

University of Nevada, Reno

**Examining the Relationship Between Preschool Teachers' Use of
Social and Emotional Teaching Strategies and Children's Challenging Behavior
and Social Skills**

A dissertation submitted in partial fulfillment of the
requirements for the degree of Doctor of Philosophy in
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by

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Abstract

Because there are immediate and long-term implications when preschool children exhibit challenging behavior in the classroom, it is crucial to prevent and address challenging behavior as early as possible. Social and emotional teaching strategies have been shown to reduce challenging behavior of preschoolers and increase social and emotional skills. The purpose of this quantitative study was to examine if social and emotional teaching strategies correlated with changes in the challenging behavior and social skills of preschoolers with persistent challenging behavior. Data were obtained from an archival data set of a randomized controlled trial (RCT) efficacy study of an intervention for preschoolers with persistent challenging behavior. The data set included baseline measures of teaching practices in classrooms as measured by the Teaching Pyramid Observation Tool (TPOT) and changes in preschooler's challenging behavior and social skills using the Social Skills Improvement System (SSIS) collected at pre- and post-test of study participation (spanning 4 months). Pearson correlations of the teaching practices and children's change scores for challenging behavior and social skills were analyzed for possible statistical significance. Results showed that teaching behavior expectations and teaching problem solving were associated with statistically significant reductions in preschoolers' challenging behavior for children who participated in the intervention group of the original RCT. No statistically significant relationships were identified for teaching social and emotional competencies, friendship skills, or expressing emotions. Implications for persistent challenging behavior in preschool classrooms are discussed.

Keywords: preschool, challenging behavior, social skills, social emotional

Dedication

This research is dedicated to young children and their families, teachers, and others who teach and care for them. This research acknowledges that as researchers, we are indebted to all of you for allowing us into your lives in our attempts to learn from you so that we may in turn help others. You are our teachers; we work to share your knowledge and expertise that you may not know you have. With humility and reverence, I hope you will continue to allow me to learn from you, as there is still much to learn. Further acknowledgement is needed that a child's behavior is not challenging or problematic; the child is only engaging in behaviors they have learned from others in their environment. It is the adult behaviors that are challenging or problematic, and we should shift our language and perspective in order to view young children's behavior as a consequence of adult behaviors, not vice versa. When we know better, we can do better; and we should treat others how we wish to be treated ... always.

This work is dedicated to my incredible family, who lived, loved, laughed, cried, and survived with me in achieving this momentous milestone. Acknowledgements abound, which cannot fully be expressed here with the gravitas that is deserved. To you Joel, who always pushed me to "get it done!"; to Charlie, for always offering to help so that I could get more sleep; to Lucy for encouraging me to finish my work so we could "do more fun things together"; and to Daniel, for being such a surprise in so many ways. I have the honor and privilege of being your wife and mother and grateful for all the things you teach me. Our family's collective curiosity is simultaneously a blessing and a curse; may our learning never end as we embark on some new adventures ...

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Ultimately, I would like to dedicate this research to, and acknowledge the work of, all those who came before me and those who will follow long after. In the continuing pursuit of knowledge and fulfilling curiosities, asking questions and engaging in science to get closer to answering those questions is a continuous and infinite cycle. I am inspired to continue this exploration with you; but first, some rest ...

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Examining the Relationship Between Preschool Teachers' Use of Social and Emotional
Teaching Strategies and Children's Challenging Behavior and Social Skills

CHAPTER ONE – INTRODUCTION

Preschool aged children (3 – 5 years old) are three to four times more likely to be expelled or kicked out of school than students in Kindergarten – 12th grade due to persistent challenging behavior (Gilliam, 2005; Meek & Gilliam, 2016). When children are expelled and/or suspended from preschool due to challenging behavior, it impacts the child, family, and community (Division for Early Childhood, 2017; Shonkoff & Phillips, 2000). Child impacts include removal from the educational environment, fractured relationships with adults and peers, reduced opportunities to learn social and emotional skills, and life-long physical and behavioral health concerns (Bornstein et al., 2010; Campbell, 1995; Shonkoff & Phillips, 2000). Family impacts include increased stress, reduced work productivity and/or loss of a job, family tension, and difficulty finding child care options (Doubet & Ostrosky, 2016). Community impacts include strain on the early care and education workforce, increased demand for an already taxed mental and behavioral health workforce, long term community concerns for the physical and behavioral health of its members, and impacts on public safety and incarceration rates (Coie & Dodge, 1998; National Scientific Council, 2010; Shonkoff & Phillips, 2000). When persistent challenging behavior is present, there are immediate and long-term implications for preschool aged children, their families, and the community at large if action is not taken to ameliorate the challenging behavior.

For preschool aged children, estimated prevalence rates of challenging behavior vary from 10% to 20% (Brauner & Stephens, 2006; Egger & Angold, 2006; Lavigne et

al., 2009; Wichstrom et al., 2012). Prevalence rates are even higher for young children with disabilities, with reported rates of 3 to 7 times higher than those without disabilities (Baker et al., 2002). It is crucial to address and reduce persistent challenging behavior in preschool aged children as early as possible (National Scientific Council on the Developing Child, 2020; New Freedom Commission on Mental Health, 2003).

Researchers have been studying and discussing the prevalence, impacts, prevention, and intervention of challenging behavior with young children for several decades, yet there is still a vast discrepancy in what is known and what services young children typically experience (Dunlap et al., 2006; Shonkoff & Phillips, 2000).

Defining Challenging Behavior

For young children, challenging behavior is commonly defined as “any repeated pattern of behavior, or perception of behavior, that interferes with or is at risk of interfering with the child’s optimal learning or engagement in pro-social interactions with peers and adults” (Smith & Fox, 2003, p. 6). It is important to distinguish the concept of persistent challenging behavior to behavior that is challenging and not socially acceptable. Behavior that is challenging and not socially acceptable occurs with all young children during their early growth and development. As young children learn to communicate and respond in socially and culturally appropriate ways, most children engage in challenging behaviors like crying, hitting, biting, or throwing objects.

