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EXPLORING DIRECT AND INDIRECT RELATIONSHIPS AMONG TEACHER SELF-EFFICACY, MOTIVATIONS FOR TEACHING, TEACHER-CHILD INTERACTIONS, AND CHILD OUTCOMES IN EARLY HEAD START CLASSROOMS

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EXPLORING DIRECT AND INDIRECT RELATIONSHIPS AMONG TEACHER SELF-EFFICACY, MOTIVATIONS FOR TEACHING, TEACHER-CHILD INTERACTIONS, AND CHILD OUTCOMES IN EARLY HEAD START CLASSROOMS

A DISSERTATION APPROVED FOR THE
DEPARTMENT OF INSTRUCTIONAL LEADERSHIP AND ACADEMIC CURRICULUM

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Abstract

More infants and toddlers are in early care and education settings at this time than ever before in history, making the study of these settings of critical importance. In the first three years of life, patterns for health, relationships, and physical and emotional well-being are established that have life-long consequences. Using the framework of Bronfenbrenner's Bioecological Systems Theory (Bronfenbrenner & Morris, 2006), this study explored how teacher characteristics and teacher-child interactions associate with child outcomes. Consistent with the systems theory approach, foundational literature for the study was collected from various disciplines, including early childhood, child development, economics, organizational dynamics, parenting, psychology, school reform, and social work. The teacher characteristics of self-efficacy and motivation were assessed and analyzed to explore direct and indirect relationships that existed between these variables, teacher-child interactions, and child outcomes. Correlational and hierarchical linear modeling analyses were used. Results indicate significant positive correlations between feelings of self-efficacy and internal sources of motivation. Negative correlations existed between some observed indicators of quality and teacher reported efficacy. Further analyses suggested that teachers with higher levels of responsibility may feel less efficacious than their observed performance. The study contributes to a small but growing body of research about infant/toddler teachers and how their characteristics may impact the children and their classroom experiences in early care and education settings.

Keywords: early care and education, quality, infant/toddler, teacher self-efficacy, motivations for teaching

Chapter 1: Introduction

Chapter 1 provides information about the context and need for the current study. It will identify the study's focus, purpose, rationale, and objectives using current literature from various fields to support the need for this investigation. A conceptual framework to support and guide the research is outlined in detail. Definition of key terms is also included.

Study Context

In 1960, only about 14% of mothers returned to work after giving birth. In the year 2009, this number had dramatically increased to almost 60% (Lally, 2013). This increase means that more infants and toddlers are cared for outside the home. Out of home care can include family members, friends, and neighbors who are part of a support system the family depends upon to enable the mother to work (Murphey, Cooper, & Forry, 2013). More and more frequently, families need to use child care or other out of home care settings for their infants and toddlers as changing dynamics shrink the support systems that may have been relied upon in the past. The increasing number of children under age three in group care settings has created a need for understanding the characteristics of these settings and of the teachers who care for and educate infants and toddlers.

Infancy marks the most significant period of brain growth and development that will occur throughout the lifetime (Phillips & Shonkoff, 2000). This intense period of structural development in the brain has sparked much interest in the first three years of life including the relationships between early experiences and life-long learning and development (Lally, 2014). Harvard University's Center for the Developing Child

(2010) reported that early childhood builds the foundation for life-long health, future relationships, and personal wellness, through safe, responsive, supportive environments and nurturing interactions with adults. Teachers have a meaningful role in this development as they create the environment and participate in the interactions that support the child.

Lally (2014) described the need for a "social womb"(p. 2) or protected environment in which infants and toddlers can be nurtured by sensitive adults during the critically important first three years of development. Bronfenbrenner and Morris (2006) proposed that proximal processes or the day-to-day interactions a child has with the other people and the environment drive all development. Phillips and Shonkoff (2000) reported that sensitive teacher-child interactions were associated with benefits in developmental outcomes for young children in group care settings. All indications are that both the environment and the people in the environment are significantly important to life-long development starting in infancy, therefore, both the quality of the child care environment and the child care teacher need to be studied to understand these important early relationships and their associations with child outcomes.

Although research suggests that the quality of the child care setting is associated with outcomes for children (Bandel, Aikens, Vogel, Boller, & Murphy, 2014; Belsky et al., 2007; National Institute of Child Health and Human Development Early Child Care Research Network (NICHD ECCRN), 2005), levels of good to excellent quality in infant/toddler settings occurred in only about 8% of programs in a large national study. Over 40% of infant and toddler care settings ranked poor in quality in the same study (Helburn, et al. 1995). Even more concerning is that according to current research

(NICHD ECCRN, 2005; Phillips & Lowenstein, 2011), this ratio remains, with still less than 10% of programs rated as good quality and a large percentage rated as poor quality. Considering the increasing number of infants and toddlers in childcare, and the particular sensitivity and vulnerability of very young children, quality in settings for this group is a serious topic for discussion (Burchinal, 2010).

Associations among levels of classroom quality and child outcomes across domains of development have been extensively reported for preschool settings (Burchinal, Cryer, Clifford, & Howes, 2002; Early et al., 2007; NICHD ECCRN, 2005; Peisner-Feinberg & Burchinal, 1997; Pianta et al., 2005). Higher language, social emotional, and cognitive scores are repeatedly associated with higher observed classroom quality and closer child-teacher relationships throughout the literature on preschool settings. High quality in classrooms has shown an even stronger influence with children at risk for school failure (Peisner-Feinberg & Burchinal, 1997). Regardless of the fact that these relationships have been observed in longitudinal and cross-sectional studies in preschool settings, very little research has been done to explore these same relationships in infant/toddler settings. Given the significance of the first three years to life-long development, a necessary next step in research is to explore factors contributing to the quality of infant/toddler childcare environments and the influence of teacher-child interactions in those environments on child outcomes.

One factor in determining classroom quality is the teacher (Howes & Smith, 1995). Teachers' feelings of self-efficacy and motivations for teaching influence their behavior, expectations, and even compliance with licensing standards and organizational culture, which in turn impacts the quality of the environment provided

for children. Recent research reveals that the teachers of young children play a significant role in the quality of a child's experience in a childcare setting (Jorde-Bloom & Abel, 2015; NICHD ECCRN, 2005), however, teachers have been understudied in measures of quality (Logan & Summison, 2010; Ryan & Goffin, 2008). Teacher-child interactions are significant indicators of classroom quality and have long lasting effects on child outcomes (Hamre & Pianta, 2001).

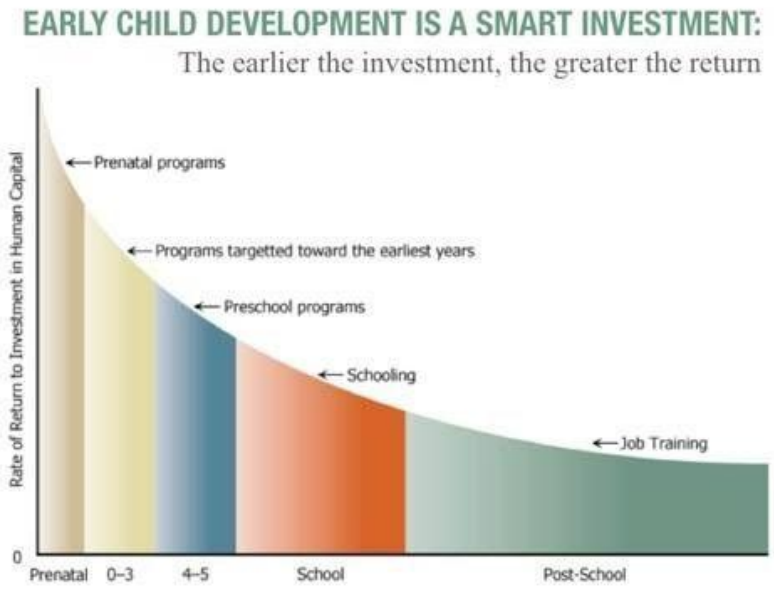
Daily interactions with teachers are the processes through which the young child learns and develops, therefore, a study of teacher-child interactions and how they are influenced by teacher characteristics, such as self-efficacy and motivations for teaching infants and toddlers, and their associations with child outcomes can contribute to the wider body of knowledge about quality in early care settings. The current study explored the teacher characteristics that contribute to a high quality care setting in which infants and toddlers are optimally supported. Investigating the relationships between the teacher characteristics of self-efficacy and motivation, teacher-child interactions, and child outcomes in infant/toddler settings contributes to a better understanding of the proximal processes between teachers and children in high quality early care and education environments for children age birth to three.

Research Problem

With the number of infants and toddlers in group care steadily increasing, understanding the quality of these settings is no longer a problem for the early childhood field alone (Lally, 2013). The Heckman Equation (see Figure 1) reveals that an investment in education and resources for disadvantaged families, that includes sustained support for development from birth to three and effective education through

adulthood, produces a more capable and productive workforce of adults contributing to society (Heckman, 2010; Heckman, Pinto, & Savelyev, 2013; Heckmanequation.org). With approximately 47% of our nation's infants and toddlers living at or near the poverty level (Jiang, Ekono, & Skinner, 2016), investment in early education stands to make a significant contribution to the lives of disadvantaged children and families. In over 35 years of longitudinal research on the impact of early education projects such as The Abecedarian Project (Masse & Barnett, 2002) and The High Scope/Perry Preschool Project (Schweinhart, 1993), Heckman revealed that not only are cognitive abilities and socioemotional skills important determinants of socioeconomic success, but that building these skills in early childhood had lasting effects on society with higher graduation rates, lower teen pregnancy and arrest rates, higher rates of college attendance and lower instances of physical and mental health problems occurring in those who had participated in the program. The equation, in its simplest form, is that early intervention lowers the cost of later interventions, including welfare, incarceration, and health care.

Figure 1. The Heckman Equation.



Source: James Heckman, Nobel laureate in economics

Studies, such as the Abecederian and Perry Preschool Projects, document the effects of high quality early education in impoverished settings; however, evidence exists suggesting that high quality early education results in positive outcomes for all children. The National Institute of Child Health and Human Development Study of Early Child Care and Youth Development (NICHD SECCYD) studied over 1300 children across early childhood and into adolescence. This study found that not only did high quality early education result in higher academic performance in preschool (NICHD, 2002), but that those effects continued through elementary school (NICHD, 2005) and even persisted till age 15 (Vandell, Burchinal, Vandergrift, Belsky, Steinberg, & NICHD Early Child Care Research Network, 2010). The greater cognitive achievements documented at age 15 were associated "with escalating positive effects at higher levels of quality" (Vandell et al., 2010, p. 737), indicating that, regardless of

socioeconomic status, children who receive high quality early education have the potential for long lasting positive outcomes.

The trend associated with early childhood as a smart investment has resulted in higher quality care for infants and toddlers in diverse settings. Increasing levels of expectancy based on the results of pilot programs like The Abecedarian Project, state mandated Quality Rating Initiative Systems, and federally-funded Early Head Start Programs with standards intensify public expectations and demand more from early learning environments to increase the return on investment. The teacher plays an important role in implementing these policies as demands from administrators, parents, children, and even personal internal sources push the teacher to perform.

Little has been done to seek understanding about why infant/toddler teachers are motivated to behave in certain ways in the classroom and what impact teacher behaviors have on daily interactions and child outcomes. In spite of the lack of research on teacher motivation in infant and toddler settings, a growing body of research supports the notion that sources of motivation have a significant influence on teacher behaviors and in turn child outcomes for older children (Hanfstingl, Andreitz, Müller, & Thomas, 2011; Pelletier, Seguin-Levesque, & Legault, 2002; Roth, Assor, Kanat-Maymon, & Kaplan, 2007). A demand on teachers to provide high quality care in accordance with increasing levels of expectation creates a continuum of motivation that spans from extrinsic motivation, or coercion, to intrinsic motivation, or autonomy (Ryan & Deci, 2000).

Although studies in other work settings have linked this continuum of motivation to job performance (Deci, Connell, & Ryan, 1989; Deci et al., 2001) and studies of student autonomous motivation revealed numerous benefits (Reeve, Deci, &

Ryan, 2004), no research has been done to assess how motivations toward teaching affect quality in early childhood settings. Additionally, in infant and toddler settings, very little research has been conducted to date to explore connections among teaching characteristics and behaviors and child outcomes (Castle et al., 2016; Guo, Piasta, Justice, & Kaderavek, 2010; La Paro, Williamson, & Hatfield, 2014).

Several factors can influence the way that caregivers respond to situations in the classroom. Teacher age (Saft & Pianta, 2001), educational level (Castle et al., 2016), and years of experience (Hamre & Pianta, 2001) have all been explored as possible variables influencing quality. Teacher behaviors and the reasons for those behaviors have recently come to light as possible considerations, as the teacher herself becomes the focus of more classroom quality research. This study proposes that teacher self-efficacy and motivations for teaching infants and toddlers are contributors to the pattern of caregiver behaviors and influence teacher-child interactions and therefore, the level of classroom quality as well as child outcomes.

Research Purpose

The purpose of this study is to explore the characteristics of the teacher in classroom quality and child outcomes in infant/toddler group settings. Investigating possible relationships among teacher self-efficacy, motivations for teaching, observed teacher-child interactions, and child outcomes provides new insight into the importance of the teacher in studying the quality of infant/toddler settings. The research adds to the body of knowledge regarding infant and toddler settings, and specifically the teachers who care for this developmentally vulnerable group of children.

Specific Objectives of the Study

1. To contribute to the emerging body of knowledge regarding infant/toddler environments and teachers in this understudied area of infant/toddler group care.
2. To identify direct and indirect relationships among teacher self-efficacy and motivations, teacher-child interactions, and child outcomes in an infant/toddler setting.

Research Questions

Current research with the Early Head Start population (Bandel et al., 2014; Castle et al., 2016; Love et al., 2002), as well as an established need for further investigation of the characteristics of teachers who work with infants and toddlers (Horm, Hyson, & Winton, 2013; Norris & Horm, 2015; Susman-Stillman, Pleuss, & Englund, 2013; Thomason & La Paro, 2009) and the need to explore motivations for teaching (Ryan & Deci, 2000; Roth et al., 2007; Simbula, Guglielmi, & Schaufeli, 2011) guided the development of the research questions explored in this study. It was hypothesized that both direct and indirect relationships existed between teacher self-efficacy and motivation and observed teacher-child interactions. Teacher-child interactions were believed to play a mediating role between teacher self-efficacy and motivations and child outcomes. In addition, teacher self-efficacy and motivations were expected to directly correlate to child outcomes with more efficacious and intrinsically motivated teachers having children with higher outcomes on child assessments. The questions of interest explored in this study include:

- Does a relationship exist between motivations for teaching and observed teacher-child interactions?

- Does a relationship exist between teacher self-efficacy and observed teacher-child interactions?
- What are the direct and indirect relationships among teacher self-efficacy, teacher motivation, teacher-child interactions, and child outcomes?

Conceptual Framework

Systems theory supports the idea that each component of the system contributes to the functioning of the whole. Bronfenbrenner's Bioecological Systems Theory (Bronfenbrenner & Morris, 2006) provides a structure for understanding child care environments that support children and teachers. Bioecological Theory reflects the presence of multiple contributing factors and provides a heuristic framework that includes the people proximal to the child as well as the organizations and policies that create and maintain the child's direct environment (Yoshikawa & Hsueh, 2001). Using Bronfenbrenner's work as a conceptual framework provides a perspective on the interrelation of the people in early care and education settings. Understanding not only what these environments look and sound like, but also their effect on infant and toddler development provides valuable information to the current body of work in the field of infant/toddler research.

Numerous and varied elements support the development of infants and toddlers in group care settings (Burchinal, 2010; Burchinal, Howes, & Kontos, 2002; Lally et al., 2004; Zero to Three, 2008). Young children are directly influenced by their families and caregivers through time spent with them during daily interactions (Bronfenbrenner & Morris, 2006). In childcare settings, other factors such as the overall design of the program, the program administrator, and the structure of the organization (i.e. private

owner, corporation, or non-profit organization) also significantly influence young children as each plays a part in developing and support the context in which the children and caregivers interact (Burchinal et al., 2002; NICHD, 2002). Public policies regarding group care settings, such as, quality rating systems, teacher training programs, and child outcomes, have an indirect impact on development over time (Lally, 2014).

The Process-Person-Context-Time (PPCT) Model

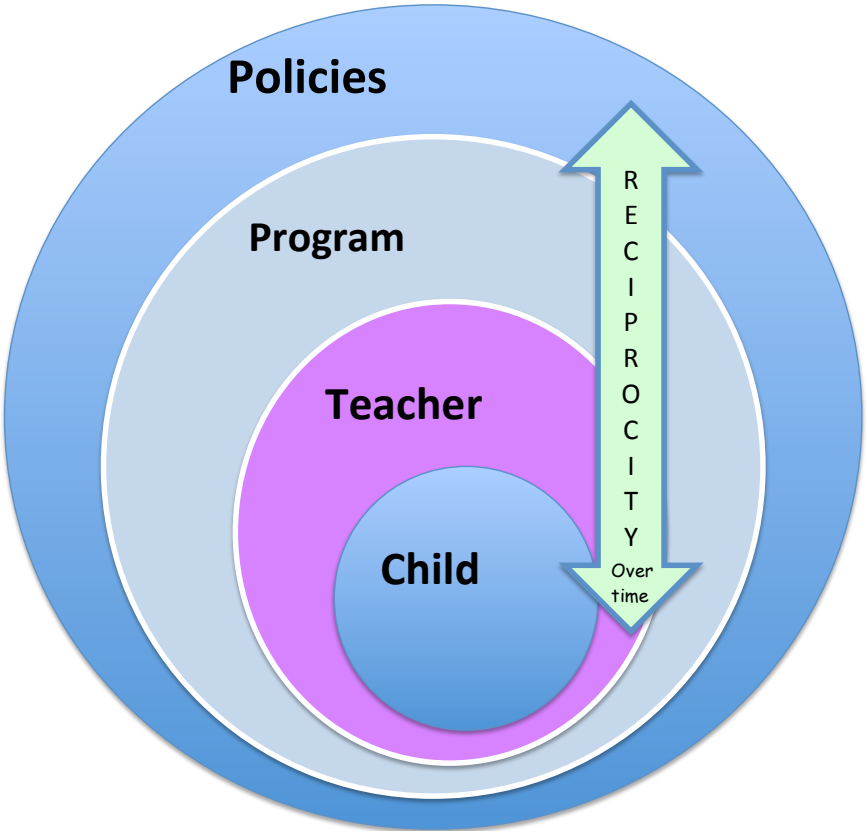
Using the lens of Bioecological Theory to gain understanding about group care settings requires reflection on the presence of multiple contributing factors. The Process-Person-Context-Time (PPCT) Model as explained by Bronfenbrenner and Morris (2006) provides an outline for examining and understanding the contributing factors to development. Based on the notion that a reciprocal causality exists between factors that drive development, the PPCT Model describes proximal processes that occur consistently over time. Proximal processes simply defined are the day-to-day interactions that children have with people and materials in their environment. In order to advance development, these processes must occur frequently and regularly while increasing in complexity over time (Tudge, Mokrova, Hatfield, & Karnik, 2009).

