances the literature related to child socialemotional skill development and teacher practices, it is not without limitations. First, this study used secondary data. Although secondary data provides researchers with access to studies utilizing complex and expensive designs, users are limited to the data collected by the original researchers. While the Head Start FACES data includes a number of variables at the child, teacher, and center levels, this list is not exhaustive. There are factors that may relate to child development and teacher social-emotional practices that were not included in the original dataset. For example, certain biological characteristics related to child social-emotional skill development were not collected, such as temperament or stress hormone levels. Research suggests that these are important qualities that may have an impact on social-emotional skill development, as proposed by Saudino (2005) and McEwan (2008), but they were not measured in the present study. Further, teacher practices were examined at the classroom level and not the individual child level, despite the fact that practices between teachers and children may differ by individual child (Domínguez et al., 2011). At the center level, an observational measure

of center support would have been useful to counteract potential biases in perceptual ratings, particularly by center directors (Lower & Cassidy, 2007).

Furthermore with secondary data researchers are limited to the methods by which variables are measured, which may cause measurement error to be of concern. For example, in this particular study, child social skills, child problem behaviors, and center support, were measured using self-report data from teachers and center directors. Using perceptual data, as compared to observational data, may not fully measure these concepts and may provide biased results. Using teacher and center director perceptions, as opposed to observational measures, may have led to the null findings observed in this study.

An additional limitation related to using perceptual data for multiple measures is common method bias. The significant finding between teacher perceived center support and teacher reported problem behaviors may be driven by the method (i.e., self-report) used to collect data. In the current study, teacher perceptions were used to measure child problem behaviors as well as center support. Research suggests that when two variables are rated by the same individual these variables are likely to be associated with one another, even when a relationship between the two variables does not exist (Organ & Ryan, 1995). For example, in this study teachers who rated child problem behaviors positively, may have been more likely to rate center support in a positive manner, simply because these teachers view the world in a more positive light. Therefore, the relationship between teacher perceived center support and child problem behaviors may not have been the result of an actual relationship between center support and problem behaviors, but instead due to the tendency of teachers in this sample to have positive perceptions about

the variables in question. In addition, the teacher reported social skills and problem behaviors variables were composite measures of multiple scales and therefore were not norm-referenced. As such, comparison between child social skills and problem behaviors to other national samples of low-income children of color was not possible using these data.

One limitation related to the CLASS, the observational measure used to measure teacher practices, is the way in which teacher social-emotional practices were rated. In comparison to the instructional practices observed through this rating scale, the social-emotional practices appear to be more subjective, potentially introducing observer bias. For instance, within emotional support, teachers are rated on their respect for children, their responsiveness and sensitivity, and their flexibility. In comparison, within instructional support teachers are rated on specific strategies to improve cognitive outcomes such as scaffolding, prompting, and language modeling. The more subjective nature of the social-emotional items on which teachers are rated may make it more difficult to obtain reliable ratings, in comparison to the instructional support items. This may suggest the need for more targeted and specific indicators of social-emotional teaching practices in the classroom.

Also, the inclusion criteria used for children in this study is a limitation. Eligible children were first time participants in Head Start. This group of children is likely to be different from other children who have previously attended Head Start. Prior research has linked hours spent in care with child problem behaviors. Specifically, when children spend large amounts of time in low-quality care with large classroom sizes they are more

likely to exhibit aggressive and disruptive behaviors (McCartney et al., 2010). Although children in this study were not previously enrolled in Head Start, it is possible that they were enrolled in another type of care. Depending on the quality of these prior child care experiences, the behaviors of the children in this study may be more or less likely to be problematic. Low levels of problem behaviors in this sample, as reported by children's teachers, may suggest that these children either did not previously attend any type of formalized care or attended high quality centers. The inclusion criteria set forth in the study may have influenced study findings such that the sample of children represented are those with more positive social-emotional skills than those who are already enrolled in Head Start. As such, findings from this study are only generalizable to children in their first year of Head Start.

In addition, large scale secondary datasets are often burdened with missing data and the FACES dataset was no exception. Missinginess analyses revealed that although the teacher level data were determined to be MCAR, which is ideal because list-wise deletion may be used without biasing results, the child level data were not. The child level data were assumed to be MAR. However, there is not a statistical test that determines if data are MAR versus NMAR. Wrongly assuming MAR over NMAR may result in differences in study findings; however, these differences are likely to be small (Collins, Schafer, & Kam, 2001).

An additional limitation of this study is related to the time points at which socialemotional outcome data were collected. Teacher ratings of children's social skills and problem behaviors were collected during the beginning and end of the school year. Prior

literature suggests that it takes teachers at least six weeks in the classroom to become familiar enough with children's behaviors to rate them (Koomen et al., 2012). As such, ratings from the beginning of the school year were not used. Instead, this study chose to use teacher ratings from the end of the school, after roughly seven months in care. Using child outcome data from the end of the school year may have failed to capture a relationship between teacher practices and child outcomes because children's socialemotional skills may have already changed by that point in the year.

An additional limitation of this study comes from the sampling strategy used to collect these data. Sampling using clusters leads to an increase in sampling error, or "error that results from taking one sample instead of examining the whole population" (Lohr, 2010, p. 16). Because of sampling error, estimates obtained from analyses using the FACES dataset may differ from what occurs in the actual population of Head Start centers, teachers, and children, limiting the generalizability of the study's findings to the larger population. When sample sizes are the same, cluster sampling has a higher sampling error than both simple random and stratified sampling, due to the similarity of units within clusters. Although this error is inevitable in any type of sampling, larger sample sizes help to reduce sampling error (Lohr, 2010). Despite this drawback, the use of cluster sampling was clearly the most feasible choice for the FACES data because of the lack of a comprehensive list of Head Start child care teachers and children in care.

Data from this study also may be limited in terms of their distributional assumptions. In this study, results from the examination of skewness and kurtosis values, as well as histograms, identified one variable that warranted further investigation: teacher

reported child problem behaviors. This variable was highly positively skewed (i.e., many children had very few or no problem behaviors as reported by their teachers). Multiple transformations were attempted with this variable. However, no transformations sufficiently produced a distribution that resembled normality. As such, a Poisson distribution was assumed instead of a normal distribution as recommended by O'Connell and colleagues (2008). The skewed nature of the problem behaviors variable suggests that a better measurement tool for this construct is needed, perhaps one that is more sensitive to picking up differences among children. This may be accomplished through the use of observational measures using an outside rater instead of teacher report or by using a rating scale that captures a broader range of the frequency of the behaviors measured or captures behaviors across social settings may be useful.

The skewed nature of these data may also have been the result of a selection effect. In other words, the children involved in the FACES study may have been those with positive social-emotional skills (i.e., high social skills and low problem behaviors). As such, this sample of children may have been highly skilled in terms of their socialemotional skill development and findings may not represent children who struggle in this domain, thus limiting the generalizability of study findings to children with more favorable levels of social-emotional skills.

Perhaps the reason that children in this sample had favorable social-emotional skills may also have been related to high child care expulsion rates. Gilliam (2005) found that preschoolers were expelled from child care centers at a rate that was 3.2 times higher

than the rate for K-12 youth. Because children are often expelled for behavior problems, children with higher levels of behavior problems may not be present in this sample, potentially limiting the range and variability of problem behaviors in this sample. Variability in other variables also was limited. For instance, only two male teachers were included in the sample. Although this majority female sample is typical of child care settings, the limited number of males in the sample prevented this variable from being included in any analyses. Findings from this study cannot be used to draw conclusions about male child care teachers and their practices in the classroom.

Findings related to teacher race and teacher practices suggest a potential cultural bias in the observational ratings conducted for this study. A significant association between race and teacher practices was found, with African American having lower teacher emotional support and behavior management scores as compared to white teachers. Some prior research also has identified a relationship between these teacher practices, as measured by the CLASS, and teacher race. Locasale-Crouch et al. (2007) created profiles of child care classrooms ranging from high to low quality. The authors found a disproportionate number of white teachers in the highest quality classrooms (i.e., those with high emotional support and behavior management), as compared to classrooms of lower quality. Similar to the importance of teacher-child racial match for teacher ratings of child social-emotional skills (Graves & Howes, 2011), observer-teacher racial match may play a role in ratings of teacher behaviors. Future research should specifically examine the relationship between observer and teacher race to see if differences occur. Alternatively, these findings may suggest that teachers from different cultural backgrounds use and value different types of practices in the classroom. Parenting literature suggests that non-white parents, as compared to white parents, may use different parenting practices in an effort to prepare their children for racial discrimination and oppression (Harris-Britt, Valrie, Kurtz-Costes, & Rowley, 2007). Perhaps the racial differences identified in the current study also reflect African American teachers' efforts to prepare the children in their classrooms for discriminatory experiences that they may face outside of the classroom. More research on teacher practices in teachers from diverse backgrounds is needed.