During infancy and toddlerhood, these types of behaviors are ubiquitous, and children are typically taught socially and culturally appropriate ways to communicate, express their emotions, and interact with others (Dunlap et al., 2006; Fox, 2015). These socially and culturally accepted behaviors are typically taught during daily interactions

with nurturing caregivers using developmentally appropriate guidance procedures and teaching strategies (Copple & Bredekamp, 2009; Kaufmann & Hepburn, 2007). These guidance procedures and teaching strategies serve to teach children which socially appropriate behaviors to engage in instead of using challenging behavior. When these appropriate behaviors are taught and implemented consistently, young children tend to have fewer instances of challenging behavior. These few instances are typically episodic and can usually be explained by extenuating circumstances (e.g. the child is tired, not feeling well, in a new or different setting, away from primary caregivers).

The definition of challenging behavior specified by Smith and Fox (2003) provides further clarity by indicating that the challenging behavior interferes with the child's learning or relationships with others. This additional clarity seeks to narrow the definition of challenging behavior in a field where the literature contains different definitions of challenging behavior due to the often subjective and culturally specific perceptions of what does and does not constitute challenging behavior and what requires intervention (Dunlap et al., 2006). Since many behaviors during the early childhood years are typical for the child's age and can simultaneously be perceived as challenging, it can be difficult to discriminate and specify what constitutes persistent challenging behavior. In other words, challenging behavior is idiosyncratic to the context and environmental variables in which they occur and is defined by the individual.

For this study, the Smith and Fox (2003) definition will be used, which is relevant for all young children regardless of what their previous experiences are, whether they have typical development, have a developmental disability and/or developmental delay, or are at-risk for developmental disabilities or delays (including emotional behavioral

disorders). From this point on, challenging behavior will refer to behaviors that are not only persistent and consistent, but interferes with the child's learning or relationship with others (Smith & Fox, 2003).

Persistent challenging behavior tends to signify that the child engaging in that behavior does not have the appropriate social and emotional skills to respond to or interact appropriately with the person he or she is demonstrating this challenging behavior toward. As indicated earlier, episodic or sporadic challenging behavior can possibly be attributed to other variables like being tired, hungry, or not feeling well. Challenging behavior that persists over time indicates that the behavior "works" for the child in that it communicates a message to others around them that there is a problem to be solved. Teaching an appropriate social or emotional skill for the child to engage in instead of the challenging behavior is a recommended solution to this problem, but doing so is not necessarily a common teaching practice.

There is evidence that social and emotional skills can be taught and measured, that social and emotional skills promote positive child development which, in turn, reduces the presence of challenging behavior in preschoolers (Schonert-Reichl et al., 2017). Moreover, social and emotional skills are imperative for school settings, improve academic performance and health-related behaviors, and predict important life outcomes (Schonert-Reichl et al., 2017). However, research in preschool classrooms and from teachers makes it resoundingly clear that preschool teachers are rarely adequately prepared to teach and support social and emotional skills to preschoolers (e.g. Fox et al., 2003; Hemmeter et al., 2006; Hemmeter et al., 2008; National Research Council and Institute of Medicine, 2009; Snell et al., 2012; U.S. Departments of Health and Human

Services and Education, 2015; Yates, 2016). The importance of teaching social and emotional skills will be described next.

The Importance of Teaching Social and Emotional Skills

There is consensus in the early care and education community that social and emotional skills are a necessity for survival and success in families, schools, and communities (Division for Early Childhood, 2017; National Scientific Council on the Developing Child, 2008/2012; U.S. Departments of Health and Human Service and Education, 2015). Longitudinal research reveals that social and emotional skills acquired during the early childhood years predict positive adult outcomes including educational accomplishments, better employment opportunities, reduced levels of criminal activity, and reduced levels of substance use and abuse (e.g. Jones et al., 2015; Moffitt et al., 2011). Furthermore, when young children exhibit challenging behavior, many early care and education professionals perceive the child's challenging behavior as an indicator that the child lacks the social and emotional skills that are appropriate for the child's age (Copple & Bredekamp, 2009; Denham & Burton, 2003; Fox et al., 2003; Perry et al., 2007). Subsequently, the perspective that the child needs instruction and support in age- and culturally-appropriate social and emotional skills is understood by researchers and highly experienced professionals in early care and education.

The current literature documents successful teaching strategies and methods for preventing and addressing challenging behaviors with preschool aged children in classroom settings, namely teaching age- and culturally-appropriate social and emotional skills (Dunlap & Fox, 2011; Durand & Moskowitz, 2015; Martinez et al., 2016; Wood et al, 2015). The challenge to the field remains in closing the research-to-practice gap and

providing relevant information and strategies to teachers in preschool classrooms throughout public and private programs, wherever preschoolers are in attendance (Snell et al., 2012). Training needs for early childhood teachers to prevent and address challenging behavior in classroom settings is well documented (Fox, 2015; Fox et al., 2003; Hemmeter et al., 2006; U.S. Departments of Health and Human Services and Education, 2015; Yates, 2016), including research documenting needs identified from higher education personnel (Hemmeter et al., 2008), parents (Doubet & Ostrosky, 2015), and the teachers themselves (Snell et al., 2012). Supporting preschoolers with persistent challenging behavior requires highly trained professionals to facilitate and guide teams for individualized behavior support, yet a vast majority of programs do not have access to professionals with this expertise (Dunlap & Fox, 2011; National Research Council and Institute of Medicine, 2009). It is critical to use pre-professional training and on-going professional development to improve the capacity of preschool teachers to prevent and address challenging behavior in their classrooms. Preschool teachers need the information and strategies for teaching age- and culturally-appropriate social and emotional skills.

An additional challenge is that social and emotional development and the skills that demonstrate developmental progression in the social and emotional domain are many and increase exponentially as children move from infancy to toddlerhood and then to preschool ages (3 – 5 years old). Although social and emotional skills are often culturally-determined, developmental milestones on social and emotional skills for young children and the screening and assessment tools to measure the social and emotional development of young children have been validated with children from various racial,

ethnic, and geographical locations throughout the U.S. [e.g. Ages and Stages Questionnaire – Social Emotional, 2nd Edition (ASQ-SE2; Squires et al., 2015), Devereaux Early Childhood Assessment Preschool Program, 2nd Edition (DECA; LeBuffe & Naglieri, 2012), Social Emotional Assessment Measure (SEAM; Squires et al., 2014)].