Significant interactions in infant and toddler settings can include routines for caregiving such as feeding, diapering, and sleep rituals as well as ongoing dialogue between caregivers and young children about people, events, and moments that are significant in their world. Other proximal processes that can influence development occur between caregivers in the program, parents and caregivers, and program administrators and caregivers. Although these instances may not directly influence the

child, they can affect development because their outcomes trickle down into the child's direct environment (Bronfenbrenner & Morris, 2006).

In the context of this study, the child, teacher, and program share a reciprocal relationship with each part affecting the others. This relationship is depicted in Figure 2. The graphic, which was adapted from McMullen and Lash (2012), shows that this reciprocity is part of an increasingly complex ongoing relationship between stakeholders that develops over time and is influenced by societal and cultural changes across time and history (i.e. public policies that influence children and teachers affect the relationship between programs and teachers).

Figure 2. Conceptual Framework Graphic.



The PPCT or Process-Person-Context-Time Model represents the four properties of development outlined by Bioecological Systems Theory (Bronfenbrenner & Morris, 2006). In this model, the more proximal, or closer to the child the influences are, the more significant and long lasting an impact they have on development. For example, Spilt, Hughes, Wu, and Kwok (2012) discovered that daily teacher-child interactions have a more significant, and longer lasting, effect on child outcomes on social emotional, cognitive, and language measures than more distal properties, such as teacher education levels. In the following sections, each property of the PPCT Model will be described and explained in the context of the current proposed research.

PPCT – Process. According to Bioecological Systems Theory, proximal processes are the engines that drive development, and therefore must be supported and encouraged throughout the child's lifetime (Bronfenbrenner & Morris, 1998). Day-to-day interactions that occur between children and their caregivers can support optimal development. Simple interactions such as having a routine for bedtime, singing songs with rhymes, and having a conversation are all proximal processes that support development in various ways. In order to have an impact on development, these interactions must take place consistently and with increasing complexity over time. High quality childcare settings provide opportunities for children and their primary caregiver to achieve a consistent routine over time that can support these proximal processes.

One routine often used in the child care setting is the collection of information documenting children's growth and development, referred to in this study as child outcomes. The process of using child outcome data to inform teaching decisions is a

growing area of research that can be supported through the use of the PPCT model (Guss et al., 2013a; Guss, Norris, Horm, Monroe, & Wolfe, 2013b). Child outcome data is a measurable index of development that can be compared with teaching behaviors to identify contexts of optimal support for children's development. Understanding and appropriately using child outcome data to guide curriculum results in an informed practice with teachers who have more meaningful and intentional interactions with the children in their care. Collecting and using data also supports teacher and caregiver professional development, program development, public policy, and practice improvement through the reciprocal causality represented in the framework graphic (See Figure 2).

PPCT –Persons. People who influence the life of a child exist in several different areas. Parents, siblings, and other family members form the cultural group of the child. Once the child enters the group care setting, caregivers, peers, and program staff create yet another culture of which the child becomes a part. Characteristics of each individual person who exists within the child's environment can influence not only the child, but also the other people in the environment. Each person has the potential to change the environment either passively, simply by being in the environment, or more actively through the influence of the force characteristics (Tudge et al., 2009). When considering the person factor, understanding the changing nature of these characteristics provides another possible area of research.

Teacher-child interactions and the characteristics of teachers, including teacher self-efficacy and motivations for teaching, may support or thwart the development of the child. For example, a teacher who faces external pressures to perform teaching tasks

in a certain way may have less patience for the child and fail to follow an established routine that the child has come to expect. When this occurs in isolation, the child can recoup from the atypical occurrence, experiencing a sense of disequilibrium only for a moment (Tronick & Cohn, 1989). This type of behavior, when repeated over time can have a significant influence on the child's overall development and on how he or she views the caregiver. Including the analysis of relationships between the influence of teacher behaviors on teacher-child interactions and child outcomes in a study of classroom quality is in congruence with Bronfenbrenner's Bioecological Systems theory and contributes to the greater body of knowledge regarding the role of proximal processes in the context of child care environments.

PPCT – Context. The environments in which infants and toddlers learn and develop are varied and complex. From individual family settings, in-home outreach programs, and small family child care homes to Early Head Start and large child care settings, the opportunities provided to children are as different as the people who provide them. Understanding how to provide individualized responsive and reciprocal relationship-based care in a large group setting is a challenge that needs to be addressed due to the steadily increasing numbers of infants and toddlers who need full time care outside the home (Kovach & DaRos, 1998; Murphey et al., 2013).

Even within the group care setting, a number of variables can influence the quality of a child's opportunity for growth. Group size, teacher-child ratios, philosophy of the program, education level of staff, funding, and many other factors can impact the types of proximal processes that are valued and supported by the program (Burchinal, 2010; Burchinal et al., 2002; Thomason & La Paro, 2013; Susman-Stillman et al.,

2013). The contexts in which the child lives are ever changing and must be evaluated on a number of levels in order to truly understand the processes that support the child's development.

A number of tools currently exist that measure the quality of the experiences that a child receives in a group care setting (Burchinal, 2010). Some tools measure teacher qualities (Arnett, 1989), while others look primarily at the physical environment (Harms, Cryer, & Clifford, 2003). Still other assessment tools seek to measure a combination of context, including environmental and social factors in order to seek an overall picture of the quality of the setting, and its influence on developmental outcomes (La Paro, Hamre, & Pianta, 2012). Research suggests that positive and supportive teacher-child interactions occurring on a regular basis over time in programs that maintain high safety and environment standards of quality provide the best combination for children's success on child outcome measures (Ayoub et al., 2009; Early et al., 2007; Hamre & Pianta, 2001; Love et al., 2002; Spilt et al., 2012).

One widely-used assessment tool designed to measure classroom quality for children ages 15-36 months, is the CLASS-Toddler (La Paro et al., 2012), This tool has the ability to measure the context of the classroom as well as the interactions between teachers and children. Teacher-child interactions that foster emotional and behavioral support and engaged support for learning are considered as part of the assessment. It is through these teacher-child interactions, or proximal processes, that teaching measurable behaviors have the potential for the greatest influence on child outcomes. The CLASS-Toddler is one assessment tool that fits the PPCT model due to its focus on interactions as well as the structural indicators of quality environments.

PPCT – Time. Understanding the context and people that surround a child cannot be accomplished without conducting some research into the social, cultural, political, and historical influences that help determine how decisions are made. Across time, shifts in socially accepted norms can influence the child's development both directly and indirectly. For example, in years past, most children were cared for in the home by their mother. Today, most children under age 5 are cared for by someone other than a parent while the mother and/or father work. Many of these children are in full time care settings outside the home (Murphey et al., 2013). This sociocultural trend toward group care settings has had a significant influence on children's development over time. The norms and values of the culture surrounding the program the child attends can affect attitudes of the people who have direct and indirect influence on the child impacting the quality of the child's educational experience and in turn, life-long development. Research has repeatedly shown that the quality of the program where a child receives care is a determining factor in the child's future success (Campbell et al., 2012).

Assumptions of the conceptual framework model. It is assumed that within contexts that include and influence children, high quality interactions will be guided by standards and recommendations of the field (Copple & Bredekamp, 2009; Copple, Bredekamp, & Gonzalez-Mena, 2011; Lally et al., 2004; Zero to Three, 2008). Various guides to best practices exist, however, all agree on some specific standards of health, safety, and educational engagement in environments and interactions that support optimal development for all children ages birth-8. These standards and guidelines can

be used to help determine the appropriateness of materials, activities, and interactions between teachers and children.

The sociocultural setting in which the program exists influences the philosophy of the program, the administration, the program staff and caregivers, and the children and families who attend the program. The assumptions for high quality early learning programs are that caregivers of children in group care settings receive some level of training and professional development in order to support them in their role as educators and that high quality programs are supported financially and philosophically by all levels of their management structure.

One such high quality program is the Early Head Start (EHS) program. EHS classrooms adhere to Program Standards, which are considered to be among the highest levels of standards currently existing in the broader early care and education field (Office of Head Start, 2014). Best practices regarding structural indicators such as class size, ratios, and continuity of care are upheld, as are teacher training and education in an effort to maintain high quality teacher-child interactions that support optimal child outcomes over time. EHS serves a specific population of children designated to be at risk for developmental delays, most of who are living in poverty.

The children in these settings have a risk for social and academic delays that can be reduced by participation in quality early education (Administration for Children and Families, 2006; Bandel et al., 2014; Heckman, 2010; Office of Head Start, 2014). While not typical of infant/toddler settings, the EHS program model provides a consistent foundation for the assumptions of this conceptual framework. Using Early Head Start classrooms as a research base also fits into the model of systems theory, as EHS

programs focus on the child and family in the context of the school environment (Office of Head Start, 2014). Comprehensive services provided by EHS programs include, not only the child's education, but also wellness, developmental and dental screenings, and a focus on social-emotional health.

The trend toward group care environments as the primary source of out of home care for infants and toddlers is likely to continue, making understanding these dynamics of increasing importance. The child care teacher has become a central component of both quality environments and child outcomes. Understanding the dynamics of the teachers' environment and the characteristics that promote the effective support of development provides a context for supporting young children's growth and development in group care settings. This focus of research is essential to understand how the socioeconomic dynamics of our society and our children's educational environments are evolving. Only through an understanding of how these changes are progressing and their influence on development of young children can we hope to understand and implement effective educational strategies for change.

Significance of the Study

Increasing numbers of infants and toddlers in group care combined with an understudied population of teachers and classrooms that serve very young children has created the need for research specific to this area. The first three years have been identified as critical for life success, making understanding the contexts where infants and toddlers spend time an essential component in development. Teachers in these settings are understudied in their contributions to the quality of these environments;

therefore, additional research is needed to better understand the relationships among teacher self-efficacy and motivations, teacher-child interactions, and child outcomes.

Definition of Terms

The list provided below offers definitions of terms used in this proposed study. Establishing a common language for the early childhood field is an ongoing process, therefore, some terms may be used differently in other contexts.

Agency: The researcher in this study worked in conjunction with a research institute at a large state university to collect data from Early Head Start classrooms in one large Head Start program. Throughout chapters 3-5, the *agency* refers to the cooperating Head Start program where the data was collected.

Caregiver: A caregiver is a person who cares for and educates children under age three in a child care setting. The term will be used interchangeably with *teacher* in the context of this paper. The pronoun she will be used to refer to the caregiver as the child care work force is predominately female.

Child outcomes: Measurable indicators of the development of an individual child. For the purpose of this study, the phrase *child outcomes* refers to the assessment of development in cognitive, social, and emotional domains.

Early care and education: Environments where children under age three are cared for by someone other than their parent. These environments provide care for physical and emotional needs as well as education through interactions with adults, peers, and materials that support growth and development in all developmental domains.

Early Head Start (EHS): A federally funded early care and education initiative that provides high quality child care settings for children under age three who are living in poverty or are considered at risk for developmental delays.

Institute: The researcher in this study worked in collaboration with a research institute that is part of a large state university. Throughout chapters 3-5, the *Institute* refers to the research group who collected and housed the data.

Motivations for teaching: The reason a teacher behaves in certain ways in the classroom. The motivations for teaching exist on a continuum, ranging from extrinsic or coerced control to intrinsic or autonomous motivation. In the context of this paper, motivations for teaching will be measured using the Autonomous Motivations for Teaching Scale (Roth et al., 2007).

Proximal processes: Bronfenbrenner and Morris (1998) describe proximal processes as activity that takes place on a regular basis, becoming increasingly complex, is reciprocal, and involves interaction with people, objects, and environment. For the purpose of this paper, proximal processes refer to the reciprocal, ever changing, developmentally supportive interactions between caregivers and children.

Quality: A measure of structural and process indicators in a child care setting that contribute to supporting children, teachers and administrators, and families in the setting. ***Structural indicators of quality*** refer to physical aspects of the environment such as teacher-child ratios, amount and type of materials, and health and safety considerations. ***Process indicators of quality*** are related to how the care and curricula are delivered and consider teacher sensitivity, teacher-child interactions, emotional support for families, and other less tangible areas of the environment.

Teacher-child interactions: The day-to-day exchanges, or proximal processes, that occur between children and their caregivers. These can be physical, verbal, social, and emotional.

Teacher self-efficacy: A "teacher's belief in his or her own capability to organize and execute courses of action required to successfully accomplishing a specific teaching task in a particular context" (Tschannen-Moran et al., 1998, p. 233). For the purpose of this study, teacher self-efficacy will be measured by the Teacher Sense of Self-Efficacy Scale – short version.

Teacher: For the purpose of this paper, a teacher is a person who cares for and educates children in the child care setting. The term will be used interchangeably with *caregiver* in reference to a teacher who works with children age Birth-3 in a child care setting. The pronoun she will be used to refer to the teacher as the childcare work force is predominately female, and all teaching staff in this sample were female.

Chapter 2 Review of Literature

Chapter 2 will present a review of the literature supporting the types and conditions of infant and toddler care currently available in the United States. Quality of infant/toddler environments will be defined and explored, with a focus on the contributing factors and assessment of quality. The teacher will be presented as a significant contributing factor to quality early experiences for children. Theories of motivation will be explored as possible influences on teaching behaviors, which could support or thwart efforts toward improved quality of experiences. Finally, literature surrounding the direct and indirect effects of teaching and quality on children will be presented.

Infant Toddler Programs

About one half of all infants and toddlers in the U.S. are cared for outside the home as mothers return to work a short time after giving birth. In 2009, 55% of mothers of infants were working compared to 14% in 1960. The National Institute of Child Health and Human Development (NICHD) Study of Early Child Care and Youth Development (SECCYD) (NICHD Early Child Care Research Network, 2005) reported a trend of early, extensive, and uninterrupted reliance on child care from about 3 months of age until Kindergarten entry (NICHD ECCRN, 1996). Lally (2013) attributes this trend to the changing national, neighborhood, and family climate in American society as families depend more on institutions due to the loss of extended family and other non-relative child rearing supports. This change in family structure has created several settings where infants and toddlers are cared for while the family is working; informal

in-home care, formal in-home care, center-based care and Early Head Start intervention programs for a few children (NSECE, 2014).

About one fourth of infants and toddlers using formal care arrangements are cared for in center-based programs, including both for profit and non-profit programs (Murphey et al., 2013). Childcare centers vary greatly in size, environment, curriculum, and staff qualifications, each of which are contributing factors to overall quality. Moreover, the high cost and limited availability of this type of care prohibits many families from seeking child care centers as the primary source of care for their infants and toddlers resulting in an increased number of children entering this type of setting at age two or three (Hyson & Tomlinson, 2014). Childcare centers are typically regulated by state agencies or some other organizations that provide standards of quality. Not all centers provide services for toddlers, and even less provide infant care.

Like Head Start for preschool-aged children, Early Head Start (EHS) provides comprehensive services for infants and toddlers and their families at no cost to the family. EHS programs across the United States served about 150,000 children in 2013 through center based care, family home childcare, and home based parents as teachers programs (Administration for Children and Families, 2015). Comprehensive services provided by EHS programs include not only the child's education, but also wellness, developmental and dental screenings, and a focus on social-emotional health. The EHS structure provides family support through parenting classes and social services, including help with family goal setting. EHS programs are inclusive settings for children with disabilities and honor each child and family's individual needs (Office of

Head Start, 2013). All EHS classrooms are regulated by Head Start Performance Standards.

Quality in Infant/Toddler Programs

Quality is a frequently explored and much discussed topic in the field of early childhood. Although a number of possible definitions exist, Phillips and Lowenstein (2010) conceptualize quality in ECE settings as having three parts, process, structural, and policy. Bronfenbrenner's bioecological systems theory aligns with this conceptualization of quality, as interactions (process quality), environment (structural elements), and contexts (social, historical, and cultural) are part of the concentric circles used to denote the impact of various levels of the systems within the theory.

Research has long supported the idea that quality matters in preschool programs for children (Committee on Early Childhood, Adoption, and Dependent Care, 2005; Johns, 2005; McWayne, Fantuzzo, & McDermott, 2004; Reynolds, Ou, & Topitzeses, 2004; Reynolds & Temple, 2005). However, less work has been done in determining the impact of quality settings on children under age three (McMullen & Dixon, 2009; Reynolds & Temple, 2005). Although the body of research is smaller, the results are compelling. Gerber (1979) identifies infancy as a vulnerable stage which requires the quality of care be not just good, but excellent.

In a comprehensive longitudinal study, NICHD followed over 1,000 children and their families from birth to grade 9, identifying both short and long term effects of early care and education settings (NICHD ECCRN, 2005). This research revealed that interactions with adults regardless of the setting played a critical role in development, with children who had sensitive responsive adult caregivers consistently demonstrating

more advanced levels in measures of development across domains. Additionally, the Early Head Start Impact Study (Administration for Children and Families, 2006) followed children who had participated in EHS birth to three programs and found that earlier enrollment in high quality care settings had a greater impact on children's outcomes in preschool. The combination of timing (provided in the first three years of life) and extended exposure to quality programs with sensitive, responsive caregivers had positive effects on child outcomes across domains of development (Yazejian et al., 2015). These studies of *dosage*, or amount of exposure to high quality care, indicate that links exist between the behaviors of the teacher, the age of the child upon entry to the program, and the quality of the environment.

Over time, the importance of environments in supporting growth and development in young children has been explored through the research in child care and early learning settings. With nearly six million infants and toddlers in the U.S. in some sort of formal care setting (Lally, 2013; Murphey et al., 2013) it is crucial to have valid and reliable tools with which to measure the quality of the environments where infants and toddlers are cared for daily. Quality is measurable and has been identified in numerous studies to be connected to child outcomes (Bandel et al., 2014; Burchinal et al., 2002; Pianta et al., 2005).

Quality in child care settings is typically measured by investigating three types of main indicators; structure, process, and global quality. Structural indicators such as teacher-child ratios, group size, and teacher education are usually regulated by state agencies (Burchinal, 2010; McMullen & Dixon, 2009). Process indicators are related to interactions and curriculum implementation and include such measures as teacher

sensitivity, responsiveness, and classroom management (Burchinal, 2010). The combination of structural and process supports create the environments and relationships necessary to produce global quality in early childhood settings (Hestenes, Cassidy, Hegde, & Lower, 2007). The caregiving staff, who are a direct result of the context in which they work, can significantly influence the global quality of the program. Measuring not only the spaces where children play and learn, but also the professional structure in which their caregivers are supported should be considered when assessing high quality environments for children.

Assessing Quality

The assessment of quality in infant and toddler environments has received attention in recent years as research reveals the first three years as a critical point in development particularly sensitive to the influences of day to day interactions in the child's environment (Lally, 2013; NICHD, 1996; Norris & Horm, 2015; Phillips & Shonkoff, 2000). With this increased attention comes increased demands on programs to meet the accepted standards for care and education of the very young child. The ability to organize and quantify the care of infants and toddlers could potentially cultivate a higher level of professionalism for the field of early childhood education.

Identifying the elements of quality is a first step to understanding the impact of group care settings on infants and toddlers. Certain elements are frequently identified in the literature as being indicators of high quality programs and these elements form the foundation for assessments used to measure quality (Lally et al., 2004; Zero to Three, 2008). The first priority in determining quality is usually health and safety followed closely by developmentally appropriate practice (Copple & Bredekamp, 2009).

Additional elements frequently considered are related to curriculum, teaching staff, and partnerships with families and the community. These elements are also widely-used as indicators of quality throughout the literature regarding developmentally appropriate practice (Copple & Bredekamp, 2009; Copple, Bredekamp, & Gonzalez-Mena, 2011), ratings and accreditation for quality programs (National Association for the Education of Young Children, n.d.; U.S. Department of Health and Human Services, 1996), and current measures used to assess quality (Harms et al., 2003; La Paro et al., 2012).