Limitations related to the policy context in which the study took place should be noted. In recent years, steps have been taken to improve quality of Head Start centers and these efforts may have influenced teacher practices. The Improving Head Start for School Readiness Act was signed in 2007 and the data used in this study were collected primarily in 2010. As such, improvements to Head Start quality were likely underway when these data were collected. For example, the 2007 legislation mandated that 50% of Head Start teachers had to have at least a bachelor's degree by 2013 (Improving Head Start for School Readiness Act, 2007). Teachers in this sample were likely working on these requirements at the time of data collection, potentially leading to a higher educated sample of child care teachers than one would typically expect. In turn, these changes could have influenced teacher practices in the classroom. Further, mandating standardization in teacher qualifications and classroom quality ratings may have reduced variability in the teacher and classroom related variables used in this study. Statistical analyses rely on variability in order to detect relationships among variables. This limited variability may explain the insignificant findings in this study.

Some additional limitations may be noted. Although the data used in this study are useful for making inferences about Head Start, these findings may not be relevant for other child care settings such as publicly funded pre-kindergarten or faith-based programs. As such, findings should be extrapolated to other types of child care settings with caution. Additional research using a diverse group of child care settings serving lowincome children of color is needed. Further, the study design used by FACES is nonexperimental, meaning that although results may conclude that key constructs are associated with child social-emotional skills and teacher practices, it does not establish a causal relationship between these items. Finally, there are numerous influences on children's social-emotional development. Although child care teachers and centers may influence this developmental domain, they are not the only influence. There were many other important factors, such as primary caregivers, siblings, and peers that were not included in this study that may have played a role in child outcomes.

Implications for Future Research

With these limitations in mind, findings from the current study highlight the importance of enhancing our understanding of the influence child care has on socialemotional skill development among young low-income children of color. First, the study found that teacher perceived center support was positively related to child problem behaviors, but negatively related to teacher behavior management practices. Research should continue to explore elements of these variables to further distill these relationships. Perhaps qualitative studies, or studies using alternative analytic techniques such as structural equation modeling (SEM) would be useful. In this study, findings suggest that teacher perceived center support may be important for both child problem behaviors and teacher behavior management practices. Other key variables such as teacher emotional support practices, teacher behavior management practices, and director perceived center support, however, do not appear to be vastly related to teacher reported child social skills or problem behaviors. Further, teacher and director perceived center support also may not be essential for teacher emotional support practices in the classroom. Future research is needed to confirm the relationships found in the current study. The use of SEM in future studies would be ideal, as this technique can test mediated relationships such as the link between center and teacher factors on teacher practices, which in turn are linked to child outcomes.

Also, given that significant variability was found at the center and teacher levels in relation to child social-emotional skills and teacher social-emotional practices, future research should examine this variability further by looking at additional variables that may be relevant to this study's outcomes. Other variables of interest at the center level could include the global measure of organizational climate, as well as its specific dimensions (e.g., opportunities for professional growth, collegiality, staff autonomy, collaboration; Hansen, 2006). A better understanding of these factors would help to identify the specific aspects of organizational climate, in addition to center support, that could be targeted to improve teacher social-emotional practices. Additionally, structural features of the center also may influence center support and teacher social-emotional practices. These may include center size, center accreditation status, and non-profit status (Gerber et al., 2007). Future research should begin to further examine these factors and influences. Additionally, at the teacher level, research examining teacher well-being and its relationship to teacher practices and child outcomes is needed (Jennings & Greenberg, 2009). Further, teacher practices between teachers and individual children using tools like the inCLASS (Downer, Booren, Lima, Luckner, & Pianta, 2010) is warranted as teacher practices may vary based on the particular child they are interacting with (Domínguez et al., 2011).

Future research also should examine subsamples of children to gain a better understanding of the current study's null findings. Specifically, studies could examine the influence of teacher practices and center characteristics for children with poor socialemotional skills (i.e., low social skills and high problem behaviors; Hamre & Pianta, 2005). The children in this sample appeared to have been very skilled in their socialemotional development, making it difficult for teachers to significantly influence their social skills and problem behaviors. Other social-emotional research provides support for this potential explanation that teacher social-emotional practices are important for at-risk children (Myers & Morris, 2009). In this sample, less than 1% of the children had 20 or more problem behaviors. Examining children low on the social-emotional skill development spectrum may produce different results than those found in the current study and may be more important for child outcomes as these children are those who may benefit from positive social-emotional practices in the classroom.

Next, future studies should begin to explore additional predictors of child socialemotional skills and teacher practices for low-income children of color. Prior research has shown that highly skilled teachers influence child social-emotional skills, while teachers who struggle with practices in the classroom often do not have much influence (Burchinal et al., 2010). Additional research should include variables accounting for teacher skill level to determine if this relationship is true for low-income children of color. Additional research might examine other characteristics of both child care centers and teachers that may influence child social-emotional skills. For instance, a better understanding of the relationship between significant covariates in this study (e.g., child and teacher race) and child social-emotional skills would be useful to determine how findings differ between children and teachers from differing backgrounds. Further, based on work by Schaufel and Taris (2014) and Jennings and Greenberg (2009), future studies could include teacher well-being as well as other types of job resources, such as the broader construct of organizational climate. Further, given their importance for socialemotional skill development, future studies could include additional child/family characteristics (e.g., temperament and parental stress) as covariates or mediators to provide a fuller picture of the factors that influence child social-emotional skill development.

Unexpected and null findings related to center support call for further exploration of the measurement of this construct. Future research could use or develop observational measures of center support, such as the Program Administration Scale (Talan & Bloom, 2004), in order to corroborate teacher and center director ratings of support. In addition, future research could ask center directors to providing ratings of the support provided for each individual teacher in their center, as opposed to overall ratings for the center. Doing so could help to shed light on the negative relationship between perceived center support and teacher behavior management practices.

In addition to exploring variables and measurement tools, alternative analytic techniques could be used in future studies. One strength of the current study was the use of HLM to control for the nested structure of the data. Although this brought several strengths, future studies also could utilize differing analytic techniques to enhance our understanding of child social-emotional skills and teacher practices. Specifically structural equation modeling (SEM) could be used to examine the pathway through which teacher perceived center support influences child problem behaviors. This will be helpful in determining if center support directly influences child problem behaviors or if the relationship is mediated by some other variable (e.g., teacher well-being). In addition, qualitative studies could examine these relationships further. Qualitative methods might be particularly useful when examining why higher levels of center support were associated with lower teacher behavior management practices in the classroom. Further, longitudinal studies are needed to examine center support, teacher social-emotional practices, and child social-emotional skills over time (Gerber et al., 2007). These studies will help to examine social-emotional growth in relation to teacher practices and perceived center support, as well as illuminate causal relationships and determine if teacher practices and perceived center support are important during specific time frames (e.g., at the entrance to child care). Finally, intervention studies are needed in which child care teachers in centers serving low-income children of color are trained in socialemotional practices and directors are trained in providing center support. Children in these classrooms could then be followed over time in order to determine if targeting teacher practices and center support have an impact of child social-emotional skills.

Implications for Practice

In addition to directions for future research, this study points to several implications for child care, social work practice, and child care policy. Research highlights the importance of social-emotional skill development for young children, particularly those from low-income and minority backgrounds. As such, more work is needed to ensure that these young children are provided with positive experiences to help them develop successfully.

This study found that the child care center is an important social setting in which children develop. Generally speaking, child care center characteristics are important for both child social-emotional skills and teacher social-emotional practices. Even though characteristics of the center may appear to be far removed from having a direct influence on child development, this study suggests that certain center features such as teacher perceived center support may influence child social-emotional skills. As such, supports and policies that emphasize center support are needed. Professional development for center directors highlighting supportive management practices is warranted. Further, encouraging directors to elicit teacher perspectives of center support would also be useful to improve perceptions of center support, and in turn child problem behaviors. An additional aspect of support could entail child care teacher salaries, which are notoriously

low. Policies to improve teacher salaries, thus improving center support, are needed. Early childhood professionals, as well as social workers, are well-positioned to advocate for improvements in the wages of underpaid child care teachers.

Social workers working with child care centers may assist directors and teachers in determining the best methods to improve center support. Presently, many interventions to improve child social-emotional skills are focused on teacher factors, although important, center characteristics should not be ignored. In particular, teacher perceived center support may be an essential intervention component for improving child socialemotional skills.

In addition to centers, teachers also are important for child social-emotional skill development, generally speaking. However, teacher social-emotional practices in the classroom may not be the best method to support positive social-emotional skill development, at least for children with low problem behaviors and high social skills. Null findings from this study indicated that neither teacher emotional support nor behavior management practices were significantly associated with child social-emotional outcomes. Global interventions in child care centers serving low-income children of color that emphasize teacher behavior management and emotional support practices may not have the desired impact on child social-emotional skill development. Instead, targeting specific groups of children, specifically those who are the most vulnerable (i.e., those with low social skills and high problem behaviors), may produce the desired results. However, these children may not be present in child care, given high expulsion rates.

resources they need to successfully develop social-emotional skills. Social work as a profession may help to identify, refer, and register these high risk children in Head Start. Further, social workers may help form connections between other systems serving vulnerable young children such as child welfare, promoting referrals between the two systems.