Furthermore, the current literature base on social and emotional skill instruction includes a variety of research intervention strategies that range from evaluating a single social and emotional skill (e.g. Durand & Moskowitz, 2015); to implementing a framework of supporting social and emotional development for all young children (e.g. Hemmeter et al., 2016); to evaluating the implementation of a set of social and emotional skills (e.g. Conroy et al., 2015); and evaluating social emotional curricula (e.g. Webster-Stratton et al., 2008). The literature provides evidence that when preschool teachers intentionally teach social and emotional skills, children are likely to learn and demonstrate those skills in the classroom (Dunlap et al., 2006; U.S. Depts. of Health and Human Services & Education, 2015). When social and emotional skills are taught in the classroom, children make greater improvements in those skills and greater reductions in challenging behavior than children in classrooms that do not directly teach those skills (Assessment Work Group, 2019; Hemmeter et al., 2016; Thompson & Raikes, 2007). In situations when children demonstrate challenging behavior, teachers who intentionally teach social and emotional skills are able to individualize instruction to resolve that behavior (Dunlap et al., 2006; Schonert-Reichl et al., 2017; U.S. Depts. of Health and Human Services & Education, 2015).

The current evidence regarding social and emotional skill instruction in preschool classrooms is typically focused on the overall improvement of the classroom as a whole,

without a specific focus on children who already exhibit persistent challenging behavior (e.g. Fettig & Artman-Meeker, 2016). Research is needed to determine if instruction of social and emotional skills correlates with greater changes in social skills in preschoolers with persistent challenging behavior and greater changes in their challenging behavior. Chapter Two provides a summary of the literature on the current knowledge about challenging behavior and the interventions and effects of social and emotional skill instruction on preschool children's challenging behavior and social skills. The support for this work is abundant.

Statement of the Problem

Individualized interventions and supports are one way to address persistent challenging behavior, but there are not currently sufficient behavioral support professionals to support teachers in preschool classrooms with persistent challenging behavior (Meyers, 2007). Furthermore, teaching age- and culturally-appropriate social and emotional skills is the way to prevent or substantially reduce the presence of challenging behavior with young children (U.S. Depts. of Health and Human Services & Education, 2015). Therefore, a solution to insufficient behavioral support professionals could be to teach preschool teachers effective ways to prevent and address persistent challenging behavior with preschoolers in classroom settings (Denno, Phillips, Harte, & Moomaw, 2004).

Currently the literature does not specify whether specific social and emotional skills taught in the classroom is related to changes in the social skills of preschoolers with persistent challenging behavior. The current literature base suggests that teachers and classroom personnel can teach specific skills to preschoolers with persistent challenging

behaviors to reduce those challenging behaviors (Assessment Work Group, 2019; Hemmeter et al., 2016; Thompson & Raikes, 2007; Wood et al., 2015). Yet the current available literature has not identified what, if any, specific social and emotional skills should be taught to reduce the prevalence of challenging behavior and improve social skills in preschool classrooms.

Purpose of the Study

Teachers, parents and caregivers, and the community at large would benefit from knowing whether or not preschoolers who exhibit persistent challenging behavior demonstrate changes in the presence of challenging behavior and changes in the acquisition of social and emotional skills when social and emotional skills are explicitly taught in the classroom. The purpose of this quantitative study was to examine if children with persistent challenging behavior made greater changes in challenging behavior and in social and emotional skills when social and emotional skills were taught in the classroom. In other words, do universal teaching strategies to support social and emotional skills for the whole class correlate with greater changes in challenging behavior and social skills of preschoolers with persistent challenging behavior?

Key Terms

Challenging behavior - “any repeated pattern of behavior, or perception of behavior, that interferes with or is at risk of interfering with the child’s optimal learning or engagement in pro-social interactions with peers and adults” (Smith & Fox, 2003, p. 6). Also known as problem behavior. The Social Skills Improvement System Rating Scale (Frank and Gresham, 2008) Problem Behavior subscale measures a child’s challenging behavior.

Preschool – educational classroom setting for children who are between about three and five years old and have not yet attended kindergarten.

Social and emotional skills – “the ... capacity of the child from birth through five years of age to form close and secure adult and peer relationships; experience, regulate, and express emotions in socially and culturally appropriate ways; and explore the environment and learn – all in the context of family, community, and culture” (Zero to Three, 2016). Also known as mental health. The Social Skills Improvement System Rating Scales (Elliott & Gresham, 2008) Social Skills subscale measures a child’s social and emotional skills.

Social Skills Improvement System Rating Scale (SSIS) – a screening and assessment tool for identifying students with significant social skill delays/deficits and identifying interventions for those students.

Teaching Pyramid Observation Tool (TPOT) – an assessment instrument designed to measure a preschool teacher’s implementation of Pyramid Model teaching practices. The Pyramid Model is a multi-tiered framework of evidence-based teaching practices to support young children’s social and emotional competence and address challenging behavior.

Summary

It is clear that preschoolers with persistent challenging behavior in the classroom are at a much higher risk of expulsion than their K-12 counterparts (Gilliam, 2005). If those challenging behaviors are not ameliorated with effective teaching strategies, the academic and social trajectories for those children may be dismal and devastating for families and communities. Preschool teachers may benefit from high quality professional

development on evidence-based practices to teach social and emotional skills in the classroom. It is unclear if certain social and emotional skills taught in the classroom correlates with greater changes in challenging behavior and social and emotional skills of preschoolers with persistent challenging behavior. The purpose of this study is to examine if certain social and emotional skills taught in the classroom correlates with greater changes in challenging behavior and social and emotional skills for preschoolers with persistent challenging behavior in classroom settings. The next chapter will summarize the currently available evidence related to teaching social and emotional skills in the classroom.

CHAPTER TWO – REVIEW OF THE LITERATURE

There is overwhelming evidence that preschoolers with persistent challenging behavior are at an elevated risk of experiencing immediate and life-long punitive consequences with poor outcomes (e.g. Dunlap et al., 2006; Gilliam, 2005; Shonkoff & Phillips, 2000). However, there is a vast literature base of a process and strategies to effectively prevent and ameliorate challenging behavior with preschool aged children in classroom settings. Chapter Two provides a summary of the literature on the current knowledge about challenging behavior and the interventions and effects of social and emotional skill instruction on preschool children's challenging behavior and social skills.