One commonly used measure for assessing quality in infant/toddler settings is the Classroom Assessment Scoring System –Toddler Version (CLASS-Toddler) (La Paro et al., 2012). In Early Head Start (EHS) settings, the relatively new CLASS-Toddler gained in popularity after a large national study found consistency in the tool across classrooms in this group (Bandel et al., 2014). The Baby FACES study provided information on the intensity, quality, and characteristics of Early Head Start environments and used a number of measures, including the CLASS-Toddler, which was under development at the time of the study. Similar to the Classroom Assessment Scoring System (CLASS) (Pianta, La Paro, & Hamre 2008) measurement for preschool settings, the CLASS-toddler assessment tool is unique from other measures of quality because it focuses on the interactional processes of the classroom. Previous tools used to measure infant/toddler environments have received criticism for measuring the only physical environment, materials, or curriculum and not interactions between teachers and children.

The goal of using the CLASS or CLASS-Toddler is to increase the quality of care by improving interactions between teachers and children. While CLASS-Toddler

does consider environment and materials, it is much more focused on how teachers use the materials and environment to support learning and development through interactions with children. Teachstone Training LLC (2014) reports this as a shift from the *what* of quality to the *hows* of quality.

The Role of the Teacher in Infant/Toddler Programs

In infant and toddler settings, the role of the teacher or caregiver is that of facilitator of play and learning, responsive provider of physical care, initiator of rich language experiences and secure base for physical and emotional safety. The first three years is a time of discovery in which a relationship-based care environment provides the opportunity for shared experiences that enhance learning. To optimize the shared experience, relationship-based caregiving provides a foundation of security from which the child can explore (Bowlby, 1998). In recent studies, this has been measured as a level of sensitivity exhibited by the caregiver during interactions (Arnett, 1989; Burchinal, Cryer, Clifford, & Howes, 2002; Dix, 2000; Dix, Gershoff, Meunier, & Miller, 2004; Howes, 1999; LaParo et al., 2012; NICHD ECCRN, 2000; Weinfield, Sroufe, Egeland, & Carlson, 1999).

Caregiving is based on mutual trust and respect for each child as a competent individual (Elam, 2005; Gerber, 1979; Hammond, 2009; Lally, 2009; Pikler, 1993) The caregiver in a high quality program focuses on being responsive to the child by noticing and appropriately responding to the child's cues and signals in order to guide interactions (Gonzalez-Mena & Eyer, 2012; Kovach & Patrick, 2012; Lally, 2009; Tardos, 2011). Caregiving activities such as feeding, diapering, and sleep should be grounded in routines in infant and toddler settings (Elam, 2005; Kovach & Patrick,

2012; Lally et al., 2004). Predictable routines allow the child to anticipate what will come. The anticipation leads to participation as the child's need for independence grows, followed by cooperation as the child comes to understand what is expected (Kovach & DaRos-Voseles, 1998; 2008). These planned and meaningful interactions provide not only the structure for the day, but also the foundation for a sense of well-being and secure future relationships which anchors all other development (Bowlby, 1972; 1998; Bronfenbrenner & Morris, 2006; Lally, 2014; Phillips & Shonkoff, 2000).

Elam (2005) writes that it is not enough that caregivers love children or understand development, they must share curiosity and enthusiasm for life with the children. In order to do this, caregivers need to be physically and emotionally healthy, committed to professional growth, and demonstrate a commitment to quality (Howes & Smith, 1995; Pianta et al., 2005). Programs can support caregiver growth and well-being by providing a work environment that is physically and emotionally safe, values caregivers as individuals, and provides time for caregivers to grow and develop (Zhai, Raver, & Li-Grining, 2011; Sparks & Cooper, 1999; Susman-Stilman et al., 2013). Thus, developmentally appropriate practice for infants and toddlers does not end with the children but also must extend to the adults in the program (Lower & Cassidy, 2007).

Quality Depends on the Teacher

Research in the field of early childhood has found that one factor in determining classroom quality is the teacher (Bandel et al., 2014; Burchinal et al., 2002; Howes & Smith, 1995; Pianta et al., 2005). Additionally, Brownlee, Berthleson, and Segaran (2007) and Lally and Mangione (2006) suggest that infants are particularly vulnerable to poor quality of care due to their dependency on the teacher. Teachers have been

understudied in measures of quality (Logan & Summison, 2010; Ryan & Goffin, 2008), and in particular, teachers of infants and toddlers have been virtually ignored as valuable contributors to quality.

As evidenced by the preceding section, caring for infants and toddlers is a physically and emotionally demanding job. Teaching is a job with a significant amount of stress and a multitude of factors can cause teachers to become dissatisfied with teaching (Elliot, 2007; Jennett, Harris, & Mesibov, 2003; Stoeber & Rennert, 2008). Nguni, Sleegers, and Denessen (2006) found that satisfied teachers showed more excitement and commitment toward teaching, indicating that satisfaction could be related to quality. Increased demands as a result of more stringent quality measures create an added layer of stress on teachers and programs who are dependent on quality ratings for funding and other supports. One contributing factor to this problem may be the organizational culture and climate of each individual center (Jorde-Bloom & Abel, 2015). Lower and Cassidy (2007) reported that the relationship between quality and work environments, including organizational climate and leadership and management practices, were correlated to global quality. Their findings support the idea that quality work environments for teachers are part of quality classroom environments for children.

High stress levels create instability in the early childhood workforce that poses a potential threat to the quality of early learning environments (Institute of Medicine (IOM) and National Research Council (NRC), 2015). Because the teacher is a key element in maintaining the level of quality through daily interactions as well as during observations of quality measures (Bandel et al., 2014; Bronfenbrenner & Morris, 2006; Burchinal et al., 2002; Pianta et al., 2005), it is important to maintain stable, consistent

teachers who are more likely to provide attentive, appropriate, and engaged interactions throughout the day (Helburn, 1995; Howes & Hamilton,1992). Teacher child interactions are less effective when caregivers are stressed or less committed to their work with the children (Elliot, 2007; Thomason & La Paro, 2013).

Teachers' motivations make a difference in their behavior, expectations, and even compliance with quality standards and organizational culture (Jorde-Bloom & Abel, 2015; Kennedy, 1996). Focusing on the motivations that teachers have to implement a high quality program, concerns arise with the source of the motivation and the *symbolic compliance (*Guss, personal communication, 2015) of teachers. The concerns indicate that some teachers can perform well enough to be rated highly on observational quality measures, but not maintain that level of quality on a day to day basis well enough to provide a consistently high quality of care to children.

A number of factors can influence teacher behaviors in the classroom. Feelings of self-efficacy (Guo, Justice, Sawyer, & Tompkins, 2011; Tschannen-Moran et al., 1998), sources of motivation (Roth et al., 2007), personal beliefs (Kennedy, 1996), and organizational issues (Jorde-Bloom & Abel, 2015; Lower & Cassidy, 2007; Zaslow, Tout, & Martinez-Beck, 2010), all play a part in how the teacher interacts with the infants and toddlers in her care. The interactions of these teacher behaviors and structural characteristics also create situations where children are optimally supported across domains of development.

Theories of Motivation

Why are teachers in infant and toddler settings motivated to build relationships, design developmentally appropriate play opportunities, provide language and emotional

supports, and maintain health and safety standards for the classroom? Why do some teachers seem to do these things naturally, while others need frequent reminders and monitoring from their superiors? The answers may lie in an exploration of autonomous motivation. Although little research has been done to date using theories of motivation in investigating the early childhood workforce, this study presents it as a new direction for answers to old questions about how to increase levels of quality.

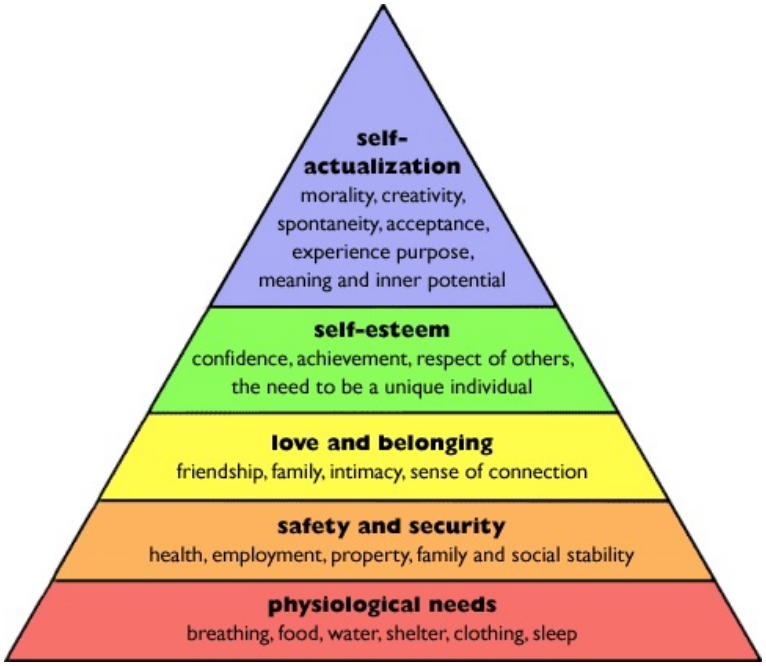
Several theories exist as to why some people are motivated to do certain things and others are not (Deci & Ryan, 2000; Herzberg, Mausner, & Snyderman,1959; Kolcharov, 2015; Maslow, 1943; Pink, 2009). Although science has yet to explain why people want what they want, psychologists have studied this idea from numerous perspectives, including needs, behaviors, and satisfaction. The basic idea behind all theories of motivation is that something is influencing a person to behave in a certain way to reach a desired goal. Unfortunately, not all people want the same thing, so they behave in radically different ways with varying results, leaving theorists to ponder what motivates them.

Maslow's Hierarchy of Needs

One of the most well known theories regarding motivation is Maslow's Hierarchy of Needs (Maslow, 1943). Easily visualized as a pyramid of needs that build upon one another (See Figure 3), Maslow describes five types of needs; psychological, safety, love, esteem, and self-actualization. These five types can be divided into three categories, basic needs (physiological and safety), psychological needs (love and esteem), and self-fulfillment needs (self-actualization). According to Maslow, the basic needs must first be met in order to give consideration to higher levels of need. In other

words, you must be physically safe and secure in order to connect with others, feel good about yourself, or achieve personal potential.

Figure 3. Maslow's Hierarchy of Needs



Maslow's interest in personal potential, and how it is achieved, guided his theory and posits that people are capable of achieving self-actualization under the right conditions. In his 1943 work, Maslow describes self-actualization as the tendency to fulfill potential

> It refers to the person's desire for self-fulfillment, namely, to the tendency for him to become actualized in what he is potentially. The specific form that these needs will take will of course vary greatly from person to person. In one individual it may take the form of the desire to be an ideal mother, in another it may be expressed athletically, and in still another it may be expressed in painting pictures or in inventions. (p. 382–383)

Maslow (1943) describes the hierarchy of needs as a continuous cycle in which when one need is met, another higher need presents itself. Motivation, therefore, comes

from necessity. Critics of this theory suggest that it is too simplistic regarding the expectation that only one type of need can be met at a time rather than many needs on many levels simultaneously (McLeod, 2016). Equally important, other critics suggest that self-actualization is not a goal that is consistent across all people. Additionally, for many, including teachers, basic needs will always be difficult to meet due to financial restrictions; however, higher levels of needs are still achievable (Rouse, 2004; Sackett, 1998).

When applied to the classroom setting, the continual state of becoming described by Maslow suggests that under optimal conditions, teachers will seek to build relationships, create challenging curricula, and support children in their development. Considering both the original theory surrounding the hierarchy of needs and the more recent research suggesting simultaneous development of potential across needs levels, this theory offers insight into potential sources of motivation for teaching behavior.

In 1972, Katz proposed that teachers go through stages of development in their careers and that their needs are different throughout each of the different stages. The four stages include survival, consolidation, renewal, and maturity, and parallel Maslow's suggested search for self-actualization. This self-actualization occurs when teachers move from just surviving the school year and integrating knowledge and practice into relatedness with other teachers and finally to a deep and introspective discourse about teaching as a practice and a profession.

Kokcharov (2013), a scientist and expert in using games as a motivational strategy, describes a hierarchy of skills development and motivation similar to Maslow's pyramid of needs, presenting motivation for work as occurring in three levels,

1) M1: Myself: I do it my way; 2) M2: Mastering: I seek to improve what I do; and 3) M3: Mission: I do it for a compelling purpose. He suggests that people at level M1 complete work tasks to meet their personal needs, i.e. money and recognition. By the time they progress to M2, people use work tasks to seek self-improvement and the sense of belonging to a team. At M3, the work becomes the mission of creating value for others. This literature, although not from the education field, suggests that teachers at various stages of development may be motivated by different needs, for example, a compelling purpose could be related to internal or external motivations, but would likely align with the person's own values or the value of the program they worked in. Understanding the hierarchy of motivation as presented by interdisciplinary literature provides a wider lens for observing and evaluation teacher behaviors in diverse settings.

Self Determination Theory

In contrast to Maslow's work, Self Determination Theory (SDT) (Deci & Ryan, 2000) proposes that motivation is not needs driven, but is a contributing factor in the satisfaction of needs. SDT describes two sources of motivation, intrinsic and extrinsic. Consistent with all research surrounding motivation, in SDT, the initiation and regulation of behavior differs greatly from person to person based on individual needs.

SDT's basic needs theory posits that human beings have an innate need for three particular psychological factors to exist in the environment in order to facilitate personal well-being. Deci and Ryan (2000) contended that the satisfaction of the basic psychological needs of autonomy, competence, and relatedness is required for optimal human health, personality, behavior, and well-being. Autonomy, competence, and relatedness facilitate a person's growth and optimal functioning. Studies in SDT across

multiple work and cultural settings have revealed that employees who have these needs met performed better at their jobs (Baard, Deci, & Ryan 2004), had lower levels of anxiety and depression (Williams, Deci, & Ryan, 1998), and were better adjusted psychologically (Deci et al., 2001). Guss et al. (2013b) discovered this to be true in early childhood settings as well, when they explored teacher use of classroom quality and child outcome data.

Autonomy. Autonomy, one of the three basic psychological needs essential for optimal functioning, is supported by a person's natural drive to learn and develop. Human beings are born to be curious and self-directed (Kálló & Balog, 2005). An environment that supports autonomy in the educational workplace allows the teachers to support their personal beliefs and values.

Competence. Competence, or mastery, is a perceived mindset of intelligence or the ability to develop the skills needed to accomplish a desired task (Deci & Ryan, 2000). This perceived ability or competence gives the teacher a feeling of control over classroom situations. Competence, according to Susman-Stillman et al. (2013), was related to child-responsiveness, which in turn was linked in other studies to caregiver-child interactions (Lindsey & Mize, 2001).

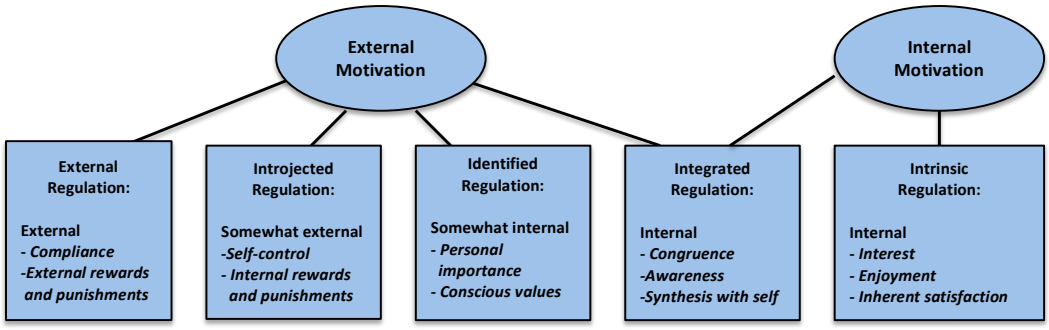
Relatedness. Relatedness is the third and perhaps most foundational element in the basic needs theory of self-determination. It is this element that includes the need for connectedness to another human being or a larger purpose. In the classroom, relatedness refers to the relationships between adults and children and forms the foundation for a quality care setting. Teaching and learning do not occur only between the teacher and student. The external pressures placed upon teachers and caregivers in educational

settings create feelings of stress that result in responding to children in ways that they normally would not (Niemiec & Ryan, 2009; Pelletier et al., 2002). Working in an environment where their own autonomy is undermined causes teachers and caregivers to have decreased enthusiasm for their practice and increased feelings of job stress.

Motivation. Motivation, both intrinsic and extrinsic, plays an important role in getting people to do what needs to be done. Intrinsic motivation refers to the internal motivation that a person has to do something because they receive satisfaction from the act itself. Extrinsic motivation incorporates some external factor into the reasoning behind an action (Deci & Ryan, 2000). Both intrinsic and extrinsic motivation contribute to the satisfaction of autonomy, competence, and relatedness.

SDT posits a continuum of reasons for motivation ranging from coerced to fully autonomous. Four levels of motivation have been identified along the continuum, external, introjected, identified, and internal (see Figure 4) (Ryan & Deci, 2000). Controlled motivations can be the result of external forces, i.e. *I will receive a bonus if my CLASS-Toddler scores are high,* or internal pressures, i.e., *I don't want people to think I am a bad teacher if I get a low CLASS-Toddler score*. While autonomous motivations would indicate a more intrinsic reason for teaching behaviors, i.e. *I want to get a good score because doing so means I achieved my goal to provide the best possible care for the children*.

Figure 4. The Continuum of Motivation
Adapted from "Self-Determination Theory and the Facilitation of Intrinsic Motivation, Social Development, and Well-Being," by R. M. Ryan and E. L. Deci, *American Psychologist, 55*, p. 72. Copyright, 2000.



Autonomous Motivation for Teaching

Researchers in the field of work motivation (Fried & Ferris, 1986; Hackman & Oldham, 1980; Herzberg, Mausner, & Snyderman, 1959) have proposed that teaching itself can serve as an internal motivator, through the completion of daily teaching tasks. The satisfaction derived from the successful completion of these daily teaching tasks has been measured in previous studies as self-efficacy in teachers of elementary aged children (Currall, Towler, Judge, & Kohn, 2005).

The theory of autonomous motivation stems from the SDT idea that sustainable motivation emerges for internal sources and is therefore autonomous. Autonomous motivation refers to actions that emanate from the self in congruence with personal values, interests, or beliefs. In any work setting, this autonomous motivation creates feelings of engagement for job related tasks, in turn increasing performance outcomes (Stone, Deci, & Ryan, 2009). Because SDT and the theory of autonomous motivation focus on the intrinsic importance of work, it is extremely relevant in the early childhood

setting where interactions between teachers and children are enhanced when both parties are motivated to contribute.

The difference between autonomous and controlled motivations are extremely relevant to teaching behaviors, since these tend to come from either personal beliefs and values or external pressures to perform (La Paro et al., 2014; Pelletier et al., 2002). The distinctions between sources of motivation indicate that a significant difference in observed teaching behaviors is likely to occur in autonomous versus coerced actions. A number of studies in elementary and secondary education settings have shed light on the relationships between autonomous motivation for teaching and student outcomes (Niemiec & Ryan, 2009; Roth et al., 2007; Ryan & Deci, 2000).