An alternative explanation for null findings related to teacher social-emotional practices is that only the most skilled teachers are able to influence the social-emotional skill development of the young children in their care (Burchinal et al., 2010). If this explanation is true, more work to improve teacher practices so that all child care teachers of low-income children of color are highly skilled in emotional support practices and behavior management practices is imperative. As such, efforts to provide high quality professional development, coaching, and consultation, to teachers of low-income children of color are needed. Social workers may play a role in providing these resources to child care teachers, as well as advocating for funding that supports access to these resources for centers serving vulnerable children.

In addition, social workers may use the knowledge gained from this study to better serve the vulnerable young children and families with whom they work. Social work's focus on social justice makes it ideally suited to promote social-emotional skill development in young, low-income children of color. Further, the profession's use of the person-in-environment perspective helps support positive social settings that enhance developmental outcomes in populations facing discrimination and oppression, and living in poverty. Social workers should emphasize the importance of high quality child care to

families with young children, educating them on aspects of child care teachers and centers that constitute high quality care. This is particularly important for families with children who struggle with social-emotional development, as high quality care may be more important for their development. Also, social workers can assist families in locating care that is high quality. Further, in the broader community, social workers should play a role in advocating for improved access to high quality child care for vulnerable children. Finally, social workers who provide training and technical assistance to child care centers can use knowledge gained in this study to emphasize the potential link between center characteristics and child social-emotional skills.

Finally, given the unexpected and null findings of this study, more research is needed. Child care professionals, social workers, and policy makers should encourage and support research that examines center and teacher factors related to child socialemotional skills and teacher practices in vulnerable young children.

Conclusion

In summary, social-emotional skill development in early childhood is essential for success in multiple domains across the lifespan. Child care centers and teachers have the power to influence the social-emotional skill development of young vulnerable children. This study highlights the roles of centers and teachers in children's social-emotional skill development, as well as the role of centers in teacher social-emotional practices. Findings suggest that certain teacher and center factors are important for child social-emotional skills and teacher social-emotional practices. Specifically, teacher perceived center support appears to play a significant role in both child problem behaviors and teacher behavior management practices. More work, however, is needed to further explore insignificant and unexpected findings.

In general, child care is an important social setting in which young, vulnerable children develop social-emotional skills. Given the impact that early experiences have on young children's long-term development, efforts that support positive experiences in child care settings are needed. Child care center directors, teachers, social workers, and policy makers must work together to support centers serving the most vulnerable children.

References

- Adams, G., Tout, K., & Zaslow, M. (2007, May). *Early care and education for children in low-income families: Patterns of use, quality, and potential policy implications.* Retrieved from http://www.urban.org/uploadedpdf/411482 early care.pdf
- American Psychological Association (2012). *Ethnic and racial disparities in education: Psychology's contributions to understanding and reducing disparities.* Retrieved from http://www.apa.org/ed/resources/racial-disparities.pdf
- American Psychological Association (2014). *Effects of poverty, hunger, and homelessness on children and youth.* Retrieved from www.apa.org/pi/families/poverty.aspx
- Aratani, Y., Wight, V.R., & Cooper, J.L. (2011). Racial gaps in early childhood: Socialemotional health, development and educational outcomes among African-American boys. Retrieved from http://www.nccp.org/publications/pdf/text 1014.pdf
- Arnold, D.H., McWilliams, L. & Arnold, E.H. (1998). Teacher discipline and child misbehavior in day care: Untangling causality with correlational data. *Developmental Psychology*, 34(2), 276-287.
- Artman, K., Hemmeter, M.L., Feeney-Kettler, K., & Meiler, C. (2011). Observation toolkit for mental health consultants. Washington DC: Georgetown University, Center for Early Childhood Mental Health Consultation.
- Azzi-Lessing, L. (2010). Meeting the mental health needs of poor and vulnerable children in early care and education programs. *Early Childhood Research & Practice*, *12*(1).
- Bandura, A. (1977). Social learning theory. Englewood Cliffs, NJ: Prentice Hall.
- Barnett, W.S., Jung, K., Yarosz, D.J., Thomas, J., Hornbeck, A., Stechuk, R., & Burns, S. (2008). Educational effects of the Tools of the Mind curriculum: A randomized trial. *Early Childhood Research Quarterly*, 23(3), 299-313.

- Bayer, J. K., Hiscock, H., Ukoumunne, O. C., Price, A., & Wake, M. (2008). Early childhood aetiology of mental health problems: a longitudinal population-based study. *Journal of Child Psychology and Psychiatry*, 49(11), 1166-1174.
- Bierman, K. L., Domitrovich, C. E., Nix, R. L., Gest, S. D., Welsh, J. A., Greenberg, M. T., & ... Gill, S. (2008). Promoting academic and social-emotional school readiness: the head start REDI program. *Child Development*, 79(6), 1802-1817. doi:10.1111/j.1467-8624.2008.01227.x
- Bierman, K. L., Torres, M. M., Domitrovich, C. E., Welsh, J. A., & Gest, S. D. (2009). Behavioral and cognitive readiness for school: Cross-domain associations for children attending Head Start. *Social Development*, 18(2), 305-323. doi:10.1111/j.1467-9507.2008.00490.x
- Blair, C. (2002). School readiness: Integrating cognition and emotion in a neurobiological conceptualization of children's functioning at school entry. *American Psychologist*, 57(2), 111-127.
- Blair, C. & Raver, C.C. (2012). Child development in the context of adversity: Experiential canalization of brain and behavior. *American Psychologist*, 67(4), 309-318. doi: 10.1037/a0027493
- Blandon, A.Y., Calkins, S.D., Grimm, K. J., Keane, S.P., & O'Brien, M. (2010). Testing a developmental cascade model of emotional and social competence and early peer acceptance. *Development and Psychopathology*, 22, 737-748. doi:10.1017/S0954579410000428.
- Blandon, A. Y., Calkins, S. D., & Keane, S. P. (2010). Predicting emotional and social competence during early childhood from toddler risk and maternal behavior. *Development and Psychopathology*, 22(01), 119-132.
- Bleecker, T., & Sherwood, D. (2004, February). San Francisco high quality child care mental health consultation initiative. Poster session presented at the 17th annual Research and Training Conference for Children's Mental Health, Tampa, FL.
- Bloom, P.J. (2010). Measuring work attitudes in the early childhood setting: Technical manual for the Early Childhood Job Satisfaction Survey and Early Childhood Work Environment Survey (2nd ed.). Wheeling, IL: McCormick Center for Early Childhood Leadership.
- Bohlin, G., Hagekull, B., & Rydell, A. (2000). Attachment and social functioning: A longitudinal study from infancy to middle childhood. *Social Development*, 9, 24-39.

- Bornstein, M. H., Hahn, C. S., & Haynes, O. M. (2010). Social competence, externalizing, and internalizing behavioral adjustment from early childhood through early adolescence: Developmental cascades. *Development and psychopathology*, 22(04), 717-735.
- Bradley, R. H., Convyn, R. F., Burchinal, M., McAdoo, H. P., & Coll, C. G. (2001). The home environments of children in the United States part II: relations with behavioral development through age thirteen. *Child Development*, 72(6), 1868-1886.
- Branson, D., & Demchak, M. (2010). Toddler teachers' use of teaching pyramid practices. *Topics in Early Childhood Special Education*.
- Brauner, C.B., & Stephens, C.B. (2006). Estimating the prevalence of early childhood serious emotional/behavioral disorders: Challenges and recommendations. *Public Health Reports*, *121*(3), 303-310.
- Briggs-Gowan, M. J., & Carter, A. S. (2008). Social-emotional screening status in early childhood predicts elementary school outcomes. *Pediatrics*, *121*(5), 957-962.
- Briggs-Gowan, M. J., Carter, A. S., Bosson-Heenan, J., Guyer, A. E., & Horwitz, S. M. (2006). Are infant-toddler social-emotional and behavioral problems transient?. *Journal of the American Academy of Child & Adolescent Psychiatry*, 45(7), 849-858.
- Brinton, B., & Fujiki, M. (1993). Language, social skills, and socioemotional behavior. *Language, Speech, and Hearing Services in Schools, 24*, 194-198.
- Bronson, M.B. (2000). *Self-regulation in early childhood: Nature and nurture*. New York, NY: The Guildford Press.
- Brown, W.H., & Conroy, M.A. (2011). Social-emotional competence in young children with developmental delays: Our reflection and vision for the future. *Journal of Early Intervention*, 33(4), 310-320. doi: 10.1177/1053815111429969
- Brownell, R. (2001). *Expressive One-Word Picture Vocabulary Test: Spanish-Bilingual Edition*. Novato, CA: Academic Therapy Publications, 2001.
- Buchanan, R., Gueldner, B. A., Tran, O. K., & Merrell, K.W. (2009). Social and emotional learning in classrooms: A survey of teachers' knowledge, perceptions, and practices. *Journal of Applied School Psychology*, 25, 1 – 17.