Current Knowledge About Challenging Behavior

Before synthesizing the literature on social and emotional skill instruction in preschool classrooms, it is important to provide a brief summary of the current knowledge about challenging behavior with young children. There is a vast amount of literature in the recent past with a multitude of approaches, strategies, and perspectives about how challenging behaviors develop and should be addressed. The behavioral perspective, emphasizing a function-based approach, is supported by hundreds of empirical studies (e.g. Arndorfer & Miltenberger, 1993; Conroy et al., 2005; Dunlap et al., 2006; Fettig & Barton, 2014; Lloyd, et al., 2019; Machalicek et al., 2007; Smith & Fox, 2003; Wood et al., 2009). Fortunately for the field, there is consensus that function-based assessment and intervention is the most effective and efficient process for addressing and ameliorating challenging behavior with young children (Dunlap & Kern, 2018; National Research Council and Institute of Medicine, 2009; U.S. Departments of Health and Human Services and Education, 2015; Wood et al., 2011; Wood et al., 2015).

Understanding a function-based approach helps to put the importance of preventative practices and emphasizes on instruction of social and emotional skills into context.

Challenging behavior cannot be discussed without first considering the effects of the social context and social environment. Challenging behavior often occurs because it may be the most efficient way the child is able to get something they need or want or to get away or avoid something (Cooper et al., 2007; Dunlap & Fox, 2011). Although all children exhibit challenging behavior at times, challenging behavior persists when children do not exhibit appropriate skills for communicating their needs and wants. Persistent challenging behavior is evidence that it is effective for the child. An effective social context and environment is fundamental to teaching socially appropriate skills to prevent challenging behavior from persisting. Persistent challenging behavior, from a function-based approach, is understood by three principles: challenging behavior is functional, communicative, and is the result of a lack of appropriate skills.

The first principle of understanding persistent challenging behavior is that challenging behavior is functional. Challenging behavior acts upon or evokes a response from those in the social environment (Carr, 1977; Cooper et al., 2007; Dunlap & Fox, 2011); it is a mechanism for getting needs and wants fulfilled. Challenging behavior serves a function, or purpose, for the child; it does not “happen for no reason,” “out of the blue,” or “all the time” as challenging behavior can often be characterized by classroom personnel. Examples of challenging behavior and its function in the social context can include crying to get adult affection/attention, tantrums because the child does not want to put away what they are playing with when told to clean up, or hiding in a corner of the playground to avoid going inside when told it is time to go in. If challenging behavior

persists, the adult needs to identify and understand the function or why the challenging behavior is occurring in the first place. Understanding the “why” helps the adult acknowledge the reason the challenging behavior is occurring with the child and is related to the next component, communication. Determining the function of behavior will be described in more detail in the next section.

The second principle of understanding persistent challenging behavior is that challenging behavior is communicative (Carr, 1997; Cooper et al., 2007; Dunlap & Fox, 2011). Once the adult understands the function, the communicative message or intent can be identified. Sometimes the message is clear and obvious, and other times the message is complex and difficult to figure out. For young children, the message is generally fairly easy to determine. Examples of challenging behavior and its communicative message can include crying to request adult affection, tantrums to communicate they want to play outside for longer, or hitting another child to say they want the toy that child has. Once the challenging behavior can be understood from the child’s perspective and what the child is trying to communicate, then the identification of an appropriate skill to teach can be determined. The “what,” combined with the “why,” helps to identify the next component, an appropriate skill.

The third principle of understanding challenging behavior is that challenging behavior occurs because the child lacks the skills to communicate effectively with socially appropriate forms of behavior (Carr, 1977; Cooper et al., 2007; Dunlap & Fox, 2011). When adults understand why the behavior occurs and what the child is trying to communicate, the adults can identify how to teach the child to appropriately communicate the intended message. This understanding informs what intervention

strategy(s) is chosen by using the combined information about why the behavior occurs and what the communicative message is, to identify appropriate skills to teach the child (what to do instead of the challenging behavior, or a replacement skill). Examples of challenging behavior and a socially appropriate replacement skill can include: instead of crying to request adult affection, a child could ask for a hug; rather than hitting a peer that has a fun toy to play with, the child could ask the peer to play with the toy; in place of knocking down a peer's block structure, the child could ask to build with the peer. If a child demonstrated the socially appropriate skill and the adult responded to that appropriate skill, then the child would get their needs and wants fulfilled, and therefore reduce the likelihood of the challenging behavior.

In summary, it is vital to fully appreciate the effects of how those in the social context and environment influence the behavior of others in that social context and environment. If socially appropriate behaviors are taught and responded to by others, it is not necessary for a child to express themselves through persistent challenging behavior because they have the appropriate skills to get their needs and wants met. To prevent challenging behavior from becoming persistent, knowledge that behavior is functional, communicative, and is due to a lack of skills for that child provides the appropriate context for teaching and responding to social and emotional skills. The next section will discuss how function of behavior is identified.

Current Knowledge: Identifying Function of Behavior

When a child demonstrates persistent challenging behavior that is not responsive to effective teaching strategies, research has demonstrated that a functional behavior assessment (FBA) can determine the function or purpose of a child's challenging

behavior (Ala'i-Rosales et al., 2019; Dunlap & Fox, 2011; Wood et al., 2011).

Information collected to inform the FBA is completed using indirect and/or direct assessments (Alter et al., 2008). Indirect assessments use measures that do not require any direct observation of the challenging behavior and can include reviewing records, interviewing those who know the child, and/or checklists completed by those who know the child (e.g. Dunlap et al., 2013). Information can be obtained about the nature of the challenging behavior, when the challenging behavior occurs, under what context(s), and how others currently respond to the challenging behavior.

Direct assessments use measures that require direct observation of the child in natural settings and can include narrative accounts of antecedents, behaviors, and consequences (ABCs; Bijou et al., 1968), scatter plots (Touchette et al., 1985), and other types of descriptive analyses (e.g. behavior incident reports, checklists) collected by directly observing the child's challenging behavior. Indirect and direct assessments are completed in natural settings without changing or manipulating any of the current variables (Ala'i-Rosales et al., 2019).

A functional analysis (FA) is an experimental process of determining the function of challenging behavior but involves directly manipulating antecedents and consequences systematically to determine the function of the challenging behavior using experimental analyses (Cooper et al., 2007; O'Neill et al., 1997; Sugai et al., 1999). FAs are designed to determine causal relationships between behavior and consequence variables whereas FBAs determine correlational relationships (e.g. Alter et al., 2008).