Teacher Self-Efficacy as a Source of Motivation

Motivation theories, as described, indicate that people have specific personal needs as well as specific sources of motivation that drive them to meet those needs. One similar need that appears in both of the presented theories on motivation refers to a need for accomplishment. SDT calls this the need for competence. Maslow's Hierarchy of Needs describes a feeling of accomplishment or self-esteem that is achieved through success towards a given goal.

Bandura (1994) refers to competence, accomplishment, or perceived mastery, as self-efficacy, which reflects a person's views of their own capacity to exercise influence over events that affect them. These self-efficacy views determine how the person thinks, feels, and behaves. In the field of education, teacher self-efficacy is defined as a "teacher's belief in his or her own capability to organize and execute courses of action required to successfully accomplish a specific teaching task in a particular context"

(Tschannen-Moran et al., 1998, p. 233). In the classroom, the sense of self-efficacy is the motivator that supports the teacher in continuously engaging with children in an effort to teach skills and concepts or guide behavior.

Self-efficacy (Bandura, 1994) and competence (Deci & Ryan, 2000) both refer to perceived mastery, contributing to a perceived mindset of skills possessed or the ability to develop those skills. While self-efficacy and competence are clearly different but related constructs, Tschannen-Moran et al. (1998) designed the Teacher Sense of Self Efficacy Scale (TSES) specifically to measure the construct of perceived mastery in classroom settings. Teacher self-efficacy has been positively related to quality teaching practices and child outcomes (Guo et al., 2010), as well as work engagement and job satisfaction (Klassen et al., 2009; Skaalvik & Skaalvik, 2014). Hamre, Pianta, Downer, and Mashburn (2008) also reported teacher-student relationships as an important factor in classroom quality and indicated that these relationships are dependent on teacher's sense of efficacy related to management of children's challenging behaviors.

Self-efficacy as a dimension of perceived competence has been observed in numerous studies to be related to job satisfaction and engagement at work. Klassen et al. (2009) reported that job satisfaction flowed naturally from high levels of job related self-efficacy. In a number of studies in various fields, feelings of self-efficacy increased job performance and work engagement (Gist,1987; Salanova, Agut, & Peiró, 2005; Stajkovic & Luthans,1998). In infant and toddler settings, teacher self-efficacy has also been linked to job satisfaction, increased levels of sensitivity in teacher-child

interactions, and overall classroom quality (Guo et al., 2010; Guo et al., 2011; Jennett et al., 2003; Klassen et al., 2009).

Teacher self-efficacy or the feeling of competence is a powerful motivation for interactions with children (Tschannen-Moran et al., 1998). Guo and colleagues (2010) documented self-efficacy as an important factor in preschool settings, having positive effects on gains in children's language and literacy development. However, teacher self-efficacy alone did not predict child outcomes in this study. It was the combination of an efficacious teacher and a classroom environment with high scores on instructional and emotional support that created an environment where significant increases in children's language and literacy abilities occurred.

Teaching Behaviors and Child Outcomes

Early reading and math ability are precursors to academic success as reported by the early education literature (Early et al., 2007; Hamre & Pianta, 2001). In previous studies of EHS populations, strong associations have been found between the quality of the care environment and these measures of pre literacy and math abilities (Burchinal et al., 2000). Early experiences that include a sensory rich environment with materials that invite the child to act upon objects and see what happens provide the child with a foundation for information processing and problem solving.

Adults who provide clear, consistent, safe limits while observing children's interests and abilities can provide opportunities for hands on learning, support choice and problem solving, and give time for the uninterrupted play that is necessary for developing higher level thinking (Kovach & Patrick, 2012). How adults support cognitive development and engagement through interactions and preparation of the

environment is influenced by thoughts, feelings, and understanding about exactly what is developing during play (Williford, Maier, Downer, Pianta, & Howes, 2013). Self-efficacy and motivation for teaching tasks can influence the teacher's likelihood to provide these rich cognitive experiences and therefore influence teacher-child interactions and child outcomes on these measures (Guo et al., 2010).

Because language is the primary communication tool of the infant or toddler, development in this domain is directly impacted by day to day interactions with the teacher. Guo et al. (2010) found a positive relationship between teachers' self-efficacy and children's vocabulary gains, within the context of high quality, emotionally supportive classrooms. Long lasting effects of high quality early education on children's language development have been documented (NICHD ECCRN, 2005).

Teacher-child interactions have been associated with social emotional outcomes for children in several studies of children under 5 (Early et al., 2007; Williford et al., 2013). In infancy and toddlerhood, social and emotional skills develop in tandem within the context of the relationships that surround the child, yet, Diamond (2010) suggests that social, emotional, and physical experiences support cognitive functioning as well as building skills in the social emotional domain. Infants and toddlers are very emotional beings. They demand the focused attention of adults and learn early on to use emotion to get that attention. This mutual regulation of emotion is a hallmark of development in infancy and toddlerhood (Tronik & Cohn, 1989). Due to the interrelated nature of the behaviors of the child and the adult, measuring child outcomes in social and emotional domains can shed light on the depth of interactions between children and their teachers.

Summary

A large number of children in the United States under the age of three are cared for in group care settings (Lally, 2013; Murphey et al., 2013). Infancy and toddlerhood represents an important period in development that sets the stage for long-lasting effects on social, emotional, and cognitive skills (Center for the Developing Child, 2010; Lally, 2014; Phillips & Shonkoff, 2000). High quality early education is associated with positive outcomes for children (Bandel et al., 2014; Belsky et al., NICHD ECCRN, 2005; Snow, et al., 2009), and this quality translates to higher outcomes for children (Burchinal et al., 2002; Early et al., 2007; Peisner-Feinberg & Burchinal, 1998; Pianta et al., 2005). Positive outcomes for children depend on the quality of the setting and the quality of the early education setting is influenced by a number of factors, one of which is the teacher (Howes & Smith, 1995).

While the literature supporting the importance of the teacher in day-to-day interactions in preschool is plentiful researchers are still trying to understand the same relationships in infant and toddler settings. It is reasonable to assume that relationships exist between how a teacher behaves in the classroom and how well children learn and develop in that classroom. Bronfenbrenner and Morris (2006) call these interactions, or proximal processes, the primary drivers of development, indicating that understanding and supporting optimal teacher-child interactions is of critical importance. The idea that various internal and external motivations, including self-efficacy and motivation for teaching, can alter teachers' interactions begs further exploration and interpretation (Deci & Ryan, 2000; Roth et al., 2007; Tschannen-Moran et al., 1998).

This study posits that motivations, including motivation for teaching and teacher self-efficacy, are one factor that influences how the teacher interacts with the children in

a group care setting. Chapter 2 provided a review of literature supporting these ideas. In the following chapters, this study will show how motivation and efficacy can be recorded and evaluated in the context of teacher-child interactions to determine relationships among teacher motivations, teacher-child interactions, and child outcomes.

Chapter 3 Methodology

As described in Chapter 1, the purpose of this study was to explore relationships among teacher-reported self-efficacy and motivations for teaching, observed teaching behaviors, and the associations of each with child outcomes. Based on the theoretical constructs of Bronfenbrenner's Bioecological Systems Theory and the literature regarding teacher motivation and self-efficacy, the study focused on the following questions:

- Does a relationship exist between motivations for teaching and observed teacher-child interactions?
- Does a relationship exist between teacher self-efficacy and observed teacher-child interactions?
- What are the direct and indirect relationships among teacher self-efficacy, teacher motivation, teacher-child interactions, and child outcomes?

This chapter describes methods and procedures, including the research design, context of the study, participants, data collection, and data analysis.

Research Design

This correlational study was designed to explore relationships among teacher-child interactions, the teacher characteristics of self-efficacy and motivation, and their association with child outcomes. Working in conjunction with the staff of a research institute affiliated with a large state university in a south central state, the researcher accessed data collected as part of a larger evaluation study of a local Head Start Agency.

The Institutional Review Board (IRB) for the university approved the affiliated research institute to conduct the larger evaluation study. The researcher requested to be added as key personnel for the existing evaluation study, and was approved. All data collection was completed by trained and reliable Institute staff. To answer the specific questions investigated in the study, the researcher worked with Institute staff to design a survey to gather information about teacher motivations and self-efficacy. The researcher assisted Institute staff with the creation of the online teacher staff survey using the survey tool Qualtrics, and accessed the Institute's database for all classroom quality, teacher survey, and child outcome data related to the study. Separate IRB approval was obtained for use of the specific questions designed for this dissertation study, including the questions of interest related to teacher motivation and self-efficacy that were added to the teaching staff survey.

Context

The study was completed in a large Early Head Start Program in the spring of the 2015-16 academic year. The sample was collected from 18 infant and toddler classrooms distributed across 11 school sites within a single Head Start agency. The Head Start Agency houses both Early Head Start and Head Start, however, for the purposes of this study, only the Early Head Start classroom data was considered. The Head Start agency in this study is well known as a model of high quality programs and has participated in numerous research studies. Some unique characteristics of this Early Head Start program included highly qualified staff, an ongoing coaching and mentoring program for support and professional development, and a full day, full year program available to all children.

Consistent with Early Head Start (EHS) Guidelines, classrooms maintained low teacher to child ratios and group children according to age. Some classrooms in the study served children aged 6 weeks to 24 months and others served children aged 24-36 months. Both age groupings were EHS rooms, and all teaching staff from these rooms participated in the teaching staff survey for this study. Children in the classrooms were admitted to the program based on a number of characteristics, including socioeconomic status, home language, and developmental concerns, all of which can indicate the child may be at-risk for future academic failure.

The teaching staff at the agency were organized into teaching teams, with one lead teacher who held an associate degree or higher in early childhood education and one assistant teacher with a minimum of a Child Development Associate (CDA) certificate assigned to each classroom. The lead teacher had the primary responsibility for the assessment of children and the classroom curriculum; however, the assistant teacher also played a role in both of these tasks. Additional teaching staff served in a supporting role to the teaching teams, and most either held a CDA or were working toward CDA certification. All staff, regardless of education or teaching position, received support from instructional coaches specific to the age group they taught. Additionally, all staff received a minimum of 45 clock hours of agency sponsored or approved professional development yearly.

Participants

Participants for initial analyses included 25 lead teachers and 23 assistant teachers from the 18 Early Head Start classrooms described above. Although the EHS agency in the study did employ some male teachers, all the teachers in this sample were

female. Ethnicity was diverse and included 35% White, 18% Black, 20% Hispanic, 10% American Indian, and 17% undeclared or other. The participants had a range of 1-33 years of experience in childcare settings, with an average of 11.5 years in the field. Education level ranged from high school to master's degree, with average education at the associates degree level.

Children aged 30-36 months were chosen by the Institute through a stratified random sample to participate in a pilot study of child outcome measures. Children had to be 30 months old by September 1, 2015 to be part of the pilot study. At the time of the assessments in this study, children ranged in age from 36 to 43 months, with mean age of 40 months. Of the 37 children included in the analyses, there were 21 boys and 16 girls. Ethnicity was diverse with 22% White, 32% Black, 27% Hispanic and 19% undeclared or other. Twenty-one of the children in the sample reported English as the language spoken in the home, with 1 reporting Burmese and others indicating Spanish as the home language. Twenty-nine of the students were given assessments in English, eight were assessed in Spanish, and two children refused to participate in the assessments given by the Institute staff, but did receive teacher ratings for social emotional outcomes.

Procedure

Three sources of quantitative data were collected, which allowed for statistical analysis: 1) a teaching staff survey designed to measure teacher reported motivation and self-efficacy, 2) observational classroom data to assess teacher-child interactions, 3) both direct child assessments and teacher ratings of child behavioral characteristics.

Teaching staff survey. A teaching staff survey was collected in the late spring of the 2015-16 academic year. Informed consent was obtained in person by research institute staff, and included a brief introduction to the survey, as well as benefits and potential risks. After providing informed consent, teaching staff were emailed a link to the online survey and were asked to complete it within one week. Reminder emails were sent at 5 and 7 days. After completing the survey, teaching staff were asked to provide their name in order to receive a gift card as compensation for participation. The names of teachers were aligned with a specific Teacher ID previously assigned by the research Institute, and names were removed during the analysis process.

Teacher-child interactions. Teacher-child interactions were observed in the spring of the 2015-16 academic year as part of a larger evaluation study. Classrooms within the agency were required to participate in the observations; however, teachers gave consent for their data to be used for research purposes. Each classroom observed received a Class ID number for identification purposes. Lead teachers and assistant teachers were observed and assigned a Teacher ID number that was later matched with Class ID number to determine which teachers were observed in specific classrooms. Teachers were informed of the observation, but did not know what day it would occur. Observation time was 2 hours and all teaching staff present in the room at the time of the observation were included in the assessment.

Child outcomes. The Institute staff collected child outcome data on a randomly selected subset of 80 toddlers attending the EHS classrooms observed. Participation in the pilot study was voluntary, and parental consent was collected in person by Institute staff. Children in the study were assigned specific ID numbers that allowed them to be

tracked anonymously across their time at the agency. Trained and reliable Institute staff assessed children in a one-on-one setting outside the regular classroom. Data collectors in this sample had three or more years experience working with children, and most had previous early childhood teaching experience. Children were also given other measures not used in this particular study.

Measures

Teaching staff survey. The Institute conducted a yearly survey of teaching staff in the agency to assess various aspects of teaching practices. The survey consisted of 97 items, which were divided into 5 sections (not all were used for this research). Items were all presented on a Likert scale and the survey was expected to take 20-30 minutes to complete. Demographic data was collected, including, but not limited to, length of time in field, educational level, race, and gender (See Appendix C for additional demographic information). The survey also included questions from two scales specifically chosen to answer the research questions of this study, the Autonomous Motivation for Teaching Scale and the Teacher Sense of Self-Efficacy Scale. A detailed description of these scales follows.

Autonomous Motivation for Teaching (AMT). Autonomous Motivation for Teaching (AMT) (Roth et al., 2007) was a new measure developed for study of Israeli elementary school teachers. The AMT scale was developed in an effort to determine whether motivations for teaching were associated with predictable outcomes for teachers and children. Teacher-child interactions play a significant role in infant and toddler settings, therefore, understanding a teacher's motivations toward completing the

necessary teaching tasks for this age group will shed light on teaching behaviors that support these interactions.

Although this measure was originally developed for teachers of elementary school children, it was adapted for use with infant and toddler teachers. Adaptations of the questions resulted from collaboration between the researcher, research institute staff, and the cooperating EHS agency staff. In order to meet the needs of the agency while maintaining the integrity of the scales used, the language of some questions were adjusted to reflect the teaching tasks of infant and toddler teachers in this specific setting. The small adjustments made to accommodate the EHS agency did not alter the intent of the questions, and may have improved understanding in this particular sample because wording was aligned with agency mission and values.

Some items were reworded to more accurately reflect the teaching tasks of a caregiver in an infant toddler setting. For example, item number 1 reads "… devote time to individual talks with students…", and was adapted to read "…devote time to individual one-on-one time with a specific child…". Other items had similar changes that did not alter the source of the motivation measured, but more accurately reflected the teaching tasks of this age group.

The Autonomous Motivation for Teaching Scale consisted of four subscales, external motivation (EXM), introjected motivation (IJM), identified motivation (IDM), and intrinsic motivation (ITM). The subscales examined four types of motivation for specific teaching tasks. Designed to mimic the Work Motivation Inventory (WMI) (Blais, Lachance, Vallerand, Briere, & Riddle, 1993), which assessed what people see as important considerations in making decisions about their work, the AMT asks

questions that pertain to motivations for specific teaching tasks. Questions referred to teaching tasks such as, *When I devote time to individual talks with students, I do so because...* and invested effort in teaching, such as, *When I invest effort in my work as a teacher, I do so because*…. Additionally, each question corresponded to one of the four types of motivation: external, . . . *because I want the parents to be satisfied so they won't complain*, introjected, . . . *because otherwise I would feel guilty*, identified,. . . *because it is important for me to make children feel that I care about them*, and intrinsic, . . . *because I enjoy finding unique solutions for various students*. Each of the four types of motivation is represented by four questions that teacher responds to on a 5-point scale. Each item is then weighted depending on the sense of autonomy it is intended to reflect (eg., intrinsic, +3, identified, +1 and external, -3, introjection, -1).

The calculated score provided an overall autonomous motivation score, where a higher score indicatied more autonomous motivation for teaching tasks. Cronbach's alpha coefficients for the four motivation subscales ranged from .68 to .76 in the previous study (Roth et al., 2007). In this sample, $\alpha = .81$ for the total scale score, with a range of .58 to .76 for the subscales (EXM, $\alpha = .76$; IJM $\alpha = .58$; IDM $\alpha = .74$; and ITM $\alpha = .74$).

Teacher Sense of Self-Efficacy (TSES). For the purpose of this study, Teacher Sense of Self Efficacy Scale – Short Version (Tschannen-Moran & Woolfolk Hoy, 2001) was used as an indicator of the teacher's level of engagement with teaching tasks. Self-efficacy had been used in previous studies as an indicator of engagement with work and job performance (Guo et al., 2011; Jennett et al., 2003; Justice et al., 2008; Skaalvik & Skaalvik, 2014). Additionally, Guo et al. (2010) found that teacher self-

efficacy was related to child outcomes on language and literacy measures and CLASS scores in a preschool setting.

Questions from the Teachers' Sense of Self Efficacy Scale – Short Form (TSES) (Tschannen-Moran & Woolfolk Hoy, 2001) were added to the teacher survey. The total scale consisted of twelve questions with a prompt such as, *How much can you do to....* Nine possible responses ranging from 1 = *nothing* to 9 = *a great deal* are possible. The questions, such as, *How well can you implement alternative strategies in the classroom,* rated caregiver's feelings of their own ability to control certain areas of the classroom. The scale was divided into three subscales, student engagement, instructional strategies, and classroom management.

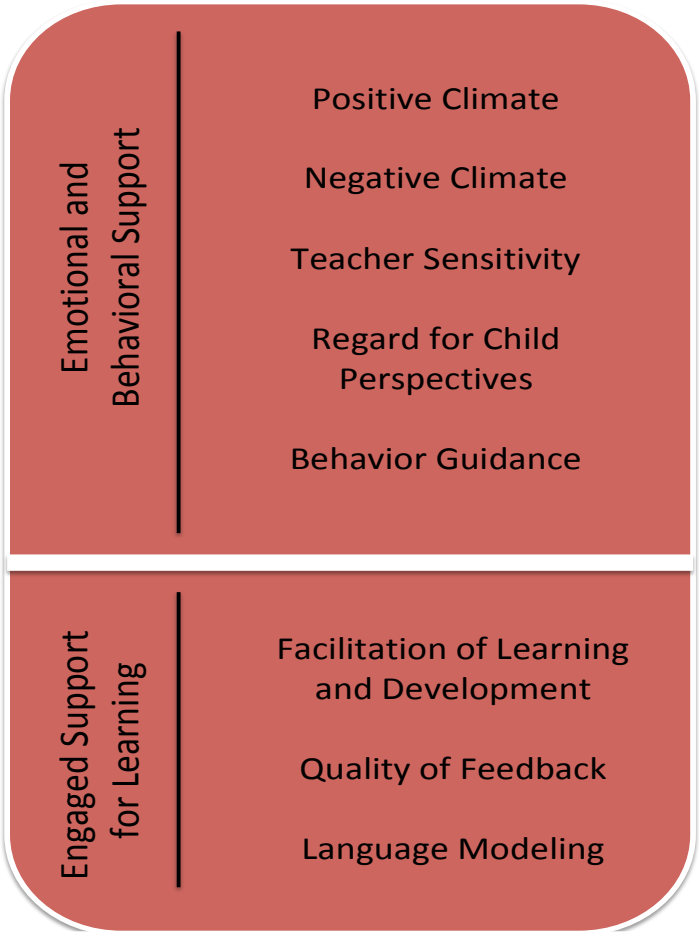
In a large multinational study, the TSES showed convincing evidence of reliability (α=.83-.94), as well as measurement invariance across five countries (Klassen et al., 2009). In this sample, α = .93 with subscale alphas of .820 for Student Engagement, .871 for Instructional Strategies, and .877 for Classroom Management.