- Buettner, C. K., Jeon, L., Hur, E., & Garcia, R. E. (2016). Teachers' social–emotional capacity: Factors associated with teachers' responsiveness and professional commitment. *Early Education and Development*, 1-22.
- Buhs E.S., & Ladd G.W. (2001). Peer rejection as antecedent of young children's school adjustment: An examination of mediating processes. *Developmental Psychology*, 37(4), 550-560.
- Burchinal, M., Howes, C., Pianta, R., Bryant, D., Early, D., Clifford, R., & Barbarin, O. (2008). Predicting child outcomes at the end of kindergarten from the quality of pre-kindergarten teacher-child interactions and instruction. *Applied Developmental Science*, 12(3), 140-153.
- Burchinal, M., Roberts, J.E., Zeisel, S.A., Hennon, E.A., & Hooper, S. (2006). Social risk and protective child, parenting, and child care factors in early elementary school years. *Parenting: Science and Practice*, 6(1), 79-113.
- Burchinal, M., Vandergift, N., Pianta, R., & Mashburn, A. (2010). Threshold analysis of association between child care quality and child outcomes for low-income children in Pre-K programs. *Early Childhood Research Quarterly*, 25(2), 166-176. doi:10.1016/j.ecresq.2009.10.004
- Cai, X., Kaiser, A. P., & Hancock, T. B. (2004). Parent and teacher agreement on child behavior checklist items in a sample of preschoolers from low-income and predominantly African American families. *Journal of Clinical Child And Adolescent Psychology*, 33(2), 303-312.
- Camilli, G., Vargas, S., Ryan, S., & Barnett, W. S. (2010). Meta-analysis of the effects of early education interventions on cognitive and social development. *Teachers College Record*, 112, 579–620
- Carter, M. & Curtis, D. (1998). *The visionary director: A handbook for dreaming, organizing, and improvising your center.* St. Paul, MN: Redleaf Press.
- Cassidy, D.J., Hestenes, L.L., Hansen, J.K., Hegde, A., Shim, J., & Hestenes, S. (2005). Revisting the two faces of child care quality: Structure and process. *Early Education & Development*, *16*(4), 505-520/
- Castro, D.C., Bryant, D.M. Peisner-Feinberg, E.S., & Skinner, M.L. (2004). Parent involvement in Head Start programs: the role of parent, teacher and classroom characteristics. *Early Childhood Research Quarterly*, *19*(3), 413-430.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd Ed.). Hillsdale, NJ: Lawrence Erlbaum Associates, Publishers.

- Collins, L. M., Schafer, J. L., & Kam, C. M. (2001). A comparison of inclusive and restrictive strategies in modern missing-data procedures. *Psychological Methods*, 6, 330–351.
- Connors-Burrow, N.A., Whiteside-Mansell, L., McKelvey, L., Virmani, E.A., & Sockwell, L. (2012). Improved classroom quality and child behavior in Arkansas Early Childhood Mental Health Consultation Pilot Project. *Infant Mental Health Journal*, 33(3), 256-264.
- Cooper, J.L., Masi, R., & Vick, J. (2009). Social-emotional development in early childhood: What every policymaker should know. Retrieved from http://www.nccp.org/publications/pdf/text_882.pdf
- Copple, C., & Bredekamp, S. (2009). *Developmentally appropriate practice in early childhood programs serving children from birth through age 8* (3rd ed.). Washington, DC: National Association for the Education of Young Children.
- Curby, T. W., Brock, L. L., & Hamre, B. K. (2013). Teachers' Emotional Support Consistency Predicts Children's Achievement Gains and Social Skills. Early Education & Development, 24(3), 292-309. doi:10.1080/10409289.2012.665760
- Currie, J., Stabile, M., Manivong, P., & Roos, L. L. (2010). Child health and young adult outcomes. *Journal of Human Resources*, 45(3), 517-548.
- Davis, E., Priest, N., Davies, B., Sims, M., Harrison, L., Herrman, H., Waters, E., Strazdins, L., Marshall, B., & Cook, K. (2010). Promoting children's social and emotional wellbeing in childcare centres within low socioeconomic areas: Strategies, facilitators and challenges. *Australasian Journal of Early Childhood*, 35(3), 77-86.
- Denham, S. A. (2006). Social-emotional competence as support for school readiness: What is it and how do we assess it?. *Early education and development*, *17*(1), 57-89.
- Denham, S.A., & Brown, C. (2010). "Plays nice with others": Social-emotional learning and academic success. *Early Education & Development*, 21(5), 652-680. doi: 10.1080/10409289.2010.497450
- Denham, S.A. & Burton, R. (2003). Social and emotional prevention and intervention programming for preschoolers. New York: Kluwer Academic/Plenum Publishers.
- Denham, S. A., Mitchell-Copeland, J., Strandberg, K., Auerbach, S., & Blair, K. (1997). Parental contributions to preschoolers' emotional competence: Direct and indirect effects. *Motivation and emotion*, 21(1), 65-86.

- Denny, J. H., Hallam, R., & Homer, K. (2012). A multi-instrument examination of preschool classroom quality and the relationship between program, classroom, and teacher characteristics. *Early Education & Development*, 23(5), 678-696. doi:10.1080/10409289.2011.588041.
- Dobbs-Oates, J., Kaderavek, J.N., Guo, Y., & Justice, L.M. (2011). Effective behavior management in preschool classrooms and children's task orientation: Enhancing emergent literacy and language development. Early Childhood Research Quarterly, 26(4), 420-429.
- Dodge, K.A., Petit, G.S., & Bates, J.E. (1994). Socialization mediators of the relation between socioeconomic status and child conduct problems. *Child Development*, 65, 649-665.
- Domínguez, X., Vitiello, V.E., Fuccillo, J.M., Greenfield, D.B., & Bulotsky-Shearer, R.J. (2011). The role of context in preschool learning: A multilevel examination of the contribution of context-specific problem behaviors and classroom process quality to low-income children's approaches to learning. *Journal of School Psychology*, 49(2), 175–195.
- Domitrovich, C.E., Gest, S.D., Gill, S., Bierman, K.L., Welsh, J.A., & Jones, D. (2009). Fostering high-quality teaching with an enriched curriculum and professional development support: The Head Start REDI program. *American Educational Research Journal*, 46(2), 567-597.
- Downer, J. T., Booren, L. M., Lima, O. K., Luckner, A. E., & Pianta, R. C. (2010). The Individualized Classroom Assessment Scoring System (inCLASS): Preliminary reliability and validity of a system for observing preschoolers' competence in classroom interaction. *Early Childhood Research Quarterly*, 25, 1-16.
- Downer, J. T., López, M. L., Grimm, K. J., Hamagami, A., Pianta, R. C., & Howes, C. (2012). Observations of teacher-child interactions in classrooms serving Latinos and dual language learners: Applicability of the Classroom Assessment Scoring System in diverse settings. *Early Childhood Research Quarterly*, 27(1), 21-32.
- Dunn, L.M., Dunn, L.L., & Dunn, D.M. (2006). *Peabody Picture Vocabulary Test, Fourth Edition Examiner's Manual and Norms Booklet*. Circle Pines, MN: American Guidance Service.
- Dunn, J., & Herrera, C. (1997). Conflict resolution with friends, siblings, and mothers: A developmental perspective. Aggressive Behavior, 23(5), 343-357.

- Dunsmore, J. C., & Karn, M. A. (2001). Mothers' beliefs about feelings and children's emotional understanding. *Early Education and Development*, 12(1), 117-138.
- Early, D. M., Bryant, D. M., Pianta, R. C., Clifford, R. M., Burchinal, M. R., Ritchie, S., ... Barbarin, O. (2006). Are teachers' education, major, and credentials related to classroom quality and children's academic gains in pre-kindergarten? *Early Childhood Research Quarterly*, 21, 174–195.
- Early, D. M., Maxwell, K. L., Burchinal, M., Alva, S., Bender, R. H., Bryant, D., & ... Zill, N. (2007). Teachers' education, classroom quality, and young children's academic skills: results from seven studies of preschool programs. *Child Development*, 78(2), 558-580.
- Eisenberg, N., Sadovsky, A., & Spinrad, T. L. (2005). Associations of emotion-related regulation with language skills, emotion knowledge, and academic outcomes. *New Directions in Child and Adolescent Development, 109*, 109–118. doi:10.1002/cd.143
- Elliott, S.N., & Gresham, F.M., (1987). Children's social skills: Assessment and classification practices. *Journal of Counseling & Development*, 66(2), 96 99.
- Entwisle, D.R., Alexander, K.L., Cadigan, D., & Pallis. P.M. (1987). The emergent academic self-image of first graders: Its response to social structure. *Child Development*, 58, 1190–1206.
- Ertel, K. A., Rich-Edwards, J. W., & Koenen, K. C. (2011). Maternal depression in the United States: Nationally representative rates and risks. *Journal of Women's Health*, 20(11), 1609-1617.
- Evans, G.W. (2004). The environment of childhood poverty. *American Psychologist*, 59(2), 77-92.
- Eyberg, S.M., Funderburk, B.W., Hembree-Kigin, T.L., McNeil, C.B., Querido, J.G., & Hood, K.K. (2001). Parent-child interaction therapy with behavior problem children: One and two year maintenance of treatment effects in the family. *Child & Family Behavior Therapy*, 23(4), 1-20.
- Fabes, R., Poulin, R. E., Eisenberg, N., & Madden-Derdich, D. A. (2002). The Coping with Children's Negative Emotions Scale (CCNES): Psychometric properties and relations with children's emotional competence. *Marriage and Family Review*, 34(3-4), 285-310.
- Fantuzzo, J.W., Bulotsky-Shearer, R., Fusco, R.A., & McWayne, C. (2005). An investigation of preschool classroom behavioral adjustment problems and social-

emotional school readiness competencies. *Early Childhood Research Quarterly*, 20, 259–275.