Determining the function of a child's challenging behavior is one of the early steps of the process of function-based assessment and intervention. Once the function of

the child's challenging behavior can be determined through indirect, direct, and/or experimental measures, the antecedents and consequences that elicit or maintain the challenging behavior can be identified. That information is then used to inform and develop an intervention plan to address and ameliorate the challenging behavior. A function-based intervention plan is then developed that uses instructional strategies to explicitly reduce or eliminate the challenging behavior based on the function of the behavior. For example, if the function of the challenging behavior is to avoid a non-preferred activity (e.g. going to circle time, cleaning up), the activity could be modified (e.g. only goes to circle time for one minute, or has to put away two items) or the child could be taught to say "no" in an appropriate and acceptable way for the classroom. In other words, the identified strategy for implementation (replacement skill) must fulfill the same function of the challenging behavior and be at least as effective and efficient as the challenging behavior in getting responses from the adults in the classroom (Cooper et al., 2007; Dunlap & Fox, 2011).

The function-based assessment and intervention process is time- and resource-intensive, regardless if indirect, direct, and/or experimental assessments are conducted. Ultimately, the function of a child's challenging behavior needs to be individually determined, and thus far, the function-based assessment process is the most widely studied and used in educational settings (Arndorfer & Miltenberger, 1993; Dunlap & Fox, 2011; Lloyd et al., 2019; Machalicek et al., 2007). A multitude of studies have been conducted that demonstrate empirical evidence of function-based assessment and intervention for young children with challenging behavior in classroom settings, including with early childhood teachers as interventionists (e.g. Brock & Beaman-Diglia,

2018; Dunlap et al., 2018; Wood et al., 2011), with young children with disabilities or those who are at risk of disabilities (e.g. Blair et al., 2010; Durand & Moskowitz, 2015; Gibson et al., 2010; Martinez et al., 2016; Wood et al., 2011) and young children who are typically developing (e.g. Bellone, et al., 2014; Blair et al., 2010; McLaren & Nelson, 2009; Smith et al., 2011).

Intervention for Challenging Behavior in Preschool Settings

When challenging behavior has become persistent and is of concern in the preschool classroom, an FBA is necessary to develop and implement a function-based intervention plan. Although many preschoolers demonstrate challenging behavior, most do not engage in persistent challenging behavior that requires intensive and individualized intervention. This is likely due to their ability to use effective social communication skills to get their needs and wants fulfilled. The assumption is that if more social and emotional skills are taught in preschool classrooms, there will be less challenging behavior, especially persistent challenging behavior.

Multiple literature reviews and empirical studies about challenging behavior in preschool settings report that replacement skills are seldom taught (e.g. Blair et al., 2010; Durand & Moskowitz, 2015; Wood et al., 2009). The replacement skills that typically need to be addressed are social and emotional skills, such as communication skills, adult- and peer-related social skills, and self-regulation skills (DEC, 2017; Dunlap et al., 2006; Smith & Fox, 2003). These skills, when taught explicitly in classroom settings, can alleviate and potentially eliminate the need for children to engage in challenging behavior (e.g. Moffitt et al., 2011; National Research Council and Institute of Medicine, 2009; National Scientific Council on the Developing Child, 2004; Shonkoff & Phillips, 2000).

This assumption seems to be widely accepted in the field but is rarely addressed in a direct way when training preschool teachers to be effective in the classroom (e.g. Hemmeter et al., 2006; Hemmeter et al., 2008; Snell et al., 2012). The field of early childhood and early childhood special education would benefit from more specific guidance in teaching social and emotional skills. The research to practice gap still exists, evidenced by articles and syntheses about how to prevent and address challenging behavior for young children occurring in the professional literature for the past several decades (e.g. Arndorfer & Miltenberger, 1993; Dunlap et al., 2006; Powell et al., 2007; Reichle et al., 1996; Smith & Fox, 2003)

With multiple studies demonstrating the effectiveness and efficiency of ameliorating challenging behavior in preschool classrooms using function-based interventions, the challenge remains for actually reducing the frequency and intensity of challenging behavior in preschool settings. Currently, teachers still identify managing behavioral concerns as a common concern and do not feel prepared or equipped to address consistent and persistent challenging behavior that occurs in classroom settings (Hemmeter et al., 2006; Snell et al., 2012; State et al., 2011). Teachers may have limited opportunities to learn about and master how to assess and intervene with challenging behavior, but teachers can be taught what skills to teach in their classrooms to effectively prevent challenging behavior from occurring in the first place (Fox et al., 2003).

There are multiple national centers and programs that exist to help provide information, training, research, and/or literature about how to effectively prevent and/or address young children that exhibit challenging behavior [e.g. Collaborative for Academic, Social, and Emotional Learning (CASEL); Early Childhood Mental Health

Consultation (ECMH); National Center for Pyramid Model Innovations (NCPMI)].

These centers and programs provide a framework from which to embed instruction in social and emotional skills within existing service delivery models.

Although specific interventions to teach social and emotional skills have been studied, there is a paucity of recent research specifying if there are particular social and emotional skills that are the most effective or efficient during the preschool years. The following section reviews the recent evidence on social and emotional skill instruction in preschool classrooms with teachers as interventionists.

Interventions and Effects of Social and Emotional Skill Instruction

The function-based assessment and intervention process to ameliorate challenging behavior is resource-intensive. The effort, time, expertise, and personnel required to successfully complete this process is not readily accessible for many early childhood settings (Dunlap & Fox, 2011; Fox et al., 2003). It is important to identify and implement effective and efficient prevention strategies that reduce the need for function-based assessment and intervention for challenging behavior. An additional challenge is that there are multiple social and emotional skills that can be taught, all of which are seemingly important, and with no individual skill that is critical on its own (Fox et al., 2003). The recent research on social and emotional skill instruction in preschool classroom settings with teachers as implementers describes approaches using either a multi-tiered approach or a specific social and emotional curriculum package. This section will review these two categories of the literature.

Multi-Tiered Interventions that Include Social and Emotional Skill Instruction

Multi-tiered interventions (e.g. Fox et al., 2003) utilize a framework where the first or universal tier (Tier 1) includes practices and strategies for the whole identified group (e.g. preschoolers). The second or targeted tier (Tier 2) includes practices and strategies for a smaller percentage of the group that may require more intervention, as they may be at risk for more severe delays or concerns. The third or individualized tier (Tier 3) includes practices, strategies, and processes for an even smaller percentage of the group that requires intensive and individualized intervention that is problematic for the individual or for the environment the individual is in. Several research studies examined the use of a multi-tiered intervention, including social and emotional skill instruction (Tier 2 intervention). Descriptions of these studies follow.