Teacher-Child Interactions. Teacher-child interactions were measured using an observational measure of classroom quality. The measure used in this study was selected by the research Institute and the cooperating EHS agency to measure the quality of the classroom environment. Previously used in comprehensive studies of EHS environments, this measure was widely accepted as an appropriate measure for the setting and allowed for the research institute to collect data that could be compared to other EHS settings and national norms for EHS quality.

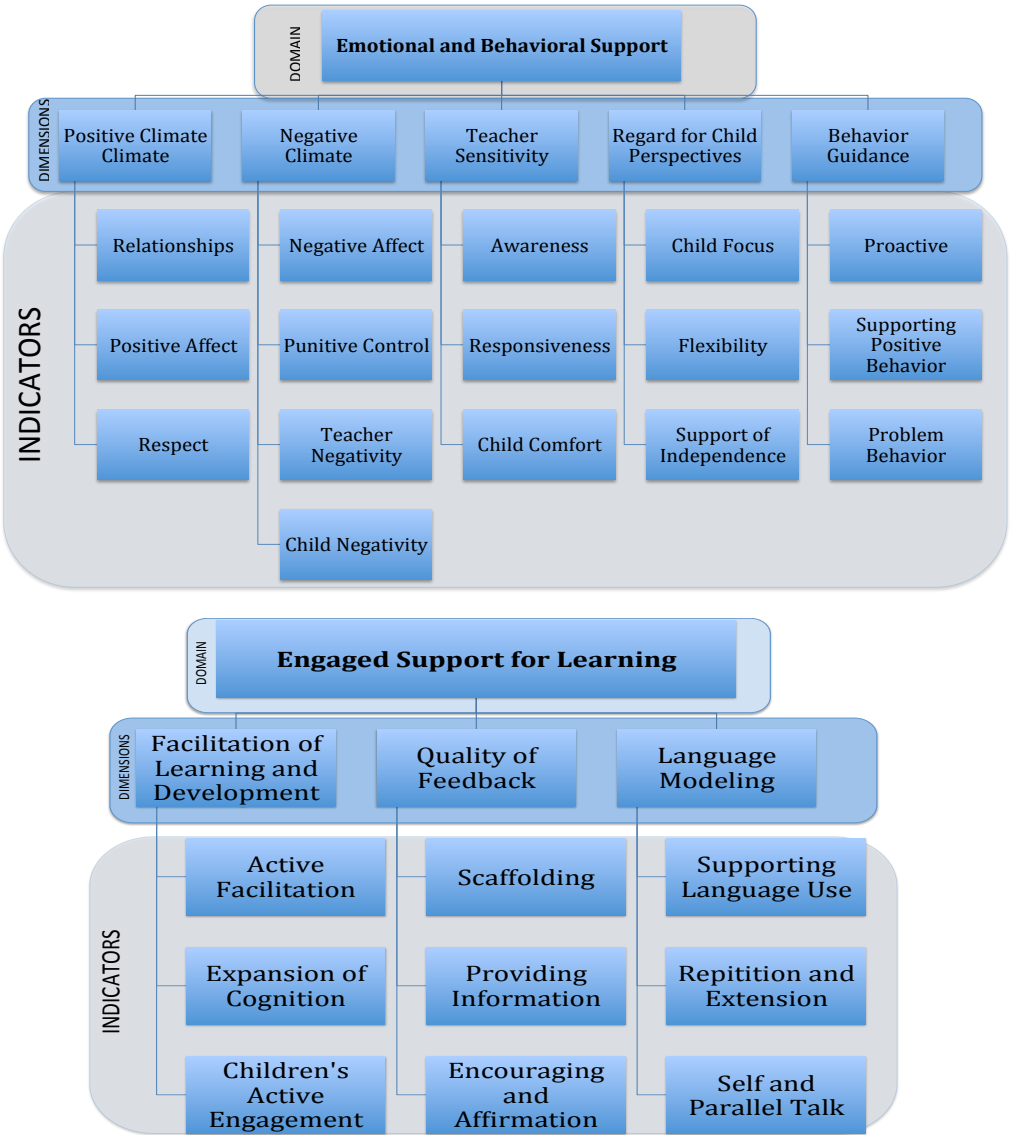
The CLASS –Toddler. The measure used to observe teacher-child interactions for classrooms in this study was the The Classroom Assessment Scoring System –

Toddler Version (CLASS-Toddler) (La Paro et al., 2012). The CLASS-Toddler was designed for use in classrooms with children ages 15-36 months. Intended to measure teacher-child interactions, the CLASS-Toddler represented a fundamental belief that interactions drive learning and was organized in two domains, Emotional and Behavioral Support (EBS) and Engaged Support for Learning (ESL). These domains were further divided into eight dimensions (see Figure 5); positive climate, negative climate, teacher sensitivity, regard for child perspectives, behavior guidance, facilitation of learning and development, quality of feedback, and language modeling (LaParo et al., 2012). Dimensions included several indicators, as displayed in Figure 6, such as physical proximity, matched positive affect, and reciprocal interactions to identify teacher behaviors and teacher-child interactions observed during the assessment.

Figure 5. CLASS-Toddler Domains and Dimensions.



igure 6. CLASS-Toddler Domains, Dimensions, and Indicators



CLASS-Toddler was reported on a 7-point scale, with scores in the 1-2 range considered low quality environments, a 3-5 indicates mid-level quality, and high quality was achieved with a score of 6 or 7. Mean scores for this sample were 6.12 for EBS with a range of 4.8-6.85 (SD =.562) and 4.36 for ESL, with a range of 2.50 to 5.75 (SD =.959). In a large national study of Early Head Start classrooms, means were slightly lower, with 5.3 for EBS (SD .07) and 3.6 for ESL (SD .15) (Bandel et al, 2014);

however, the classrooms in the national study represented varied levels of quality from agencies across the United States while the current sample was from one agency known to be of very high quality.

Validity for this assessment stems from research on the original CLASS tool, which measured quality in classrooms ranging from preschool to fifth grade (Hamre & Pianta, 2007). In a study of over 3,000 classrooms, these authors reported evidence to support a structure of eight dimensions and three domains, however, subsequent pilot studies of the CLASS in toddler settings resulted in a change to the structure resulting in the eight dimensions and two domains mentioned (LaParo et al., 2012). Bandel et al. (2014) supported the two-domain structure using a factor analysis to confirm that the CLASS-Toddler dimension scores from the 220 classrooms in their study loaded into a two factor solution.

Concurrent associations with other measures of quality were tested in the previously mentioned national EHS study. Although small to modest in size, associations with other measures of quality were found. Significant associations were found between CLASS- Toddler scores and child outcomes in the areas of language and social emotional development. Teacher characteristics, including higher education level, commitment to the field, and strong relationships with families in the program were attributed to higher quality while high turnover and reports of depressive symptoms in teachers were associated with lower scores on the CLASS-Toddler (Bandel et al., 2014).

The CLASS-Toddler is a widely-used measure of classroom quality and reliability is reported with estimates of α =.88 -.89 (Bandel et al., 2014; LaParo et al.,

2014; Thomason & LaParo, 2009). Classrooms were observed following the CLASS-Toddler protocol of 20 minutes of observation followed by 10 minutes of coding for a total of four cycles. Observers for this study were research institute staff, who had all been trained to reliability per the recommendations of the CLASS-Toddler authors to 80% agreement within one point (Castle et al., 2016).

Child outcomes. Data regarding child outcomes for participants of this study were selected from a battery of assessments conducted by research Institute staff as part of a larger pilot study. Assessments for the study were chosen for use with this population due to previous success within EHS populations and the opportunity for comparison with large national studies. In the following sections, three child assessments are explored in detail due to their use in the study, the Woodcock Johnson III Tests of Cognitive Abilities (Woodcock, McGrew, & Mather, 2001), the Expressive One-Word Picture Vocabulary Test (Martin & Brownell, 2011), and the Devereux Early Childhood Assessment (LeBuffe & Naglieri, 1999).

Woodcock Johnson III Tests of Cognitive Abilities. The Woodcock Johnson III Tests of Cognitive Abilities (WJ-III) (Woodcock et al., 2001) and the Spanish language equivalent, Batería III Woodcock-Muñoz (Muñoz-Sandoval, Woodcock, McGrew, & Mather, 2005), were widely-used measures that assessed children's academic achievement in English or Spanish depending on child's native language and were appropriate for children age two and older. Studies of the WJ-III English and Spanish versions have demonstrated that both tests assess the same competencies and have similar psychometric properties (Schrank et al., 2005). In addition, studies have found no significant differences between scores on the English or Spanish versions (Hindman,

Skibbe, Miller, & Zimmerman, 2010; Schrank et al., 2005). In this research, 8 children were given the Spanish version of the assessment, and all others were assessed in English.

The full test is a comprehensive series used to measure cognitive ability, academic achievement, and oral language proficiency. For the purpose of the Institute's larger evaluation study, only Test 1: Letter-Word Identification and Test 10: Applied Problems were administered. Children were asked to identify letters, words or pictures or count the number of particular items pointed to by the examiner. Some sample items include, Test 1: Letter-Word Identification: In a row of letters, say to subject, *Point to the "B."* Other items ask, *What is the name of this letter?* or *Point to the word "cat."* and Test 10: Applied Problems: Ask subject to *Show me just one finger.* Point to picture on subject's page and say, *How many dogs are in this picture?* Each subtest requires about 5 to 10 minutes. Raw scores are converted into standard scores with a mean of 100 and standard deviation of 15.

The Letter-Word Identification subtest (Test 1) measures early literacy skills by the identification of printed letters and words. For children ages 2 to 7 years, the subtest has reported test-retest reliabilities of .96 and .91 for intervals of less than 1 year and 1- to 2-years, respectively, and split-half reliabilities of approximately .98 for the English version and a range of .84 to .97 for the Spanish version for children ages 2 to 4 years (McGrew, Woodcock, & Schrank, 2007; Schrank et al., 2005).

The Applied Problems subtest (Test 10) measured early mathematical skills, such as counting, addition, and subtraction. For children ages 2 to 7 years, the subtest had test-retest reliabilities of .90 and .85 for intervals of less than 1 year and 1- to 2-

years, respectively, and split-half reliabilities of .90 or greater for both English and Spanish versions (McGrew et al., 2007; Schrank et al., 2005).

Validity for this measure had been addressed in several ways. Content validity was addressed by the use of subject matter experts, including teachers and psychologists, who contributed to item development. In addition, items were examined by several professionals for bias against women, individuals with disabilities, and cultural or linguistic minority groups (McGrew et al., 2007). A validation study demonstrated that performance on the WJ-III is consistent with performance on similar measures for children of this age group (McGrew & Woodcock, 2001). Support for the internal validity of the WJ-III scores was established for children ages 5 and under by examining cluster score correlations between tests (McGrew & Woodcock, 2001). Correlational patterns emerged as expected, with tests measuring similar constructs being more highly correlated than tests measuring dissimilar constructs.

Expressive One-Word Picture Vocabulary Test. The Expressive One-Word Picture Vocabulary Test (EO-WPVT) (Martin & Brownell, 2011) was a measure of a child's expressive vocabulary; more specifically, the ability to name a pictured object, action, or concept using a single word and could be administered in either English or Spanish. The EO-WPVT was a collection of illustrations shown to the child in order of increasing difficulty. The basal was eight consecutive items named correctly and the ceiling was six incorrect items or the final illustration. The test typically required approximately 20 minutes to complete. Raw scores were converted to standard scores, percentile ranks and age-equivalent scores using the tables in the technical manual.

Reliability for this assessment was reported as ranging from .89 to .94. Content validity evaluation supported that the pictures chosen were universally known and did not include any reference to specific sex, race, or culture. The test was criterion referenced with other measures of intelligence and expressive vocabulary and results indicated that a child would perform similarly the reference tests and the EO-WPVT.

Trained institute staff administered the EO-WPVT to a randomly selected group of children in the observed classrooms to assess the child's ability to name objects, actions, or concepts. Results were interpreted using a mean score of 100 and a standard deviation of 15. A percentile ranking could also be determined for norm comparison.

The Devereux Early Childhood Assessment. The Devereux Early Childhood Assessment (DECA) (LeBuffe & Naglieri, 1999) was an individual child assessment measuring social-emotional development and capacity for resilience. DECA was a behavior rating scale completed by parents and/or teachers and comprised of three scales (Initiative, Self-Regulation, and Attachment/Relationships) that form the Total Protective Factors scale measuring social-emotional health and resilience, and one scale of Behavioral Concerns. For the purpose of this study, the DECA, was completed by the child's lead teacher to assess children in the pilot program.

Rated for use with children age 3-5, the DECA took approximately 20 minutes to complete. Standard scores on the DECA were reported as a T-score with a mean of 50 and a standard deviation of 10. Sample items included a root phrase such as *How often in the last 4 weeks did this child…,* followed by behaviors displayed, such as *control his/her anger; try or to try new things; act in a way that made adults smile*. On the DECA, each child was scored in relation to established norms. One standard

deviation above the norm indicates a strength. One standard deviation below the norm reveals a need. Trained Institute personnel scored, interpreted, and translated standardized scores and profiles.

Internal consistency for the DECA was reported in the technical manual (LeBuffe & Naglieri, 1999) with Cronbach's alpha ranging from .79 for Attachments/Relationships using parent raters to .94 for Self-Regulation using teacher raters. Median internal consistency reliability coefficients across the three protective factors were .88 and .92 for parent and teacher raters, respectively, while the coefficients for the Total Protective Factors scale were .92 for parent and .95 for teacher ratings. Coefficients for the Behavioral Concerns scale were .80 for parent raters and .86 for teacher raters.

Using intervals of six to eight days, all test-retest correlations were significant and ranged from .78 for parent ratings on Behavior Concerns to .94 for teacher ratings on Self-Regulation. Median test-retest reliability coefficients across the three protective factors were .86 and .90 for parent and teacher ratings, respectively, while the coefficients for the Total Protective Factors scale were .88 for parent and .95 for teacher ratings. Coefficients for the Behavioral Concerns scale were .78 for parent raters and .80 for teacher raters.

Scores for the same child obtained from two different raters observing the same child in the same environment at about the same time were correlated to establish interrater reliability. A correction formula was applied to correct for inconsistency in range resulting from a small sample size. All teacher-paired correlations were significant as were all but one (Self-Regulation scale) parent-paired correlations.

Correlations ranged from .36 for Attachment/Relationships using teacher pairs to .77 for Initiative, also using teacher pairs. Median interrater reliability coefficients across the three protective factors were .59 and .68 for parent and teacher ratings, respectively, while the coefficients for the Total Protective Factors scale were .51 for parent and .72 for teacher raters. Coefficients for the Behavioral Concerns scale were .46 for parent raters and .70 for teacher raters.

Content-related validity was informed by a review of the literature on social and emotional competence and resilience in young children and through focus groups with early care and education professionals. Children diagnosed or identified by a professional as having emotional or behavioral disturbances were matched on several demographic characteristics to a comparison group of non-identified children. Large and significant differences were found on all scales, demonstrating the ability of the DECA to discriminate between identified and non-identified groups. In addition, scores on the Total Protective Factors and Behavioral Concerns scales were significantly associated with group membership, meaning these scores correctly predicted membership in the identified and non-identified groups for a large proportion of children in the validation study.

Parent and teacher ratings on the DECA were correlated, using a correction for restriction of range, with ratings on established measures of social and emotional strengths and behavioral concerns. Ratings on the Total Protective Factors scale were significantly associated in the expected directions with the established scales. Ratings on the Behavioral Concerns scale also were associated with the comparison scales in the expected directions, although the correlation of parent ratings was not quite significant

at $p < .05$. Corrected coefficients ranged from -.32 for parent ratings on the Behavioral Concerns and comparison social emotional scales to .78 for teacher ratings on the Total Protective factors and comparison social emotional scales.

Items comprising the protective factor scales were subjected to factor analysis, specifically principal axis factor extraction using Varimax rotation. Solutions for parent and teacher raters were similar, with items loading on the same factor for both sets of raters. The highest loadings for items were on the factors associated with the intended scales. There were a few cross-loaded items, but variance accounted for by the loading on the intended scale was twice as high as for secondary loadings.

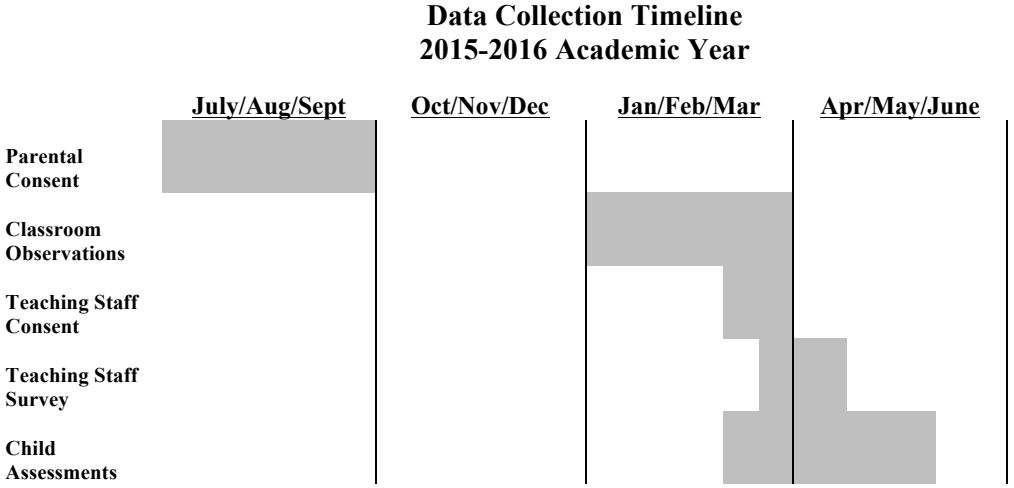
Summary

Chapter 3 presented the study context and methods, procedures, and data collection timelines and tools. Table 1 provides a summary of the types of data collected about classrooms, teachers, and children used in the study. Table 2 provides a summary of the data collection timeline.