- Feldman, R., & Eidelman, A. I. (2009). Biological and environmental initial conditions shape the trajectories of cognitive and social-emotional development across the first years of life. *Developmental science*, *12*(1), 194-200.
- Gagnon, S.G., & Nagle, R. J. (2004). Relationships between peer interactive play and social competence in at-risk preschool children. *Psychology in the Schools, 41*(2), 173-189.
- Garcia, G. & Levin, M. (2001). Latino children in Head Start: Family characteristics, parent involvement and satisfaction with the Head Start program. Retrieved from http://www.acf.hhs.gov/sites/default/files/opre/latino_children.pdf
- Garon, N., & Moore, C. (2006). Negative affectivity predicts individual differences in decision making for preschoolers. *The Journal of Genetic Psychology*, 167(4), 443-462.
- Garrett, T. (2008). Student-centered and teacher-centered classroom management: A case study of three elementary teachers. *Journal of Classroom Interaction, 43*(1), 34-47.
- Gerber, E. B., Whitebook, M., & Weinstein, R. S. (2007). At the heart of child care: Predictors of teacher sensitivity in center-based child care. *Early Childhood Research Quarterly*, 22(3), 327-346.
- Ghazvini, A., & Mullis, R. L. (2002). Center-based care for young children: Examining predictors of quality. *Journal of Genetic Psychology*, *163*, 112-125.
- Gilliam, W.S. (2005). *Prekindergarteners left behind: Expulsion rates in state prekindergarten systems*. New Haven, CT: Yale Child Study Center.
- Goldstein, H. (1999). Multilevel statistical models. Retrieved from http://www.ats.ucla.edu/stat/examples/msm_goldstein/goldstein.pdf
- Grant, B. F., Stinson, F. S., Hasin, D. S., Dawson, D. A., Chou, S. P., & Anderson, K. (2004). Immigration and lifetime prevalence of DSM-IV psychiatric disorders among Mexican Americans and non-Hispanic whites in the United States: Results from the National Epidemiologic Survey on Alcohol and Related Conditions. *Archives of general psychiatry*, 61(12), 1226-1233.

- Graves, S.L., & Howes, C. (2011) Ethnic differences in social-emotional development in preschool: The impact of teacher-child relationships and classroom quality. *School Psychology Quarterly*, 26(3), 202-214. doi: 10.1037/a0024117
- Greco, L. A., & Morris, T. L. (2001). Treating childhood shyness and related behavior: Empirically evaluated approaches to promote positive social interactions. *Clinical Child and Family Psychology Review*, 4, 299–318.
- Gresham, F.M., & Elliot, S.N. (2010). *Social Skills Rating System*. Circle Pines, MN: American Guidance Service.
- Gresham, F. M., Elliott, S. N., Cook, C. R., Vance, M. J., & Kettler, R. (2010). Crossinformant agreement for ratings for social skill and problem behavior ratings: An investigation of the Social Skills Improvement System—Rating Scales. *Psychological assessment*, 22(1), 157.
- Guo, Y., Piasta, S. B., Justice, L. M., & Kaderavek, J. N. (2010). Relations among preschool teachers' self-efficacy, classroom quality, and children's language and literacy gains. *Teaching and Teacher Education*, 26(4), 1094-1103.
- Halle, T., Forry, N., Hair, E., Perper, K., Wandner, L., Wessel, J., & Vick, J. (2009). Disparities in early learning and development: Lessons from the Early Childhood Longitudinal Study – Birth Cohort (ECLS-B). Washington, DC: Child Trends.
- Hammer, C. S., Farkas, G., & Maczuga, S. (2010). The language and literacy development of Head Start children: A study using the Family and Child Experiences Survey database. *Language, Speech, and Hearing Services in Schools, 41*(1), 70-83.
- Hamre, B. K., Goffin, S. G., & Kraft-Sayre, M. (2009). Classroom assessment scoring systems (CLASS) implementation guide: Measuring and improving classroom interactions in early childhood settings. Center for Advanced Study of Teaching and Learning: Charlottesville, VA.
- Hamre, B. K., & Pianta, R. C. (2005). Can instructional and emotional support in the first-grade classroom make a difference for children at risk of school failure?. *Child development*, 76(5), 949-967.
- Hansen, J. K. (2006). *The relationship between child care program administration, organizational climate, and global quality* (Doctoral dissertation, University of North Carolina at Greensboro).

- Harris-Britt, A., Valrie, C. R., Kurtz-Costes, B., & Rowley, S. J. (2007). Perceived Racial Discrimination and Self-Esteem in African American Youth: Racial Socialization as a Protective Factor. *Journal of Research on Adolescence*, 17(4), 669-682.
- Hay, D.F., Hudson, K., & Liang, W. (2010). Links between preschool children's prosocial skills and aggressive conduct problems: The contribution of ADHD symptoms. *Early Childhood Research Quarterly*, 25(4), 493-501.
- Herman-Smith, R. (2012). Do preschool programs affect social disadvantage? What social workers should know. *Social Work*, sws049.
- Herschell, A. D., Calzada, E. J., Eyberg, S. M., & McNeil, C. B. (2003). Parent-child interaction therapy: New directions in research. *Cognitive and Behavioral Practice*, 9(1), 9-16.
- Hindman, A. H., Miller, A. L., Froyen, L. C., & Skibbe, L. E. (2012). A portrait of family involvement during Head Start: Nature, extent, and predictors. Early Childhood Research Quarterly, 27(4), 654-667.
- Howes, C. Burchinal, M., Pianta, R., Bryant, D., Early, D., Clifford, R. & Barbarin, O. (2008). Ready to learn? Children's preacademic achievement in pre-Kindergarten programs. *Early Childhood Research Quarterly*, 23(1), 27-50.
- Howes, C., Guerra, A.W., Fuligni, A., Zucker, E., Lee, L., Obregon, N. & Spivak, A. (2011). Classroom dimensions predict early peer interaction when children are diverse in ethnicity, race, and home language. Early Childhood Research Quarterly, 26(4), 399-408.
- Howes, C., James, J., & Ritchie, S. (2003). Pathways to effective teaching. *Early Childhood Research Quarterly*, 18(1), 104-120.
- Howes, C., Phillips, D. A., & Whitebook, M. (1992). Thresholds of quality: implications for the social development of children in center-based child care. *Child Development*, 63(2), 449-460.
- Howse, R. B., Calkins, S. D., Anastopoulos, A. D., Keane, S. P., & Shelton, T. L. (2003). Regulatory contributors to children's kindergarten achievement. *Early Education* and Development, 14(1), 101-120.
- Huffman, L. C., Mehlinger, S. L., Kerivan, A. S., Cavanaugh, D. A., Lippitt, J., & Moyo, O. (2001). Off to a good start: Research on the risk factors for early school problems and selected federal policies affecting children's social and emotional development and their readiness for school. Retrieved from http://files.eric.ed.gov/fulltext/ED476378.pdf

Iutovich, J., Fiene, R., Johnson, J., Koppel, R., & Langan, F. (1997). Investing in our children's future: The path to quality child care through the Pennsylvania Child Care/Early Childhood Development Training System. Erie, PA: Keystone University Research Corporation.

Improving Head Start for School Readiness Act of 2007, 42 U.S.C., §§ 635-657C (2007).