Fox et al. (2011) conducted a single subject study examining training, coaching, and implementation of the Pyramid Model a multi-tiered framework for early childhood settings, in three preschool classrooms. Although implementation of the Pyramid Model, includes more than social and emotional teaching practices, the researchers noted that at baseline, teachers were least likely to implement social and emotional teaching practices prior to training. Participants included three early childhood special education teachers who taught in inclusive public preschool classrooms located on an elementary school campus. Teachers participated in a 3-day (18 hours) training workshop on the Pyramid Model teaching practices followed by coaching sessions and observations twice per week. Coaching focused on increasing the implementation of Pyramid Model teaching practices to a fidelity criterion, and researchers demonstrated a functional relationship

between workshop training and coaching with the implementation of Pyramid Model teaching practices.

Specific social skills instruction included teaching: a) behavior expectations, social skills and emotional competencies, friendship skills, express emotions, and problem solving. Specific to the teaching practices on social and emotional teaching strategies, 35 practice indicators were examined for each of the three teachers. Teacher A had low implementation of the social and emotional strategies during baseline with a mean of 31% implementation of the social and emotional indicators; a mean of 29% during the coaching phase; and an increase to a mean of 61% during follow-up. Teacher B had very low implementation at baseline with a mean of 13% implementation of the social and emotional indicators, improved mean implementation to 41% during coaching, and improved further during follow-up to a mean of 63%. Teacher C started out implementing very few of the indicators, with a mean of 3%, and improved to a mean of 32% during the coaching phase. Teacher C did not complete follow-up assessments. Although implementation of teaching practices was measured in this study, no child outcomes were collected. It is unknown if the increase in teaching practices improved children's experiences in the classroom.

A program description of a group coaching model from Fetting and Artman-Meeker (2016) demonstrated that group coaching increased teachers' implementation of Pyramid Model practices, especially in the implementation of predictable transitions, giving positive directions, and social and emotional teaching strategies. The six teachers that participated in this 6-month group coaching model worked in preschool classrooms that served children from an urban low-income setting. Teachers participated in six 2-

hour training sessions on Pyramid Model teaching practices with two to three weeks between each training session. Group coaching sessions were conducted in between each of the training sessions, were held in person at one of the centers during the school day, and a substitute was provided for the teachers' classroom to allow the teacher to attend the facilitated coaching session. The facilitator for group coaching had a Ph.D. in early childhood special education and had extensive experience in training and coaching on Pyramid Model teaching practices.

Specific social skills instruction included teaching: behavior expectations, social skills and emotional competencies, friendship skills, express emotions, and problem solving. Participating teachers improved their implementation of all of the specified social and emotional teaching practices in the classroom using this group coaching model. For behavior expectations, teachers' mean implementation was 31% at baseline and improved to a mean of 40.5% at post-assessment (after the last group coaching session). Teaching social skills and emotional competencies improved from a mean of 37.5% at baseline to 66.7% at post-assessment. Teaching friendship skills improved from a mean of 44.5% at baseline to 55.6% at post-assessment. Teaching children to express emotions increased from a mean of 41.7% at baseline to 66.7% at post-assessment. Finally, teaching problem solving increased from a mean of 26% at baseline to 50% at post. Although child outcomes were not directly measured, teachers anecdotally reported they spent less time addressing challenging behavior and fewer children engaged in persistent challenging behavior.

Hemmeter et al. (2016) conducted a cluster-randomized controlled potential efficacy trial with teachers randomly assigned to an experimental condition. Repeated

measures were collected for both teachers and children in public preschool classrooms, and 40 teachers and 494 children participated across two school years. Intervention teachers participated in 3 days of workshop training (19.5 hours) on Pyramid Model practices followed by weekly individual coaching and observation sessions for 12 to 16 weeks. Control teachers participated in workshop training at the end of the school year after final data were collected. Focus groups were conducted at the end of both study years with intervention teachers to share their experiences and perspectives about the professional development they received. Responses were solicited about the impact of intervention on their teaching, capacity to support children, and usefulness of Pyramid model practices.

Specific social skills instruction included teaching: behavior expectations, social skills and emotional competencies, friendship skills, express emotions, and problem solving. As measured by the Teaching Pyramid Observation Tool (TPOT; Hemmeter et al., 2014), teachers in the intervention group implemented more Pyramid Model practices on average at each of the four waves of measurement compared to control group teachers. At wave 4, near the end of the school year, intervention teachers implemented an average of 69.9% of the practices compared to control group teachers implementing an average of 44.2% of the practices. In intervention classrooms, teachers demonstrated higher levels of emotional support and behavior management, in contrast to their control group counterparts as measured by the Classroom Assessment Scoring System (CLASS; Pianta et al., 2008). Intervention teachers rated children in their classrooms with higher social skills and less challenging behavior compared to control group classrooms, as measured by the SSIS (Gresham & Elliott, 2008). Additionally, children in intervention classrooms

with elevated risk for behavior disorders demonstrated improvements in observed social interaction skills compared to children in control group classrooms. These child outcomes were measured by the Focal Child Observation System (FCOS), a direct observation data collection measure developed for this study that collects data on focal children's social interaction skills and challenging behavior during a 60-minute observational period. Children in the intervention group demonstrated a mean of 19.9 social interactions or responses compared to 15.6 for children in the control group, and a mean of 8.1 for frequency of challenging behavior for children in the control group versus 7.1 for children in the intervention group.

Stanton-Chapman and colleagues (2016) conducted a study in ten Head Start classrooms to evaluate the effectiveness of a three-tiered model of positive behavior support. Classrooms participated and implemented both Tier 1 (universal) and Tier 2 (social skills) strategies, and two classrooms had children with more individual needs and implemented Tier 3 (individualized) interventions. Different from the other multi-tiered interventions studied, this study implemented a shortened version of each tier, while simultaneously incorporating a problem-solving model at each tier designed to improve classroom routines and individual behavioral concerns. A workshop training was provided for each tier, followed by consulting for each tier to support implementation fidelity. The workshop for each of the three tiers lasted 1-2 hours and covered training content specific to that tier.