Table 1. Types of Data

TYPES OF DATA COLLECTED		
CLASSROOM OBSERVATION	**TEACHER SURVEY**	**CHILD OUTCOMES**
CLASS-Toddler • Emotional and Behavioral Support (EBS) • Engaged Support for Learning (ESL)	**Autonomous Motivation for Teaching (AMT)** • External Motivation (EXM) • Introjected Motivation (IJM) • Identified Motivation (IDM) • Intrinsic Motivation (ITM) **Teacher Sense of Self-Efficacy Scale – Short Version (TSES)** • Student Engagement • Instructional Strategies • Classroom Management	**Woodcock Johnson III Tests of Cognitive Ability** • Letter Identification • Applied Problems **Expressive One-Word Picture Vocabulary Test (EO-WPVT)** **The Devereux Early Childhood Assessment (DECA)** • Total Protective Factors • Behavioral Concerns

Table 2. Data Collection Timeline



Chapter 4 Results

The primary aims of this study were, first, to assess self-efficacy and the sources of motivation for the EHS teachers in the sample; second, to examine how these motivations and self-efficacy were associated with observed teacher-child interactions as measured by the CLASS-Toddler; and third to identify any relationships between teaching characteristics and behaviors and child outcomes. Descriptive statistics, frequencies, and correlational analysis, using SPSS, were conducted on the variables of autonomous motivations for teaching, self-efficacy, observed teaching behaviors, and child outcomes. To examine direct and indirect associations among multiple variables, Hierarchical Linear Modeling (HLM) analyses, using Mplus software, were conducted.

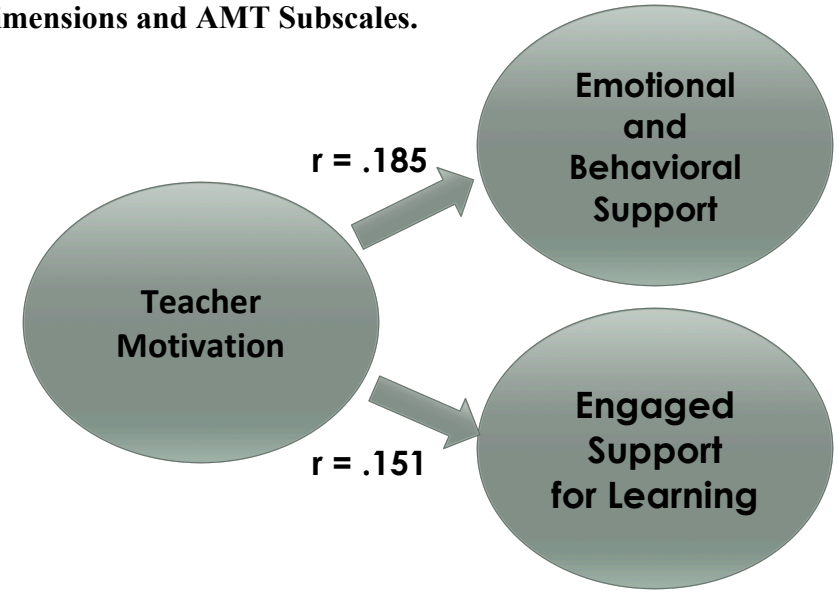
The three research questions were examined using descriptive and inferential statistics. Each question along with the analysis technique and results are presented below.

Question 1 - Does a relationship exist between motivations for teaching and observed teacher-child interactions?

Correlational analyses were completed to answer this question. Small non-significant correlations were found between the total score on the Autonomous Motivation for Teaching (AMT) scale and the CLASS-Toddler domain total scores of Emotional and Behavioral Support ($r = .185$) and Engaged Support for Learning ($r = .151$).

Figure 7. Question 1 Model

able 3. CLASS-T Dimensions and AMT Subscales.



Correlational analyses were then conducted at the subscale level of AMT and the dimension level of CLASS-Toddler which revealed statistically significant but marginal relationships between some variables. These results are displayed in Table 3.

	CLASS-T Dimensions	External Motivation	Internal Motivation	Introjected Motivation	Identified Motivation
Emotional and Behavioral Support Domain (EBS)	Positive Climate	.191	.068	.111	.084
	Negative Climate	.201	.072	-.049	.008
	Teacher Sensitivity	.148	.113	.111	.164
	Regard for Child Perspective	.025	.240*	.041	.176
	Behavior Guidance	.247*	.117	.138	.087
Engaged Support for Learning Domain (ESL)	Facilitation of Learning and Development	.219	.026	.086	-.021
	Quality of Feedback	.185	.057	.060	.112
	Language Modeling	.240*	.031	.037	.035

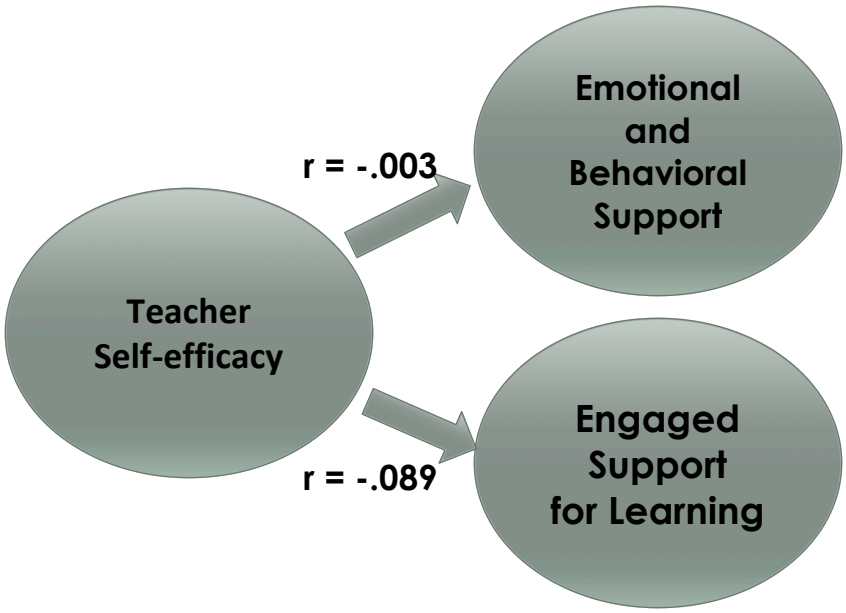
*indicates significance at the .05 level

As can be seen in Table 3, significant relationships were found between External Motivation and Behavior Guidance ($r = .247$, $p < .05$) and External Motivation Language Modeling ($r = .240$, $p < .05$). Higher instances of the behavior guidance indicators of support for positive behavior, proactive behavior to avoid conflict or turmoil, and response to negative behavior were associated with teacher reported motivations from external sources such as parents and/or program administration. The same was true for Language Modeling indicators, with supportive language use, repetition and extension, and self and parallel talk positively associated with more external sources of motivation. A relationship was also found between Internal Motivation and Regard for Child Perspective ($r = .240$, $p < .05$). Higher observed instances of flexibility, and support for children's focus and independence were positively associated with internal sources of motivation, such as making children feel the teacher cares about them or having fun with children. Although significant relationships emerged from this analysis, the magnitude for each was small.

Question 2 - Does a relationship exist between teacher self-efficacy and observed teacher-child interactions?

Negative correlations were found between total scores on SE and both CLASS-Toddler domains of Emotional and Behavioral Support ($r = -.003$, $p < .05$) and Engaged Support for Learning ($r = -.089$. $p < .05$). Higher reports of teacher self-efficacy were associated with lower observed scores on the CLASS-Toddler. These correlations are displayed in Figure 8.

Figure 8. Question 2 Model



These relationships, although insignificant and very weak, occurred in an unexpected direction and, therefore, necessitated further investigation at the subscale and domain levels of Teacher Self-Efficacy Scale and the CLASS- Toddler respectively. This correlational analysis of the relationships between CLASS-Toddler domains and the Teacher Sense of Self-Efficacy Scale subscales is displayed in Table 4.

Table 4. Correlation Matrix for CLASS-T Domains and TSES with Subscales

	Teacher Sense of Self-Efficacy Subscale and Total Scores			
CLASS Domains	Efficacy for Student Engagement	Efficacy for Instructional Strategies	Efficacy for Classroom Management	Total Self-Efficacy
Emotional & Behavioral Support	.138	.024	-.040	-.003
Engaged Support for Learning	.093	-.048	-.178	-.089

Correlations were calculated between the two CLASS-Toddler domains and the three sub-scales from the Teacher Self-Efficacy Scale (TSES). The results were a small non-significant positive correlation (r = .138) between the domain total score in Emotional and Behavioral support and the TSES sub-scale score on efficacy for Student Engagement. A small non-significant negative correlation of -.178 existed between the domain total score in Engaged Support for Learning and the subscale for efficacy in Classroom Management from the TSES. Higher reported self-efficacy in classroom management was associated with lower observed ratings of teacher child interactions in both the Engaged Support for Learning and Emotional and Behavioral Support domains of the CLASS-Toddler.

To further investigate these unexpected relationships, the CLASS-Toddler scores were analyzed at the dimension level in relationship to the TSES subscales. The results of this analysis are presented in Table 5.

Table 5. Correlation Matrix for CLASS-T Dimensions and TSES Subscales

		TSES Subscales		
	CLASS-T Dimensions	Efficacy for Student Engagement	Efficacy for Instructional Strategies	Efficacy for Classroom Management
Emotional and Behavioral Support Domain (EBS)	Positive Climate	.004	-.085	-.137
	Negative Climate	.256*	.091	.178
	Teacher Sensitivity	.117	.032	.028
	Regard for Child Perspective	.075	.057	-.082
	Behavior Guidance	.130	.002	-.073
Engaged Support for Learning Domain (ESL)	Facilitation of Learning and Development	.029	-.044	-.157
	Quality of Feedback	.162	-.021	-.099
	Language Modeling	.037	-.073	-.252*

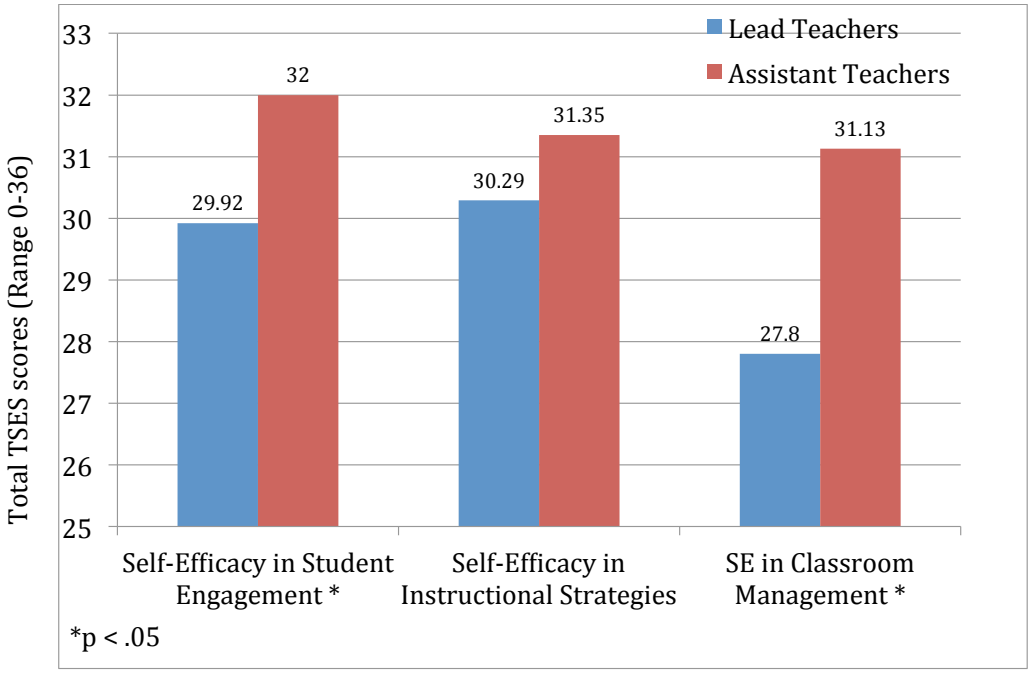
*indicates significance at the .05 level

Analysis at the subscale and dimension level identified few specific significant relationships. Higher scores on Negative Climate indicated a low level of negativity observed and were positively associated with teacher reported efficacy for Student Engagement (.256, $p < .05$). Teachers who reported feelings of efficacy and competence for engaging students were observed to have low levels of negativity in the classroom. Efficacy for Classroom Management was negatively associated with eight of the ten CLASS-Toddler dimensions, with a significant relationship evident in the Language Modeling dimension (-.252, $p < .05$). Higher reported self-efficacy in classroom management overall was associated with lower observed teacher-child interactions at the dimension level. Teachers who felt competent in the area of classroom management were less effective on observational ratings. Efficacy for Instructional Strategies had

non-significant negative relationships with five of the ten dimensions. Teachers who reported feelings of efficacy for instructional strategies were observed to have lower scores in positive climate, facilitation of learning and development, quality of feedback, and language modeling. These results are represented in Table 5.

The pattern of negative associations between observed teacher-child interactions and teacher self-efficacy led to further analysis of these relationships. Given the roles of lead versus assistant teachers, analysis of variance was run to investigate potential differences in self-efficacy for classroom management and instructional strategies based on teaching role. The ANOVA revealed significant differences between the lead teacher and assistant teacher groups for the subscales of student engagement ($F(1, 45) = 3.929$, $p < .05$) and classroom management ($F(1, 46) = 6.195$, $p < .05$).

Figure 9. Efficacy Group Mean Differences between Lead Teachers and Assistant Teachers

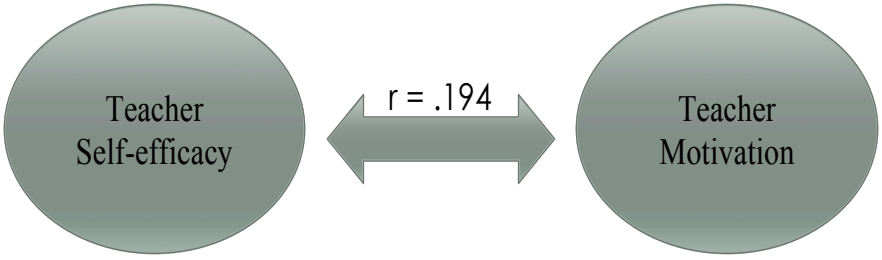


As shown in Figure 9, overall efficacy was significantly different between Lead Teachers (LTs) and Assistant Teachers (ATs). Assistant teachers felt more efficacious in all areas and significantly more competent in the areas of classroom management and student engagement. The differences revealed in this analysis explain possible sources of variance for the unexpected results from the analysis represented in Table 5.

Question 3 - What are the direct and indirect relationships among teacher self-efficacy, teacher motivation, teacher-child interactions, and child outcomes?

In order to answer this question, a number of analyses were employed. Initially, a correlational analysis of the Autonomous Motivation for Teaching and the Teacher Self-Efficacy Scale was conducted at the total scale to explore the relationship between motivations for teaching and teacher self-efficacy. Total self-efficacy and total autonomous motivation scores had an insignificant small positive relationship (see Figure 10).

Figure 10. Question 3: Relationship between Teacher Self-Efficacy and Teacher Motivation



Correlational analyses using the subscales of the AMT motivation scale and TSES self-efficacy scale were calculated and are presented in Table 6. When referring to the continuum of motivation from external to internal sources, moderate significant

relationships were found between the more internal sources of motivation and all three subscales of the TSES. The results are shown in Table 6 below.

Table 6. Relationships between Subscales of AMT and TSES

	TSES Subscales and Total Scores			
AMT Subscales	Student Engagement	Instructional Strategies	Classroom Management	Total SE
External Motivation	.039	.031	-.108	-.006
Introjected Motivation	.079	.043	-.043	.708
Identified Motivation	.310*	.378**	.375**	.460**
Internal Motivation	.323*	.486**	.390**	.507**
Total AMT	.152	.162	.068	.194

* $p < .05$, ** $p < .01$

As seen in Table 6, identified and internal sources of motivation were significantly related to all sub-scales of efficacy. Identified and internal sources of motivation were significantly correlated to the total self-efficacy score with $r = .460$ and .507 respectively. Higher scores on reported self-efficacy were associated with more intrinsic sources of motivation. These associations occurred in the hypothesized positive direction, indicating that efficacious teachers more frequently assign motivation to internal sources, such as a desire to connect with or to help people for personal satisfaction.

Changes to the sample. In the final analyses used to answer question 3 regarding relationships between motivations for teaching, teacher self-efficacy, observed teacher-child interactions, and child outcomes, reduced numbers of teaching

staff and classrooms were available for analyses. Not all classrooms whose teachers participated in the survey also had children who were part of the pilot assessment. Participants were only included in the final analyses if 1) the classroom had been observed using the CLASS-Toddler, 2) at least one teacher in the classroom had participated in the teacher survey, and 3) at least one child in the classroom was part of the pilot assessment program. Participants for the final analysis were 20 teachers and 37 children in 11 classrooms. Due to the sample size and exploratory nature of this question, all effects will be interpreted at the .10 level.

Controlling for clustering. Question 3 asks about potential relationships among the variables and thus hierarchical modeling with Mplus software was used to explore these relationships. Six individual analyses were conducted using the two path models displayed in Figures 11 and 12 to control for clustering. For the purpose of analysis by domain of children's development, Z scores on the WJIII subtests 1 and 10 were combined to create the new variable *Academic Skills.* DECA subscales were also converted to Z scores and combined to create the new variable *Social* Skills. Combining Academic Skills and Social Skills resulted in the variable *Total Skills*. Results, taken together, are also displayed below.

Figure 11. Question 3 Path Model 1.

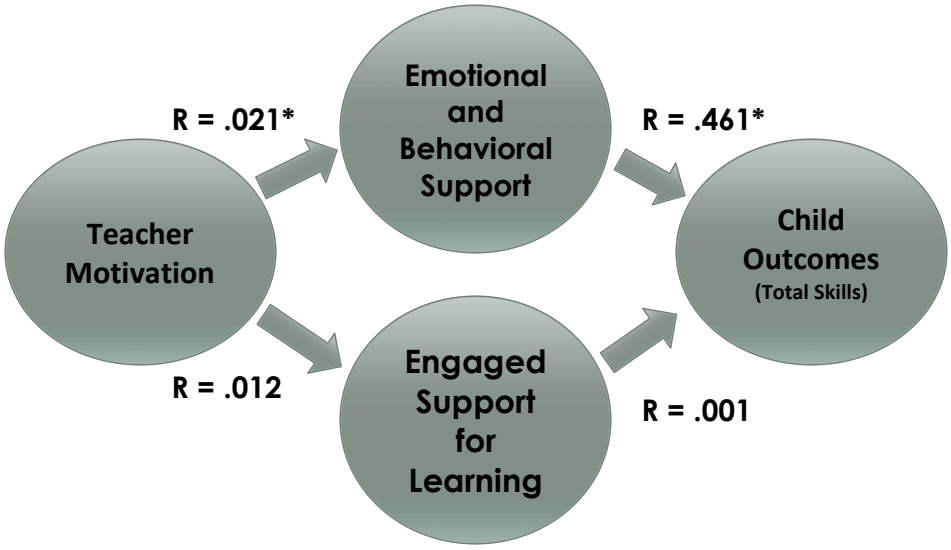
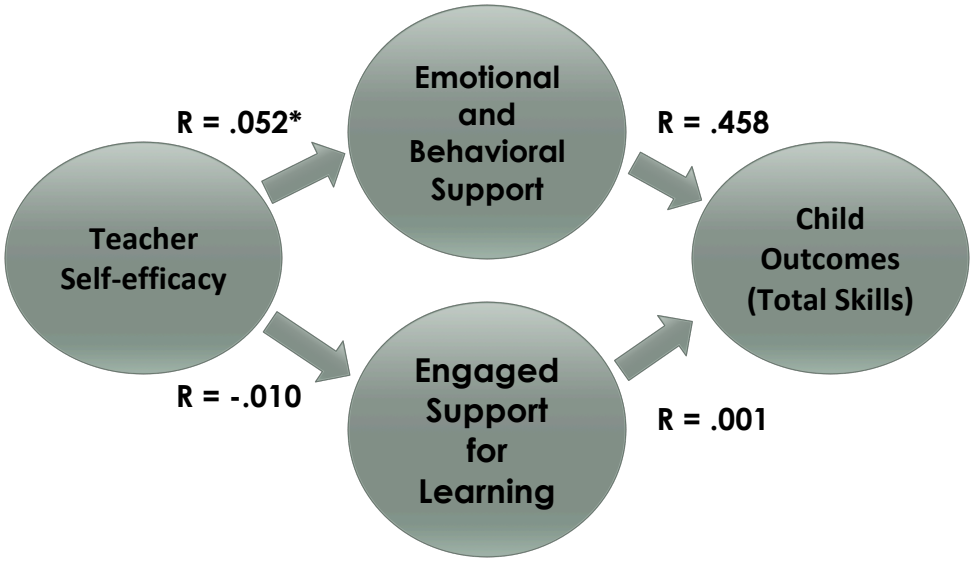


Figure 12. Question 3 Path Model 2.