- Iutovich, J., Fiene, R., Johnson, J., Koppel, R., & Langan, F. (2001). Professional development and quality of child care. *Advances in Early Education and Day Care* Stamford, CT: Ablex.
- Izard, C. E., Fine, S., Schultz, D., Mostow, A., Ackerman, B., & Youngstrom, E. (2001). Emotion knowledge as a predictor of social behavior and academic competence in children at risk. *Psychological Science*, *12*, 18–23. doi:10.1111/1467-9280.00304
- Jackson, S. A. (2002). A study of teachers' perceptions of youth problems. *Journal of Youth Studies*, *5*(3), 313-323.
- Jean, A. D., & Stack, D. M. (2012). Full-term and very-low-birth-weight preterm infants' self-regulating behaviors during a Still-Face interaction: influences of maternal touch. Infant Behavior and Development, 35(4), 779-791.
- Jeon, L., Buettner, C. K., & Snyder, A. R. (2014). Pathways from teacher depression and child-care quality to child behavioral problems. *Journal of consulting and clinical psychology*, 82(2), 225.
- Jenkins, J. "Review of the Expressive One-Word Picture Vocabulary Test: Spanish-Bilingual Edition." In *The Sixteenth Mental Measurements Yearbook*, edited by Robert A. Spies and Barbara S. Plake. Lincoln, NE: The Buros Institute of Mental Measurements, 2005.
- Joseph, G.E. & Strain, P. S. (2003). Comprehensive Evidence-Based Social–Emotional Curricula for Young Children: An Analysis of Efficacious Adoption Potential
- Knafo, A., & Plomin, R. (2006). Prosocial behavior from early to middle childhood: genetic and environmental influences on stability and change. *Developmental psychology*, 42(5), 771.
- Knitzer, J., Theberge, S., & Johnson, K. (2008). *Reducing maternal depression and its impact on young children: Toward a responsive early childhood policy framework*. Retrieved from http://www.nccp.org/publications/pub_791.html

- Kochanska, G., Murray, K., & Harlan, E. (2000). Effortful control in early childhood: Continuity and change, antecedents, and implications for social development. *Developmental Psychology*, 36(2), 220-232.
- Kontos, S., & File, N. (1992). Conditions of employment, job satisfaction, and job commitment among early intervention personnel. *Journal of Early Intervention*, 16(2), 155-165.
- Kreader, J. L., Ferguson, D., & Lawrence, S. (2005). Impact of training and education for caregivers of infants and toddlers. Retrieved from http://www.nccp.org/publications/pub_625.html
- La Paro, K. M., Pianta, R. C., & Stuhlman, M. (2004). The classroom assessment scoring system: Findings from the prekindergarten year. *The Elementary School Journal*, 409-426.
- Lambert, R.G. (2002). Evaluating management climate in Head Start programs: The measurement properties of the policy and program management inventory. *NHSA Dialog, 6*(1), 37-52.
- Lambert, R.G., M. Abbott-Shim, and C. Oxford-Wright (1999). *Policy and Program Management Inventory, Administrator Version*. Charlotte, NC: The Center for Educational Measurement and Evaluation.
- Laughlin, L. (2013) *Who's minding the kids? Child care arrangements: Spring 2011. Household Economic Studies.* Retrieved from http://www.census.gov/prod/2013pubs/p70-135.pdf
- Leckie, G. (2013). *Three-Level Multilevel Models Concepts. LEMMA VLE Module 11,* 1-47. Retrieved from: http://www.bristol.ac.uk/cmm/learning/course.html
- Leerkes, E. M., Blankson, A. N., & O'Brien, M. (2009). Differential effects of maternal sensitivity to infant distress and nondistress on social-emotional functioning. *Child Development*, 80(3), 762–168.
- Liew, J. (2012). Effortful control, executive functions, and education: Bringing selfregulatory and social-emotional competencies to the table. *Child Development Perspectives*, 6(2), 105–111. DOI: 10.1111/j.1750-8606.2011.00196.x
- Li-Grining, C. P., & Coley, R. L. (2006). Child care experiences in low-income communities: Developmental quality and maternal views. *Early Childhood Research Quarterly*, *21*, 125–141.

- Li-Grining, C. P., Votruba-Drzal, E., Maldonado-Carreño, C., & Haas, K. (2010). Children's early approaches to learning and academic trajectories through fifth grade. *Developmental Psychology*, 46(5), 1062.
- Littrell, P. C., Billingsley, B. S., & Cross, L. H. (1994). The effects of principal support on special and general educators' stress, job satisfaction, school commitment, health, and intent to stay in teaching. *Remedial and Special Education*, 15(5), 297-310.
- Lower, J.K., & Cassidy, D.J. (2007). Child care work environments: The relationship with learning environments. *Journal of Research in Childhood Education*, 22(2), 189-204.
- Luke, D. A. (2004). Multilevel modeling. Thousand Oaks, CA: Sage Publications, Inc.
- Malone, L., Carlson, B.L., Aikens, N., Moiduddin, E., Klein, A., West, J.,...Rall, K. (2013). *Head Start Family and Child Experiences Survey 2009: User's manual*. Ann Arbor, MI: ICPSR.
- Manlove, E., Vasquez, A., & Vernon-Feagans, L. (2008). The quality of caregiving in child care: Relations to teacher complexity of thinking and perceived supportiveness of the work environment. *Infant and Child Development*, 17, 203-222.
- Marino, A. J., Fletcher, E. N., Whitaker, R. C., & Anderson, S. E. (2012). Amount and environmental predictors of outdoor playtime at home and school: A crosssectional analysis of a national sample of preschool-aged children attending Head Start. *Health & place*, 18(6), 1224-1230.
- Markides, K. S., & Coreil, J. (1986). The health of Hispanics in the southwestern United States: an epidemiologic paradox. *Public health reports*, *101*(3), 253.
- Mashburn, A. J., Pianta, R. C., Hamre, B. K., Downer, J. T., Barbarin, O. A., Bryant, D., ... & Howes, C. (2008). Measures of classroom quality in prekindergarten and children's development of academic, language, and social skills. *Child Development*, *79*(3), 732-749.
- Masten, A. S., & Coatsworth, J. D. (1998). The development of competence in favorable and unfavorable environments: Lessons from research on successful children. *American psychologist*, *53*(2), 205.
- McCabe, L.A., Cunnington, M., & Brooks-Gunn, J. (2004). *The development of selfregulation in young children: Individual characteristics and environmental contexts*. In R.F. Baumeister & K.D. Vohs (Eds.), Handbook of self-regulation:

Research, Theory, & Application (pp. 340-356). New York, NY: The Guilford Press.

- McCartney, K., Dearing, E., Taylor, B.A., & Bub, K. (2007). Quality child care supports the achievement of low-income children: Direct and indirect effects through caregiving and the home environment. *Journal of Applied Developmental Psychology*, 28, 411-426. 173.
- McEwan, B.S. (2008). Central effects of stress hormones in health and disease: Understanding the protective and damaging effects of stress and stress mediators. *European Journal of Pharmacology*, 583(2-3), 174-185.
- McLoyd, V.C. (1998). Socioeconomic disadvantage and child development. *American Psychologist, 53*(2), 185-204.
- Merritt, E. G., Wanless, S. B., Rimm-Kaufman, S. E., Cameron, C., & Peugh, J. L. (2012). The contribution of teachers' emotional support to children's social behaviors and self-regulatory skills in first grade. *School Psychology Review*,41(2), 141
- Mendez, J. L. (2010). How can parents get involved in preschool? Barriers and engagement in education by ethnic minority parents of children attending Head Start. *Cultural Diversity and Ethnic Minority Psychology*, *16*(1), 26.
- Mickelson, R. (2003). When are racial disparities in education the result of racial discrimination? A social science perspective. *The Teachers College Record*, 105(6), 1052-1086.
- Miller, A. L., Fine, S. E., Gouley, K. K., Seifer, R., Dickstein, S., & Shields, A. (2006). Showing and telling about emotions: Interrelations between facets of emotional competence and associations with classroom adjustment in Head Start preschoolers. *Cognition and Emotion*, 20, 1170–1192. doi:10.1080/02699930500405691
- Mill, D., & Romano-White, D. (1999). Correlates of affectionate and angry behavior in child care educators of preschool-aged children. *Early Childhood Research Quarterly*, 14(2), 155-178.
- Moffitt, T.E., Arseneault, L., Belsky, D., Dickson, N., Hancox, R.J., Harrington, H. ... Caspi,A. (2011). A gradient of childhood self-control predicts health, wealth, and public safety. *Proceedings of the National Academy of sciences, 108*(7), 2693-2698.
- Morales, J. R., & Guerra, N. G. (2006). Effects of multiple context and cumulative stress on urban children's adjustment in elementary school. *Child development*, 77(4), 907-923.
- Morris, P., Raver, C. C., Millenky, M., Jones, S., & Lloyd, C. M. (2010). Making preschool more productive: How classroom management training can help teachers. Retrieved from http://www.mdrc.org/publication/making-preschoolmore-productive
- Mumola, C. 2000. *Incarcerated parents and their children (No. NCJ 182335)*. Washington, DC: U.S. Department of Justice, Office of Justice Programs.
- Myers, S. S., & Morris, A. S. (2009). Examining associations between effortful control and teacher–child relationships in relation to Head Start children's socioemotional adjustment. *Early education and development*, 20(5), 756-774.
- National Association of Social Workers (2008). Code of ethics of the National Association of Social Workers. Washington, DC. NASW Press.
- National Scientific Council on the Developing Child. (2005/2014). *Excessive Stress* Disrupts the Architecture of the Developing Brain: Working Paper 3. Updated Edition. Retrieved from www.developingchild.harvard.edu
- National Institute of Child Health (2005). Durational and development timing of poverty and children's cognitive and social development from birth through third grade. *Child Development*, *76*(4), 795-810.
- NICHD Early Child Care Research Network. (2002). Child-care structure→ process→ outcome: Direct and indirect effects of child-care quality on young children's development. Psychological Science, 13(3), 199-206.
- Office of Personnel Management (2014). *Child care resources handbook*. Retrieved from http://www.opm.gov/policy-data-oversight/worklife/reference-materials/child-care-resources-handbook/
- Olson, S. L., Sameroff, A. J., Kerr, D. C. R., Lopez, N. L., & Wellman, H. M. (2005). Developmental foundations of externalizing problems in young children: The role of effortful control. *Development and Psychopathology*, 17(1), 25-45.
- Organ, D., & Ryan, K. (1995). A meta-analytic review of attitudinal and dispositional predictors of organizational citizenship behavior. *Personnel Psychology*, 48, 775–802.