Tier 2 strategies specific to social and emotional skill instruction included: initiating with peers, responding to peer verbalizations, use your friend's name to gain attention, and take turns in play or conversation. Child outcome data were only collected

for children who received Tier 2 ($n = 9$) or Tier 3 ($n = 2$) support. All nine children who received Tier 2 support demonstrated significant increases in their social skill abilities and significant decreases in their problem behavior as rated by the teacher on the Social Skills Rating System (SSRS; Gresham & Elliott, 1990) and the Child Behavior Checklist (CBCL-Teacher Form; Achenbach & Rescorla, 2000). CBCL results revealed significant decreases in externalizing and total problem behavior from pre- to post-intervention, with all children demonstrating decreases in problem behavior as reported on the CBCL.

To increase the capacity for early childhood teachers to support social and emotional development and reduce barriers to training, Connors-Burrow et al. (2017) created the Reaching Educators and Children (REACH) program. REACH provided on-site training on basic practices from each tier of the Pyramid Model for providers who are “hard to reach” and have minimal knowledge about how to support social and emotional development. Recruitment for participation in REACH was targeted to early childhood programs in areas where no trainings in social and emotional development had been conducted in the prior year, nor were scheduled for the future. 30 childcare centers participated, of which the majority (56.7%) were private, licensed childcare centers that did not participate in the state’s quality rating system, and where the majority of teachers did not have degrees nor had attended training on social emotional development for young children. During the six-month intervention, center directors attended two workshops, and teachers attended 6 workshops, 1.5 hours each, monthly for six months. The teacher workshops were provided in person at the childcare center twice within the same day or on successive days to allow all teachers and staff to attend. Between each

workshop training, individual coaching occurred for each classroom to support implementation of the teaching strategies covered during the workshop.

The specific social and emotional skills that were taught during the workshops and supported through coaching included teaching: feeling words, validating and naming feelings, feeling concepts, problem-solving method, friendship skills, and calm down techniques. 139 toddler and preschool teachers participated in the study, demonstrating significant improvements in teachers' interactions with children and use of social and emotional teaching strategies. Researchers adapted five items from the Preschool Mental Health Climate Scale (PMHCS; Gilliam, 2008) related to teaching feelings and problem-solving during interactions with children. Using the PMHCS, teachers demonstrated significant increases in teaching feelings and problem solving and observations of child behavior in classrooms showed increases in children's social and emotional skills and significant decreases in verbal aggression. Four items from the Child Interactions subscale from the PMHCS were modified to measure children's prosocial behavior, rated on a 4-point Likert-type scale. Child results from the modified subscale suggest small to moderate significant increases in prosocial behaviors and significant reductions in verbal aggression.

Of the five studies that examined a broad intervention of prevention and promotion strategies that included social and emotional teaching practices, all demonstrated increases in teachers' implementation of social and emotional teaching practices (Connors-Burrow et al., 2017; Fetting & Artman-Meeker, 2016; Fox et al., 2011; Hemmeter et al., 2016; Stanton-Chapman et al., 2016), and the two that included child

outcome measures demonstrated increases in social and emotional skills and decreases in challenging behavior (Hemmeter et al., 2016; Stanton-Chapman et al., 2016).

Curriculum Interventions that Include Social and Emotional Skill Instruction

Curriculum interventions are “packaged” interventions on a specified topic or skill. The curriculum packages that are being reviewed here include teacher-implemented social and emotional skill instruction for preschool aged children in classroom settings. These curricula are all designed to be delivered at the classroom level for all children.

Domitrovich et al. (2007) conducted a randomized evaluation of an adaptation of the Promoting Alternative Thinking Strategies (PATHS) curriculum. PATHS is a universal social emotional curriculum designed to improve children’s social competence and reduce problem behavior. Twenty Head Start classrooms participated, with 10 classrooms in intervention for a 9-month period. Intervention included 2 days of workshop training followed by monthly classroom visits, technical assistance support, and monitoring of implementation. Teachers implemented 30 weekly lessons during large group time and additional activities were offered during the day to provide additional opportunities to practice and generalize the skills taught during large group.

The specific social and emotional skills taught in PATHS include: giving complements, basic and advanced feelings, self-control strategy, and problem solving. The researchers report that Head Start teachers were able to deliver a universal social emotional curriculum and improve their classroom management skills in less than one school year. Both teachers and parents reported improvements in children’s social emotional competence, as measured by the Preschool and Kindergarten Behavior Scales

(Merrell, 1996) and Head Start Competence Scale (Domitrovich et al., 2001). Children demonstrated increases in emotion knowledge: receptive emotion vocabularies (as measured by a revised version of the Recognition of Emotion Concepts subtest from the Kusché Emotional Inventory (KEI; Kusché, 1984), more accurate identification of facial expressions (measured by the Assessment of Children's Emotions Scales; Schultz et al., 2001), and gains in abilities to correctly identify situations that elicit different basic emotions (assessed with the Denham Puppet Interview; Denham, 1986). In addition, children were less likely to exhibit a bias toward incorrectly identifying emotional expressions as angry (evaluated using the KEI; Kusché, 1984).

Webster-Stratton et al. (2008) conducted a randomized evaluation of the Incredible Years (IY) Teacher Classroom Management and Child Social and Emotion curriculum, also known as Dinosaur School. This efficacy study includes Head Start classrooms as well as kindergarten and first grade classrooms, all identified for inclusion due to high rates of poverty at the schools. The Dinosaur School curriculum was originally designed as a clinic-based treatment model but was adapted for use by teachers as a preventative (universal) model for preschool and early-elementary (kindergarten, first) grades. Intervention included four days of training workshops for teachers, offered monthly, where teachers learned about classroom management strategies. Teachers also learned about the Dina Dinosaur Social Skills and Problem Solving Curriculum, which includes versions for preschool and primary grades. The curriculum includes 30 lessons per year with lesson plans for instruction twice a week in the classroom. Lessons include a 15-20 minute large group activity followed by small group activities to practice the skill (about 20 minutes). Research staff co-led lessons with teachers to ensure fidelity of

intervention. Of the 120 classrooms that participated in the study, 33 of the participating classrooms were Head Start, including preschool-aged children.