AMT → CLASS-T→ Total Skills. Model 1 analyzed relationships between the total AMT score, each domain of the CLASS-Toddler, and child outcomes measured as Total Skills. An moderate positive association was found between EBS and Total Skills with R = .461 which was significant at the .10 level. The very small positive relationship between AMT and EBS was significant in this model (R = .021, p < .08). No significant indirect effects were observed, however effects reported were directionally consistent with the hypothesized relationships.

SE → CLASS-T → Total Skills. Model 2 analyzed relationships between the total SE score, each domain of the CLASS-Toddler, and child outcomes measured as Total Skills. Again, an association was found between EBS and Total Skills with R = .458, which was significant at trend level (p = .14). SE and EBS had a very small but significant positive association (R = .052, p = .005). No significant indirect effects were observed, however effects were in the positive direction as hypothesized.

The following analyses followed the same paths as the models above, but replaced the child outcomes – Total Skills variable with the child outcomes -Academic Skills variable.

Figure 13. Question 3 Path Model 3.

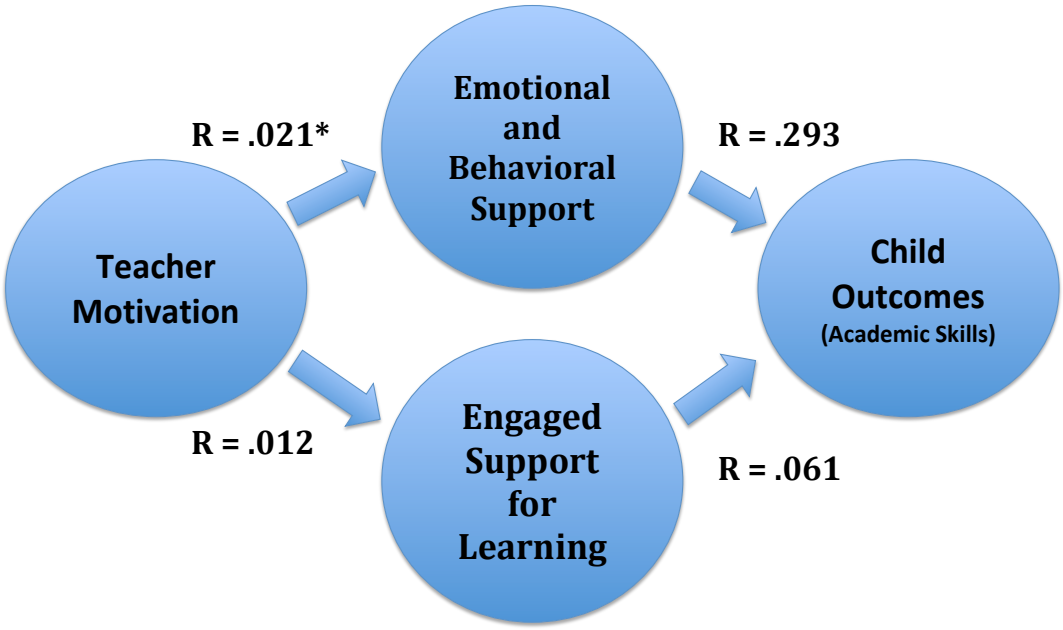
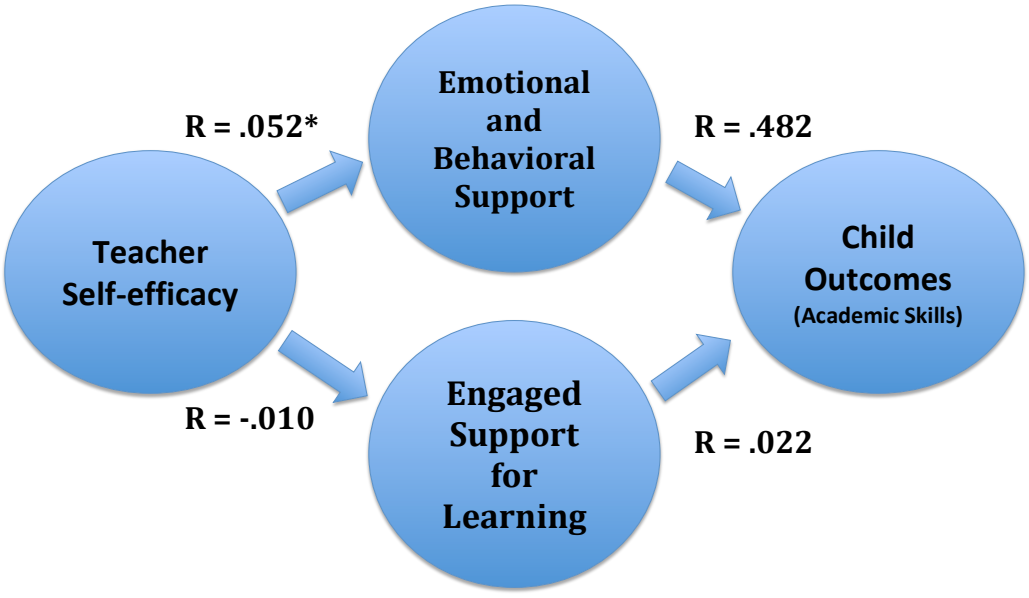


Figure 14. Question 3 Path Model 4.



AMT → CLASS-T → Academic Skills. Model 3 analyzed relationships between the total AMT score, each domain of the CLASS-Toddler, and child outcomes measured as Academic Skills. A small insignificant positive relationship was found between EBS and Academic Skills (R = .293). A significant positive relationship was found between EBS and AMT (R = .021, p = .08). No other direct or indirect effects were significant, however all were consistent with hypotheses in direction.

SE → CLASS-T → Academic Skills. Model 4 analyzed relationships between the total SE score, each domain of the CLASS-Toddler, and child outcomes measured as Academic Skills. A moderate insignificant positive relationship was found between EBS and Academic Skills (R = .482, p = .17). A significant positive relationship was found between EBS and SE (R = .052, p = .005). No other direct or indirect effects were significant, however all were consistent with the hypothesized direction.

The following analyses followed the same paths the models above, but replaced the Child Outcomes - Academic Skills variable with the Child Outcomes - Social Skills variable.

Figure 15. Question 3 Path Model 5.

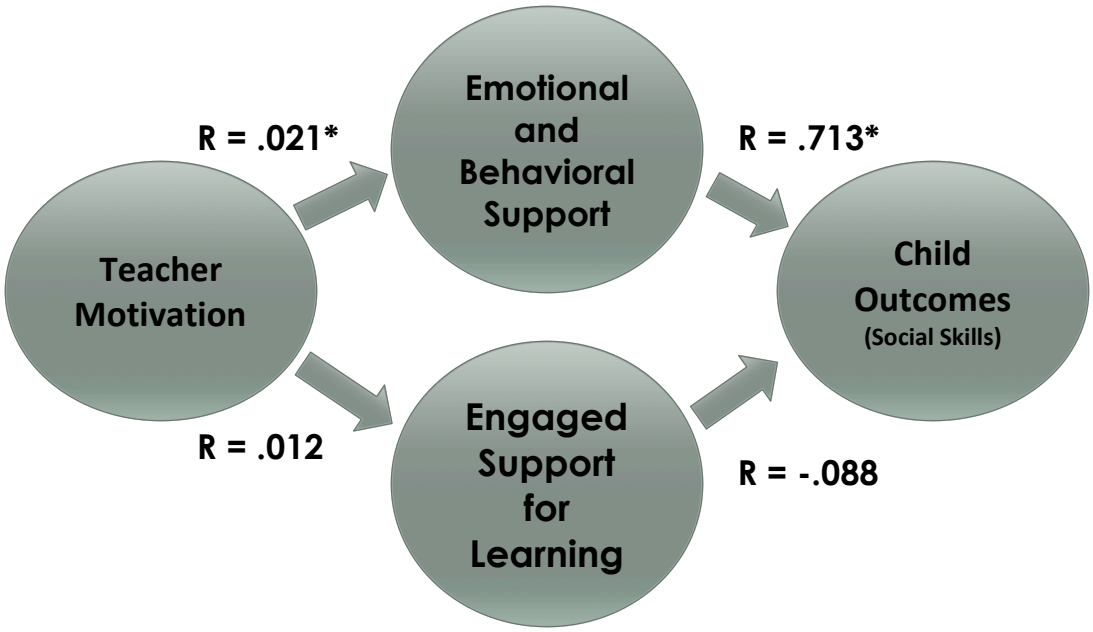
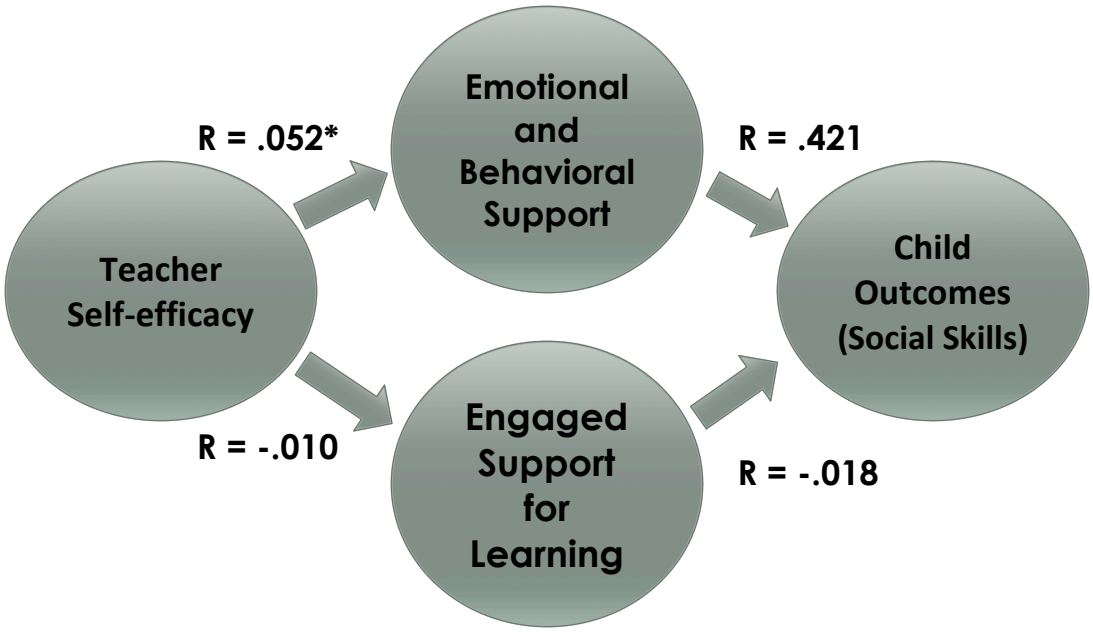


Figure 16. Question 3 Path Model 6.



AMT → CLASS-T→ Social Skills. Model 5 analyzed relationships between the total AMT score, each domain of the CLASS-Toddler, and child outcomes measured as Social Skills. A large positive relationship was found between EBS and Social Skills (R = .713, p = .06). A significant positive relationship was found between EBS and AMT (R = .021, p = .08). No other direct or indirect effects were significant.

SE → CLASS-T → Social Skills. Model 6 analyzed relationships between the total SE score, each domain of the CLASS-Toddler, and child outcomes measured as Social Skills. A moderate positive relationship was found between EBS and Social Skills (R = .421), but it was not significant in this model. A significant positive relationship was found between EBS and SE (R = .052, p = .005). No other direct or indirect effects were significant.

Regardless of the model path, observed scores in Emotional and Behavioral Support were positively correlated with measures of teacher motivation and self-efficacy.

Chapter 5 Discussion

More infants and toddlers are in early care and education settings at this time than ever before in history, indicating that understanding these settings is of critical importance. Increasingly complex relationships develop between children and their teachers in child care settings. The current study, inspired by Bronfenbrenner's concept of reciprocal proximal processes (Bronfenbrenner & Morris, 2006), explores influences on teacher-child interactions. Teacher motivations, teacher self-efficacy, and demographic characteristics of teaching staff were analyzed in relation to observed teacher-child interactions. Three research questions were posed:

- Does a relationship exist between motivations for teaching and observes teacher-child interactions?
- Does a relationship exist between teacher self-efficacy and observed teacher-child interactions?
- What are the direct and indirect relationships among teacher self-efficacy, teacher motivation, teacher-child interactions, and child outcomes?

Chapter 5 presents a summary of the results for each question, as well as limitations and strengths of the study, recommendations for future research, and implications for practice.

Question 1 - Does a relationship exist between motivations for teaching and observed teacher-child interactions?

Small significant relationships were found between External Motivation and Behavior Guidance ($r = .247$, $p < .05$) and External Motivation and Language Modeling ($r = .240$, $p < .05$), suggesting that external factors such as coaching, parental

expectations, and workplace restrictions may have some influence on decisions teachers in this study made about how to interact with children.

The relationship between external motivation and the variables of behavior guidance and language modeling could indicate a lack of understanding about how to manage the classroom. Lack of education could also explain why these teacher behaviors were more influenced by external sources such as parents and administrators. Castle and colleagues (2016) reported a direct association between education and the majority of CLASS-Toddler dimensions, indicating that higher levels of education could provide an internalized source of motivation for teacher behaviors. Because the majority of the teachers in this sample population were educated at the associate degree level, they may not have reached the level of professionalism necessary for more internal motivation.

Although significant relationships emerged from this analysis between more internal sources of motivation and some CLASS-Toddler dimensions, the magnitude for each was small and likely offered little practical application. Perhaps in a larger sample, a stronger relationship would have emerged to more fully support this idea. In fact, previous studies identified motivation as a significant contributing factor in teacher behaviors (Guo et al., 2011; Jorde-Bloom & Abel, 2015; Kennedy, 1996).

This finding could have implications for supporting training and work environment needs for places where teachers teach. Lower and Cassidy (2007) suggested that child care work environments were important in evaluating and supporting high quality early education, noting that the goal should be to develop adults as well as children. Katz (1972) presented several stages of teaching competence, which

should be supported through different types of training and networking from on-sight technical support and mentoring to workshops, college courses, participation in professional associations, and intense book study. If a relationship does, in fact, exist between motivation and teacher-interactions, providing the appropriate work environment and professional development opportunities could be critical to maintaining motivation for high quality interactions.

Question 2 - Does a relationship exist between teacher self-efficacy and observed teacher-child interactions?

This question was answered by correlational analysis that revealed higher efficacy in classroom management associated with lower quality classroom environments. This was unexpected and required deeper analysis. One interesting finding was that lead teachers (LTs) and assistant teachers (ATs) had very differing views of efficacy, especially in regard to classroom management and student engagement. Assistant teachers tended to feel more efficacious than their counterparts. Lead teachers, in fact, reported lower efficacy at classroom management than what was indicated by the observational measures.

When analyzed at the group level, a significant difference existed between LTs and ATs indicating that teaching role could be significant in understanding both efficacy and interactions. ATs reported higher efficacy, however, that elevated sense of self efficacy did not translate to higher quality interactions with children, and had the opposite effect on classroom quality. LTs reported a lower sense of efficacy than indicated by observed measures, further confirming the difficulty in accurately identifying the construct of efficacy and its relationship with performance.

These disparities between efficacy and performance among ATs and LTs were similar to the research findings of Susman-Stillman and colleagues (2013) who found differences in patterns of caregiving and sensitivity between caregivers with differing levels of education in diverse settings. Although all the teachers in this study were in the same setting, the differences still existed, suggesting individual variations across caregivers. One supposition for this result is that differences in education level results in different feelings of efficacy at these tasks (Castle et al., 2016; Deci et al., 1991; Guo et al, 2010). Regardless of education, a lack of understanding of child development could be considered as a contributing factor.

Another possible explanation is that the idea of what constitutes competence at a task changes as the teacher develops in her profession (Katz, 1972). Self-efficacy, or a perceived level of confidence, can increase motivation resulting in teachers who set higher goals for themselves and are more persistent in their attempts to reach those goals (Bandura, 2001; Milner & Woolfolk Hoy, 2003).

If you assume that ATs have fewer responsibilities, these differences could suggest that satisfaction with the job and or work environment is a contributing factor (Klassen et al., 2009; Skaalvik & Skaalvik, 2014). When people are more satisfied with their job, they have a greater sense of efficacy for the work (Bandura, 2001). Relationships between work environments and self-efficacy should be viewed as reciprocal, meaning that good work environments create engaged teachers and vice versa (Simbula et al., 2011).

Further exploration into these relationships and the differences between teaching groups may be possible in this sample population, as another researcher from the

Institute asked questions about shared responsibilities in the same survey used to gather this data. More in depth study of these variations in characteristics presents a bountiful source of possible directions for research.

Question 3 - What are the direct and indirect relationships among teacher self-efficacy, teacher motivation, teacher-child interactions, and child outcomes?

Moderate significant relationships were found between both Internal and Introjected Motivation and all three subscales of the Teacher Self-Efficacy Scale. The pattern in this analysis revealed that as sources of motivation for teaching become more internalized, the teacher's sense of self-efficacy increased, indicating that more efficacious teachers were more internally motivated. Ryan and Deci (2000) suggested that intrinsic motivation is possibly the most important contributing factor to behavior, stating "Perhaps no single phenomenon reflects the positive potential of human nature as much as intrinsic motivation, the inherent tendency to seek out novelty and challenges, to extend and exercise one's capacities, to explore, and to learn" (p. 70). Empirical evidence also exists to support the idea that intrinsic motivation is linked to feelings of efficacy, quality classroom environments, and learning (Kunter et al., 2008; Roth et al., 2007).

Practical application of this understanding about teaching behaviors is that highly efficacious teachers may need different types of support to stay motivated in their work. Pay increases or additional benefits are less likely to keep these teachers engaged (Pink, 2009). They also require a broadening of understanding about their work and may be ready for more advanced pedagogical training and education to connect their own internal motivations with best practices. Katz (1972) describes this

phenomenon as *stages of teaching*, indicating that need for deeper understanding about the field is intrinsic and grows as skill level increases. Additionally, research indicates that as efficacy and motivation increase, commitment to the field also increases (Bandel et al., 2014; Elliott, 2007; Thomason et al., 2013), creating an ongoing need for differing levels of professional development to be available for teachers at different stages of their careers. In fact, given the differences found between LTs and ATs in regards to self-efficacy and observed teacher-child interactions, understanding relationships between efficacy and motivation could provide a wealth of information for training and professional development purposes.