- Padilla, A. M., & Lindholm, K. J. (1995). Quantitative educational research with ethnic minorities. In J. A. Banks & C. M. Banks (Eds.). *Handbook of research on multicultural education* (pp. 145-199). New York: Macmillan.
- Pakarinen, E., Lerkkanen, M., Poikkeus, A., Kiuru, N., Siekkinen, M., Rasku-Puttonen, H., & Nurmi, J. (2010). A Validation of the Classroom Assessment Scoring System in Finnish Kindergartens. *Early Education & Development*, 21(1), 95-124. doi:10.1080/10409280902858764
- Peterson, J. L., & Zill, N. (1986). Marital disruption, parent-child relationships, and behavior problems in children. *Journal of Marriage and the Family*, 295-307.
- Peth-Pierce, R. (2000). A good beginning: Sending America's children to school with the social and emotional competence they need to succeed. Retrieved from http://files.eric.ed.gov/fulltext/ED445810.pdf
- Phillips, D. A., Voran, M., Kisker, E., Howes, C., & Whitebook, M. (1994). Child care for children in poverty: Opportunity or inequity?. *Child development*, 65(2), 472-492.
- Phillipsen, L.C., Burchinal, M.R., Howes, C., & Cryer, D. (1997). The prediction of process quality from structural features of child care. *Early Childhood Research Quarterly*, 12, 281-303.
- Pianta, R.C, Howes, C., Burchinal, M., Bryant, D., Clifford, R., Early, D., & Barbarin, O. (2005). Features of pre-kindergarten programs, classrooms, and teachers: Do they predict observed classroom quality and child-teacher interactions? *Applied Developmental Science*, 9, 144-159.
- Pianta, R. C., & Hamre, B. K. (2009). Conceptualization, measurement, and improvement of classroom processes: Standardized observation can leverage capacity. *Educational Researcher*, 38(2), 109-119.
- Pianta, R.C., LaParo, K.M., & Hamre, B.K. (2008). *Classroom Assessment Scoring System manual: Pre-K.* Baltimore, MD: Paul H. Brookes Publishing Co.
- Pianta, R. C., La Paro, K. M., Payne, C., Cox, M. J., & Bradley, R. (2002). The relation of kindergarten classroom environment to teacher, family, and school characteristics and child outcomes. *The elementary school journal*, 225-238.
- Pianta, R.C, & Stuhlman, M. (2004). Teacher-child relationships and children's success in the first years of school. *School Psychology Review*, 33(3), 444–458.

- Pollack, H. A., Danziger, S., Jayakody, R., & Seefeldt, K. S. (2002). Drug testing welfare recipients—false positives, false negatives, unanticipated opportunities. *Women's Health Issues*, 12(1), 23-31.
- Ponitz, C. C., McClelland, M. M., Matthews, J. S., & Morrison, F. J. (2009). A structured observation of behavioral self-regulation and its contribution to kindergarten outcomes. *Developmental psychology*, 45(3), 605.
- Raikes, H. A., Robinson, J.L., Bradley, R.H., Raikes, H. H., & Ayoub, C.C. (2007). Developmental trends in self-regulation among low-income toddlers in social development. *Social Development*, 16(1), 128-149.
- Raikes, H. A., & Thompson, R. A. (2006). Family emotional climate, attachment security and young children's emotion knowledge in a high risk sample. *British Journal of Developmental Psychology*, 24(1), 89-104.
- Raudenbush, S.W., & Bryk, A.S. (2002). *Hierarchical linear models: Applications and data analysis methods*. Thousand Oaks, CA: Sage Publications, Inc.
- Raudenbush, S. W., et al. (2011). *Optimal Design Software for Multi-level and Longitudinal Research (Version 3.01)* [Software]. Available from www.wtgrantfoundation.org.
- Raver, C.C. (2002). Emotions matter: Making the case for the role of young children's emotional development for early school readiness. *Social Policy Report*, 16(3), 3-19.
- Raver, C. C., Jones, S. M., Li-Grining, C., Zhai, F., Metzger, M. W., & Solomon, B. (2009). Targeting children's behavior problems in preschool classrooms: a clusterrandomized controlled trial. *Journal of Consulting and Clinical Psychology*, 77(2), 302.
- Raver, C. C., Jones, S. M., Li-Grining, C., Zhai, F., Bub, K., & Pressler, E. (2011). CSRP's impact on low-income preschoolers' preacademic skills: self-regulation as a mediating mechanism. *Child development*, 82(1), 362-378.
- Reisch, M. (2014). U.S. social policy and social welfare: A historical overview. In M. Reisch (Ed.), *Social policy and social justice* (pp. 43-100). Thousand Oaks, CA: Sage Publications Inc.
- Resnick, G., & Zill, N. (2003). Understanding quality in Head Start classrooms: The role of teacher and program level factors. Retrieved from http://www.acf.hhs.gov/sites/default/files/opre/understing_quality.pdf

- Rimm-Kaufman, S. E., Early, D. M., Cox, M. J., Saluja, G., Pianta, R. C., Bradley, R. H., & Payne, C. (2002). Early behavioral attributes and teachers' sensitivity as predictors of competent behavior in the kindergarten classroom. *Journal of Applied Developmental Psychology*, 23(4), 451-470.
- Rimm-Kaufman, S. E., Curby, T. W., Grimm, K. J., Nathanson, L., & Brock, L. L. (2009). The contribution of children's self-regulation and classroom quality to children's adaptive behaviors in the kindergarten classroom. *Developmental Psychology*, 45(4), 958-972. doi:10.1037/a001586
- Russell, E. M., Williams, S. W., & Gleason-Gomez, C. (2010). Teachers' perceptions of administrative support and antecedents of turnover. *Journal of Research in Childhood Education*, 24(3), 195-208. doi:10.1080/02568543.2010.487397
- Ruzek, Burchinal, Farkas, & Duncan (2014). The quality of toddler child care and cognitive skills at 24 months: Propensity score analysis results from the ECLS-B. *Early Childhood Research Quarterly, 29*(1), 12 21.
- Saudino, K. J. (2005). Behavioral genetics and child temperament. *Journal of developmental and behavioral pediatrics: JDBP*, *26*(3), 214.
- Schaufeli, W. B., & Taris, T. W. (2014). A critical review of the Job Demands-Resources Model: Implications for improving work and health. In*Bridging occupational,* organizational and public health (pp. 43-68). Springer Netherlands.
- Schultz, B., Richardson, R., Barber, C., & Wilcox, D. (2011). A Preschool Pilot Study of Connecting with Others: Lessons for Teaching Social and Emotional Competence. *Early Childhood Education Journal*, 39(2), 143-148.
- Sciarra, D.J., & Dorsey, A.G. (2003). *Developing and administering a child care center* (5th ed). Albany, NY: Delmar/Thomson Learning.
- Scott-Little, C., Kagan, S. L., & Frelow, V. S. (2003). Creating the conditions for success with early learning standards: Results from a national study of state-level standards for children's learning prior to Kindergarten. *Early Childhood Research* and Practice: An Internet Journal on the Development, Care, and Education of Young Children., 5(2), n2.
- Scott-Little, C., Lesko, J., Martella, J., & Milburn, P. (2007). Early learning standards: Results from a national survey to document trends in state-level policies and practices. *Early Childhood Research and Practice*, 9(1), 1-23.
- Shields, A., Dickstein, S., Seifer, R., Giuisti, L., Magee, K. D., & Spritz, B. (2001). Emotional competence and early school adjustment: A study of preschoolers at

risk. *Early Education and Development, 12*(1), 73–96. doi:10.1207/s15566935eed1201_5

- Shonkoff, J.P., Boyce, W.T., & McEwan, B.S. (2009). Neuroscience, molecular biology, and the childhood roots of health disparities: Building a new framework for health promotion and disease prevention. *Journal of the American Medical Association*, 301(21), 2252-2259.
- Shonkoff, J., & Phillips, D. (Eds.). (2000). From neurons to neighborhoods: The science of early childhood development. Washington, DC: National Academy Press.
- Shonkoff, J. P., Garner, A.S., Siegel, B.S., Dobbins, M.I., Earls, M.F., Garner, A.S., ... & Wood, D. (2012a). The lifelong effects of early childhood adversity and toxic stress. *Pediatrics*, 129, e232-e246.
- Shonkoff, J.P., Richter, L., van der Gaag, J., & Bhutta, Z. A. (2012b). An integrated scientific framework for child survival and early childhood development. *Pediatrics*, 129(2), DOI: 10.1542/peds.2011-0366.
- Silk, J. S., Shaw, D. S., Skuban, E. M., Oland, A. A., & Kovacs, M. (2006). Emotion regulation strategies in offspring of childhood-onset depressed mothers. *Journal* of Child Psychology and Psychiatry, 47(1), 69-78.
- Singleton, R.A., & Straits, B.C. (2010). *Approaches to social research* (5th ed.). New York, NY: Oxford University Press.
- Snyder, T.D., and Dillow, S.A. (2012). *Digest of education statistics 2011* (NCES 2012-001). National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education. Washington, DC.
- Spybrook, J. (2008). Power, sample size, and design. In A. O'Connell & D.B. McCoach (Eds.), *Multilevel modeling of educational data* (pp. 273-314). Charlotte, NC: Information Age Publishing, Inc.
- Sroufe, L. A. (2005). Attachment and development: A prospective, longitudinal study from birth to adulthood. *Attachment & Human Development*, 7(4), 349-367.
- Stipek, D. (2004). Teaching practices in kindergarten and first grade: Different strokes for different folks. *Early Childhood Research Quarterly*, *19*(4), 548-568.
- Stremmel, A. J., & Fu, V. R. (1993, October). Teaching in the zone of proximal development: Implications for responsive teaching practice. In *Child and youth care forum* (Vol. 22, No. 5, pp. 337-350). Kluwer Academic Publishers-Human Sciences Press.