Question 3 HLM Models. In the HLM model analyses, regardless of the model path, observed scores in Emotional and Behavioral Support remained statistically and positively correlated with child outcomes on social emotional measures, indicating that a relationship may exist between teacher behaviors such as sensitivity and regard for child perspective and children's social emotional behaviors. The Center for the Developing Child (2010) supports this finding, reporting that safe responsive environments and nurturing interactions with adults build foundation for life-long health and well being. Spilt et al. (2012) also reported longitudinal positive effects for children when teachers focused on building relationships and social emotional skills.

Social and Emotional skills were strongly correlated with observed teacher behaviors in the Emotional and Behavioral Support Domain of the CLASS-Toddler, indicating that teacher behaviors have a significant relationship to child outcomes in this sample. In a large national study, Bandel et al. (2014) had similar results, finding small but significant relationships between CLASS-Toddler scores and child outcomes in

social and emotional measures in EHS settings. Research across other age groups continues to support this relationship between positive interactions in high quality environments and increased child outcomes (Ayoub et al., 2009; Early et al., 2007; Hamre & Pianta, 2001; Love et al., 2002; Spilt, 2012).

Autonomous Motivation for Teaching (AMT) was significantly related to the Emotional and Behavioral Support (EBS) Domain, indicating that motivation is a contributing factor in how well teachers maintain a learning environment that is sensitive and responsive to children's needs. Emotional and Behavioral Support was also significantly related to self-reported teacher efficacy, which, consistent with Tschannen-Moran et al. (1998), could indicate that teachers who think they are more capable are better able to provide quality interactions. Combined with the relationships identified in the analysis of Lead and Assistant teacher groups, this finding creates concerns about the reciprocity of motivation, efficacy, and teaching behaviors of teachers at different levels, which should be explored in more depth in future studies.

Consistent with Niemiec and Ryan (2009), AMT and SE in this sample appeared to be interrelated. The results of investigation into the relationships between AMT, SE, observed teacher behaviors, and child outcomes suggested that motivation for teaching alone was not enough to sustain a teacher's momentum towards creating a quality learning environment. Teachers also needed to experience some level of success in order to build confidence or efficacy in level of competence, which in turn increased motivation and changed behavior. Thus, the constructs of AMT and SE are interrelated, with each dependent on and influenced by the other to influence classroom quality and child outcomes.

Even in the small sample of classrooms in this study, teacher behaviors related to emotional and behavioral support such as sensitivity, positive climate, and behavior guidance were significantly related to teacher efficacy and motivation. In a study of over 200 toddler classrooms, Bandel et al. (2014) reported significant positive associations between EBS scores and children's language outcomes ($r = .22$), suggesting that a larger sample may have resulted in a more robust association. Bandel et al. also reported EBS to be significantly associated with children's competence on social-emotional measures.

Limitations of the Study

As noted in the methods section, this research was part of a larger study and that introduced some limitations. The child outcome measures used in this research were chosen for the larger study aimed to follow children across their preschool experience. Because this study focused on infant/toddler classrooms, only a few randomly selected children of age 30 months and older were part of the child outcome data. While appropriate for the preschool entry benchmarks necessary for the Institute's longitudinal study, most children in infant toddler classrooms are significantly younger than 30 months.

Measures of child outcomes reported in this study were appropriate for children ages two and older. Due to the limited number of appropriate assessments for very young children, the assessments used in this larger pilot study may not be generalizable to all infant and toddler settings. Measures of development are chosen in EHS settings to meet the needs of children and families in the specific setting in which they are used (Kisker et al., 2011), for example, the use of preschool assessments for children leaving

infant and toddler classrooms as part of a longitudinal study. In future studies, all children should be assessed on age appropriate measures to get a better picture of the experiences of the children in the classroom.

For the purpose of this study, teacher characteristics were self-reported. Teachers may be influenced to answer in certain ways due to personal or organizational pressures unknown to the researcher. The motivations for teaching and the self-efficacy scale could be effected by intentional or unintentional misdirection by teachers, for example, teachers may be influenced to answer in the same way as a co-teacher or may answer the question in a way that does not reflect their true feelings or beliefs because of external pressures. Additionally, the measures used were not designed for infant and toddler teachers, which could create some misunderstandings related to the context or phrasing of language for the questions. In regard to the psychometrics of the teacher reported measures, the introjected motivation subscale of the AMT scale demonstrated inconsistent reliability (Roth et al., 2007) in this sample and could have contributed to inaccuracy within the model. The remaining measures of teacher characteristics, however, showed strong score reliability.

This study was conducted in Early Head Start Classrooms. EHS serves a specific population of children designated to be at risk for developmental delays, most of who are living in poverty. Generalizations to other populations may be limited due to the specific needs and characteristics of children in EHS classrooms.

The EHS agency in this study has highly trained and/or degreed teachers in their I/T classrooms. It is very unusual to see this model in I/T settings, so generalizability of the results of this study may be limited to similar settings. Additionally, the

organizational structure of the EHS program studied may provide teacher supports, such as rich and plentiful professional development, that is not present in other settings.

The study was correlational and no determination of causality can be made based on any relationships identified between variables. Additional research would be needed to identify any predictors of teacher behaviors or child outcomes as explored by this study. Causality is a possible future direction for this research.

Strengths and Significance of the Study

Despite the possible limitations, a number of strengths also exist within the design of this study. The Early Head Start sample in this study provides a specific target population that has been used in previous studies of teachers and children in early care settings. Collaborating with a team of established researchers at a major university is also a strength of the design. These researchers are experienced and seasoned assessors with measures used in the study, creating strong inter-rater reliability for this group. Additionally, the majority of the measures themselves have been widely used both within the EHS target population and with other non-EHS early learning programs.

Development in the first three years of life is critical to lifelong success and is dependent on supportive interactions with others. Children do not exist in a vacuum and therefore, the study of children's development must begin to include both the child and the teacher in the context of the environment. This study has the potential to contribute new understanding of early learning contexts in relation to both children and adults. Additionally, any study of teacher-child interactions contributes to the emerging body of knowledge about the characteristics of these interactions and their ability to enhance and support children's development in all domains.

Recommendations for Further Study

One area of study related to motivation is job satisfaction. Very little research on job satisfaction in infant/toddler settings exists, but this could provide additional insight into teacher motivations and behaviors. Job satisfaction and motivation have been related to performance in a number of job fields, including teaching. One aspect of job satisfaction that applies to teaching is the concept of burnout.

This study of self-efficacy and motivation revealed information about why teachers may choose to engage in certain behaviors. In other fields, efficacy has been related to engagement for work (or performance) and in turn a reduced feeling of burnout. With burnout indicated in a number of studies as a critical issue in the early childhood field, a study focused on efficacy and job satisfaction as mediators of burnout could improve commitment to the field and reduce the turnover that is a trademark of infant/toddler teaching staff.

Consistent with Bandura (2001) who reported positive emotional states as the main source of efficacy, teachers who are themselves in a work environment that meets physical, psychological, and self-actualization needs are more likely to provide similar environments for children. A continued focus on teacher behaviors in infant/toddler settings will provide a more detailed picture of how teachers and children in these settings exist in the context of reciprocal relationships where development occurs. Because interactions are fundamentally linked to the personality traits of the people who are interacting, these possible predictors of teaching behaviors provide another avenue for research. Additionally, there is evidence to support the notion that autonomously motivated adults provide environments where children also learn to be more

autonomous. Additional research into motivation and how it influences both teachers and children could shine light on this relationship.

Motivation for teaching is influenced by a number of factors, including feelings of relatedness with colleagues, personal beliefs and values, and skill level. Because intrinsic motivation has been related to job satisfaction and performance in previous studies, this relationship indicates that one possible venue for improved classroom quality could be the continued study of relationships between motivation and teaching behaviors.

Although the analysis models used in this study were supported by the literature, the small sample size and methodological limitations, such as the weak score reliability of the introjected motivation subscale, suggest that additional consideration should be given in future as to whether this was the best model choice. Perhaps a larger sample would support this model. Alternately, it is possible that using different measures and/or variables to assess teacher motivation and self-efficacy would lead to findings that either support this model or suggest an alternative model that better represents the relationships among these variables.

The unexpected differences in reported efficacy between lead teacher and assistant teacher groups indicate the need for deeper introspection about why these differences exist. The assistant teachers in this sample are more representative of teachers of infants and toddlers in the wider population. If the inflated sense of efficacy holds true in the larger population, this finding creates significant concerns regarding the motivation to improve practice in student engagement and classroom management.

Additional research in the broader population is needed to better understand and interpret this finding.

Teacher sensitivity was assessed as part of the observational measure for this study. Sensitivity and self-efficacy have been explored in the parenting literature as significant factors in development for children (Bernier, Carlson, & Whipple, 2010; Teti, O'Connell, & Reiner, 1996) and could be another pathway to understanding infant and toddler teachers. Understanding the characteristics of sensitive teachers as well as characteristics that decrease sensitivity, such as depressive symptoms (McLearn, Minkovitz, Strobino, Marks, & Hou, 2006), trauma (Fraiberg, Adelson, & Shapiro, 1975), and low socioeconomic status (Albright, & Tamis-LeMonda, 2002) presents a number of possible directions for future study. In fact, the teachers in this study of Early Head Start classrooms may not have been very far removed socioeconomically from the at-risk clients they served (Center for the Study of Child Care Employment, 2016), suggesting that additional insight could possibly be gleaned from this data set in regard to characteristics and teacher sensitivity in the EHS setting.

Consistent with previous research about teachers in infant/toddler settings, this study represents findings that require further exploration. The study of characteristics of teachers presents a wide field of possible directions for research (Horm et al., 2013; Norris & Horm, 2015; Susman-Stillman et al., 2013; Thomason & La Paro, 2009).

Implications for Practice

In general the role of teacher behaviors in infant and toddler classrooms in relation to child outcomes has yet to be fully explained. While researchers have explored numerous aspects of quality in the classroom, including structural indicators

(Burchinal, 2010) and exposure to high quality settings (Yazjian, 2015), research is still ongoing to determine what teacher behaviors result in optimal child outcomes over time Castle et al., 2016; LaParo et al., 2014; Mangione, Kriener-Althen & Marcella, 2016). Although preliminary due to the scope and size, the results of this study, are encouraging, as relationships between teacher motivation and efficacy, classroom quality, and child outcomes occurred in the hypothesized direction.

Research on the motivations of teachers is limited, therefore we are still learning how to identify and record this construct for interpretation. Milner and Woolfolk Hoy, (2003) reported that teachers who have higher efficacy tend to exert more effort into their work. They are more creative and inclined to creating higher quality environments for children in their care. Additional research in the area of motivation could produce a measure that more accurately captures the construct of teacher motivation in infant and toddler classrooms.

Autonomous motivation has been negatively linked to linked to perceived job pressures and exhaustion. Niemiec and Ryan (2000) report that this pressure decreases natural inclination for curiosity and learning which needs theorists such as Maslow (1943) and Deci, Vallerand, Pellier, and Ryan (1991) report as a motivating factor toward personal fulfillment. Katz (1972) suggests that teachers have an intrinsic need for more knowledge about their profession as they develop, when combined with an understanding of pressure on motivation, it is easy to see why there could be a crisis in the field (Bassok et al., 2012) as the pressure to perform outweighs the internal motivation to succeed as a teacher.

Best practices for infants and toddlers suggest that sensitive and responsive

teachers are needed for optimal environments (Copple & Bredecamp, 2009; Lally, 2013. This study sought to understand what effects internal and external sources of motivation had on teacher behaviors. Consistent with previous studies, increased motivation resulted to improved classroom quality (Bandel et al., 2014; Elliott, 2007; Thomason & LaParo, 2013) and these studies went on to report increased commitment to the field. These increases in quality have the potential to create long-lasting effects for not only the children that receive care, but for society at large (Bronfenbrenner & Morris, 2006; Center for the Developing Child, 2010; Heckman, 2010; Lally, 2013).

Conclusions

The teacher is a significant factor in determining quality; however, the role of the teacher has been understudied in relation to quality (Burchinal, Cryer, Clifford, & Howes, 2002; La Paro et al., 2012). Motivations for teaching and teacher feelings of self-efficacy influence the teacher's behavior and in turn influence not only the quality of the child care setting, but also, the outcomes for children (Roth et al., 2007; Thomason & La Paro, 2013). This study supports previous findings of the importance of these variables in the lives of children in group care settings.

Efficacy is identified as a motivating factor in performance of job duties, which for teachers of the children in this study include emotional and behavioral support as well as engaged support for learning. Negative associations identified between feelings of efficacy and these observed quality indicators suggest that even high performing teachers can have a low sense of efficacy. These findings point to a need for ongoing professional development and reflective supervision for teachers. Additionally, significant differences between teachers at different levels of education and job

responsibility indicate the need for specialized professional development to meet individual needs and maintain motivation and self-efficacy among members of varied groups.

Consistent with Bronfenbrenner's Bioecological theory, the daily interactions between teachers and children in this study created environments where infant and toddler development was supported. It is reasonable then to assume that continued support for self-efficacy and motivation of teachers has the potential to maintain and even increase the level of quality for these settings. The Early Head Start population has been studied extensively at a national level, but this is the first study of teacher motivations in this population. This study provided initial explorations into the relationships between teaching motivations and observed measures of quality, indicating that teacher characteristics play an important role.

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Appendix A: Autonomous Motivation for Teaching Scale

External Motivation

1. When I devote time to individual talks with students, I do so because I want the parents to appreciate my knowledge and familiarity with their children.

2. When I try to find interesting subjects and new ways of teaching, I do so because I want the parents to be satisfied so they won't complain.

3. When I invest effort in my work as a teacher, I do so because I do not want the principal to follow my work too closely.

4. When I invest effort in my work as a teacher, I do so in order to prevent disruptions and discipline problems during the lessons.

Introjected Motivation

5. When I try to find interesting subjects and new ways of teaching, I do so because I think it is a shame to keep on teaching in the same way all the time.

6. When I invest effort in my work as a teacher, I do so because if I do not invest enough I would feel ashamed of myself.

7. When I invest effort in my work as a teacher, I do so because otherwise I would feel guilty.

8. When I devote time to individual talks with students, I do so because it makes me feel proud to do this.

Identified Motivation

9. When I try to find interesting subjects and new ways of teaching, I do so because it is important for me to keep up with innovations in teaching.

10. When I devote time to individual talks with students, I do so because I can learn from them what happens in the classroom

11. When I invest effort in my work as a teacher, I do so because it is important for me to make children feel that I care about them.

12. When I invest effort in my work as a teacher, I do so because it is important for me to feel that I help people.

Intrinsic Motivation

13. When I try to find interesting subjects and new ways of teaching, I do so because it is fun to create new things.

14. When I invest effort in my work as a teacher, I do so because I enjoy finding unique solutions for various students.

15. When I invest effort in my work as a teacher, I do so because I enjoy creating connections with people.

16. When I devote time to individual talks with students, I do so because I like being in touch with children and adolescents.

Appendix B: Teacher Sense of Self-Efficacy Scale (Short Version)

Teachers' Sense of Efficacy Scale[1] (short form)

	Teacher Beliefs Directions: This questionnaire is designed to help us gain a better understanding of the kinds of things that create difficulties for teachers in their school activities. Please indicate your opinion about each of the statements below. Your answers are confidential.	How much can you do? Nothing		Very Little		Some Influence		Quite A Bit		A Great Deal
1.	How much can you do to control disruptive behavior in the classroom?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
2.	How much can you do to motivate students who show low interest in school work?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
3.	How much can you do to get students to believe they can do well in school work?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
4.	How much can you do to help your students value learning?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
5.	To what extent can you craft good questions for your students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
6.	How much can you do to get children to follow classroom rules?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
7.	How much can you do to calm a student who is disruptive or noisy?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
8.	How well can you establish a classroom management system with each group of students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
9.	How much can you use a variety of assessment strategies?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
10.	To what extent can you provide an alternative explanation or example when students are confused?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
11.	How much can you assist families in helping their children do well in school?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
12.	How well can you implement alternative strategies in your classroom?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)

Appendix C: Data Tables

Data Table 1. Classroom and Teacher Variables Summary

Classroom Variables	N	Mean	SD	Range
EBS	18	6.12	.562	4.80-6.85
ESL	18	4.36	.959	2.50-5.75
Teacher Variables				
AMT	48	71.15	7.03	51-80
SE	48	30.32	3.95	21-36

Data Table 2. Child Outcome Variables Summary

Child Outcome Variables	N	Mean	SD	Range
WJIII Test 1	34	93.88	13.544	73-119
WJIII Test 10	34	91.94	14.672	64-132
EOWPVT	34	93.85	13.104	66-112
DECA-TPF	37	53.38	12.934	28-72
DECA-BC	37	48.92	10.537	30-71

Data Table 3. Teacher Demographics

Teacher Demographics		ATs	LTs	Total
Race	White	17.4%(n=4)	52% (n=13)	34.7%(n=17)
	Black	39.1%(n=9)	0%(n=0)	18.4%(9)
	American Indian	4.3%(n=1)	12%(n=3)	10.2% (n=4)
	Asian	4.3%(n=1)	4%(n=1)	4.1%(n=2)
	Pacific Islander	0%(n=0)	4%(n=1)	2%(n=1)
	Hispanic	30.4%(n=7)	12%(n=3)	20.4%(n=10)
	Other	4.3%(n=1)	12%(n=3)	8.2%(n=4)
Household Income				
	19,900 or less	21.7%(n=5)	4%(n=1)	12.5%(n=6)
	20-29,900	47.8%(n=11)	20%(n=5)	35.4%(n=17)
	30-39,900	13%(n=3)	24%(n=6)	18.8%(n=9)
	40-49,900	8.7%(n=2)	8%(n=2)	8.3%(n=4)
	50-59,900	0%(n=0)	8%(n=2)	4.2%(n=2)
	60-79,900	4.3%(n=1)	16%(n=4)	2%(n=1)
	over 100,000	0%(n=0)	20%(n=5)	10.5%(n=5)
Marital Status				
	Never married	34.8%(n=8)	16%(n=4)	25%(n=12)
	Single, living with partner	13%(n=3)	20%(n=5)	18.8%(n=8)
	Married, living with spouse	30.4%(n=7)	36%(n=9)	33.3%(n=16)
	Married, separated	8.7%(n=2)	4%(n=1)	6.3%(n=3)
	Divorced	13%(n=3)	16%(n=4)	14.6%(n=7)
	Widowed	0%(n=0)	4%(n=1)	2.1%(n=1)
Education				
	Master's	0%(n=0)	12%(n=2)	6.1%(n=2)
	Bachelor's	4.3%(n=1)	52%(n=13)	28.6%(n=14)
	Associate's	8.7%(n=2)	28%(n=7)	20.4%(n=10)
	CDA	78.3%(n=18)	4%(n=1)	38.8%(n=19)
	High School	8.7%(n=2)	4%(n=1)	6.1%(n=3)
Average experience		10.4 years	12.5 years	11.6 years