- Tabachnik, B.G., & Fidell, L.S. (2007). *Using multivariate statistics* (5th ed.). Boston, MA: Pearson Education, Inc.
- Talan, T. N., & Bloom, P. J. (2004). *Program administration scale: Measuring early childhood leadership and management*. New York: Teachers College Press.
- Thompson, R., Tabone, J. K., Litrownik, A. J., Briggs, E. C., Hussey, J. M., English, D. J., & Dubowitz, H. (2010). Early adolescent risk behavior outcomes of childhood externalizing behavioral trajectories. *The Journal of Early Adolescence*.
- Trawick-Smith, J. (2000). *Early childhood development: A multicultural perspective (2nd ed.)*. Upper Saddle River, NJ: Prentice-Hall, Inc.
- U.S. Census Bureau (2012). *Current population reports: Child population*. Retrieved from http://www.childstats.gov/americaschildren/tables.asp
- U.S. Department of Health and Human Services (2014a). About Head Start. Retrieved from http://eclkc.ohs.acf.hhs.gov/hslc/hs/about
- U.S. Department of Health and Human Services (2014b). *Head Start program facts: Fiscal year 2013*. Retrieved from http://eclkc.ohs.acf.hhs.gov/hslc/data/factsheets/2013-hs-program-factsheet.html
- Vandell, D.L., Belsky, J., Burchinal, M., Steinberg, L., Vandergrift, N., & 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(3), 737–756.
- Verschueren, K., & Koomen, H. Y. (2012). Teacher–child relationships from an attachment perspective. *Attachment & Human Development*, *14*(3), 205-211. doi:10.1080/14616734.2012.672260
- Votruba-Drzal, E., Coley, R.L., & Chase-Lansdale, P.L. (2004). Child care and lowincome children's development: Direct and moderated effects. Child Development, 75, 296–312
- Votruba-Drzal, E., Coley, R. L., Maldonado-Carreño, C., Li-Grining, C. P., & Chase-Lansdale, P. L. (2010). Child care and the development of behavior problems among economically disadvantaged children in middle childhood. *Child development*, 81(5), 1460-1474.
- Vygotsky, L. (1978). Mind in society: The development of higher psychological processes. Cambridge, MA: Harvard University Press.

- Wanberg, C. R., & Kammeyer-Mueller, J. D. (2000). Predictors and outcomes of proactivity in the socialization process. *Journal of Applied Psychology*, 85, 373– 385.
- Webster-Stratton, C., & Reid, M. J. (2003). The incredible years parents, teachers and children training series: A multifaceted treatment approach for young children with conduct problems. In A.E. Kazdin (Ed.), *Evidence-based psychotherapies for children and adolescents* (pp. 224–240). New York, NY, US7 Guilford Press.
- Weiss, S. J. (2005). Haptic perception and the psychosocial functioning of preterm, low birth weight infants. *Infant Behavior and Development, 28*(3), 329-359.
- Weiss, S. J., Wilson, P., Seed, M. S. J., & Paul, S. M. (2001). Early tactile experience of low birth weight children: Links to later mental health and social adaptation. *Infant and Child Development*, 10(3), 93-115.
- Wen, X., Leow, C., Hahs-Vaughn, D. L., Korfmacher, J., & Marcus, S. M. (2012). Are two years better than one year? A propensity score analysis of the impact of Head Start program duration on children's school performance in kindergarten. *Early Childhood Research Quarterly*, 27(4), 684-694.
- Whitaker, R. C., Dearth-Wesley, T., & Gooze, R. A. (2015). Workplace stress and the quality of teacher–children relationships in Head Start. *Early Childhood Research Quarterly*, *30*, 57-69.
- Wildeman, C. (2009). Parental imprisonment, the prison boom, and the concentration of childhood disadvantage. *Demography*, *46*(2), 265-280.
- Winsler, A., & Wallace, G.L. (2002). Behavior problems and social skills in preschool children: Parent-teacher agreement and relations with classroom observations. *Early Education and Development*, 13(1), 41-58
- Woltman, H., Feldstain, A., MacKay, J.C., & Rocchi, M. (2012). An introduction to hierarchical linear modeling. Tutorials in Quantitative Methods for Psychology, 8(1), 52-69.
- Woody, D.J. (2003). Early childhood. In E.D. Hutchison (Ed.), *Dimensions of human behavior* (pp. 159-195). Thousand Oaks, CA: Sage Publications Inc.
- Yates, G. C., & Yates, S. M. (1990). Teacher effectiveness research: Towards describing user-friendly classroom instruction. *Educational Psychology*, 10(3), 225-238.

- Yates, T., Ostrosky, M. M., Cheatham, G. A., Fettig, A., Shaffer, L., & Santos, R. M. (2008). Research synthesis on screening and assessing social-emotional competence. *The Center on the Social and Emotional Foundations for Early Learning*. Retrieved from http://csefel.vanderbilt.edu/documents/ rs screening assessment.pdf.
- Youngstrom, E., Wolpaw, J.M., Kogos, J.L., Schoff, K., Ackerman, B., & Izard, C. (2000). Interpersonal problem solving in preschool and first grade: Developmental change and ecological validity. *Journal of Clinical Child Psychology*, 29(4), 589-602.
- Zafiropoulou, M., Sotiriou, A., & Mitsiouli, V. (2007). Relation of self-concept in kindergarten and first grade to school adjustment. *Perceptual and Motor Skills*, 104, 1313–1327. doi:10.2466/PMS.104.4.1313-1327
- Zahn-Waxler, C., Shirtcliff, E. A., & Marceau, K. (2008). Disorders of childhood and adolescence: Gender and psychopathology. *Annual Review of Clinical Psychology*, 4, 275-303.
- Zhai, F., Raver, C. C., & Li-Grining, C. (2011). Classroom-based interventions and teachers' perceived job stressors and confidence: Evidence from a randomized trial in Head Start settings. *Early childhood research quarterly*, 26(4), 442-452.
- Zill, N., & Resnick, G. (2006). Emergent literacy of low-income children in Head Start: Relationships with child and family characteristics, program factors, and classroom quality. *Handbook of early literacy research*, 2, 347-371.
- Zill, N., Resnick, G., & McKey, R. H. (1999, April). What children know and can do at the end of Head Start and what it tells us about the program's performance. In *Biennial Meeting of the Society for Research in Child Development*.
- Zins, J. E., & Elias, M. J. (2007). Social and emotional learning: Promoting the development of all students. *Journal of Educational and Psychological Consultation*, 17(2-3), 233-255.
- Zinsser, K. M., Shewark, E. A., Denham, S. A., & Curby, T. W. (2014). A mixed-method examination of preschool teacher beliefs about social–emotional learning and relations to observed emotional support. *Infant and Child Development*, 23(5), 471-493.

Appendix A: S	Skewness and	Kurtosis '	Values fo	r Key	Study]	Variable	es
				-1	-1		

	Skewness	Kurtosis	
Child characteristics			
Social skills	-0.45	-0.51	
Problem behaviors	1.33	1.64	
Teacher/classroom characteris	stics		
Emotional support	-0.45	-0.14	
Behavior management	-0.49	-0.06	
Center support	-0.45	-0.05	
Center characteristics			
Center support	-1.13	1.12	

Table 22Skewness and Kurtosis Values for Key Study Variables





Figure 3. Histogram of Skewed Child Problem Behaviors Variable

Appendix C: Correlations Among Key Study Variables

Table 23Correlations Among Key Study Variables

	1	2	3	4	5	6
1. Children's social skills	-					
2. Children's problem behaviors	64**	-				
3. Teacher emotional support	.10**	08**	-			
4. Teacher behavior management	.10**	13**	.65**	-		
5. Center support – teacher	.06**	08**	.08**	05*	-	
6. Center support – center director	.03	07**	.04*	.10**	.12**	-
**p<.01, *p<.05						