The specific social and emotional skills taught included: emotional literacy, empathy, and perspective taking; interpersonal problem solving; anger management; social skills; and communication skills. The researchers developed the Teacher Coder Impressions Inventory (TCI) to assess a teacher's style and classroom management skills via 71 likert-type questions that result in five summary scores. Intervention teachers were significantly different from control teachers in four out of five of the TCI variables (harsh/critical, warm/affectionate, inconsistent/permissive, and social/emotional). Moreover, intervention teachers used more specific teaching strategies that addressed social and emotional skills than teachers in control classrooms. In regard to students, those in intervention classrooms had significant improvements in emotional self-regulation, social competence, and conduct problems as measured by the School Readiness and Conduct Problems: Coder Observation of Adaption-Revised (COCA-R), an observational version of the TOCA-R (Werthamer-Larsson et al., 1990); and the Multiple Option Observation System for Experimental Studies (MOOSES; Tapp et al., 1995). Interestingly, children who were initially at higher risk seemed to benefit the most from intervention. In addition, the researchers reported strong teacher-level effects. Students in classrooms with a specific teacher changed more than students in classrooms with a different teacher. Similar to other outcomes, classroom groups of children with a specific teacher that demonstrated the most change were classroom groups that needed the most improvement to start.

Steed and Durand (2013) conducted a randomized group experiment with 17 classrooms assigned to the Optimistic Teaching or traditional Positive Behavioral Interventions and Supports (PBIS) group. All teachers received eight individual coaching sessions that covered information about eight PBIS topics, with coaching sessions at the teacher's school or classroom for approximately 40 minutes each session. For teachers in the Optimistic Teaching group, coaches integrated a cognitive-behavioral intervention into each coaching session that addressed teachers' attitudes about teaching, self-talk, feeling about children's challenging behavior, and their optimism about impacting children's development. Negative feelings discussed during coaching sessions for teachers in the Optimistic Teaching group were addressed directly, with coaches asking teachers to reflect on the impact of those negative feelings on their own behaviors and the subsequent impacts on their students. Coaches encouraged teachers to replace negative self-talk with more positive self-talk and address feelings of their ability to affect behavioral changes in the classroom.

The specific social and emotional skills addressed during coaching included friendship and social skills, emotional literacy, and problem solving. Using the Teaching Pyramid Observation Tool (TPOT; Hemmeter et al., 2014), the Optimistic Teaching group teachers improved on items related to teaching social skills and involving families in their children's social emotional development as compared to the PBIS only teachers. Steed and Durand report that these two items are among the least implemented aspects of PBIS and most resistant to teacher change. When examining group differences of children's social emotional competence using the teacher report classroom-wide screening subscale of the System Performance Screening Guide (SSiS-PSG; Elliott &

Gresham, 2007), the researchers identified significantly more children with serious emotional struggles in PBIS only classrooms.

To address the prevalence of children's antisocial behavior, Feil et al. (2014) conducted an efficacy trial in three states for a home and school intervention for preschool aged children with challenging behavior. The 59 teachers who participated in the usual-care control condition received a half-day workshop training on universal classroom management strategies based on the principles of positive behavior support. General strategies were covered, including positive classroom environments and reinforcing appropriate behavior. 65 teachers participated in the experimental condition, Preschool First Step to Success (PFS), an adapted version of a secondary-level intervention, First Step to Success (Walker et al., 1998). First Step is a collaborative home and school intervention curriculum to address children at risk for oppositional or conduct disorders. The teacher, parents, and First Step behavioral coach target classroom success skills and prosocial behaviors that promote friendship skills for an identified child with challenging behavior. Teachers attend a full day workshop training that covers universal classroom management strategies based on the principles of positive behavior support and the PFS intervention. Classroom interventions include a schedule of direct instruction of skills with the identified child, modeling of the implementation procedures for the teacher, and continued coaching. The home-based component consists of a 6- to 8-week intervention where the First Step coach meets weekly with parents to teach the school success skills.

Specific social and emotional skills taught during PFS include sharing, problem solving, and friendship skills. Teacher- and parent-reported outcomes for the

intervention group improved statistically significant for the PFS group compared with children in the control group, as measured by the Social Skills Improvement System (SSiS) rating scales (Gresham & Elliott, 2008) and an adapted version of the Early Screening Project (ESP; Walker et al., 1995). Both child outcome measures were analyzed by calculating the improvement index for each outcome, evaluating the significance of PFS on child behavior change. Children in PFS classrooms were reported as a mean +31 percentile points on the ESP Adaptive Behavior Index (ESP-ABI) and a mean +28 percentile points on the SSiS social skills scale, compared to a mean improvement of +23 percentile points for children in control classrooms. Although positive improvements on all outcomes were reported in both home and school settings, greater improvements were demonstrated in the classroom (mean +28 percentile points) compared to at home (mean +14 percentile points). Improvements in problem behavior outcomes ranged from a mean +26 to +29 percentile points for PFS classrooms, compared to a mean +24 percentile points for the control group. Parents reported a mean improvement of +11 percentile points for social skills and +17 percentile points for problem behavior. Improvements occurred in both settings; however greater mean improvement was reported in classrooms (+28 percentile points) than in homes (+14 percentile points).

Downer et al. (2018) developed an early childhood consultation model, Learning to Objectively Observe Kids (LOOK), that provides data-driven, video-based support to teachers in preschool classrooms. The randomized controlled trial study was conducted in 45 Head Start classrooms across 6 centers with 45 teachers and 143 children participating. Twenty-three control group classrooms and teachers spent the school year

in business-as-usual, as a comparison to 22 intervention classrooms and teachers that participated in the LOOK intervention. The LOOK intervention consisted of: 1) online learning modules on the implementation of evidence-based strategies to improve classroom engagement; 2) assessment of children's classroom engagement across routine contexts to inform the selection of relevant teaching strategies and assessment of which social and emotional teaching strategies were already being implemented in the classroom; 3) using assessments to identify recommendations of evidence based social and emotional teaching strategies to include in the teacher's action plan, facilitated by a LOOK consultant; and 4) using LOOK's bi-weekly guided video review process to observe children's engagement and analyze their role in the availability of learning opportunities.

Specific social and emotional skills taught using LOOK include supporting emotion regulation, problem-solving skills, and friendship skills. Children in LOOK classrooms demonstrated small to moderately sized reductions in negative task engagement, with children less negative when engaging with peers and teachers. For children in LOOK classrooms, teachers reported statistically significant moderate reductions in negative task engagement (-0.40), measured by the Adjustment Scales for Preschool Intervention (ASPI) scale (Lutz, Fantuzzo, & McDermott, 2002) and moderately sized statistically significant reductions in disruptiveness with peers (-0.32), measured by the Penn Interactive Peer Play Scale (PIPPS-T; Fantuzzo et al., 1998). Furthermore, LOOK teachers reported statistically significant moderate improvements in peer interaction skills (0.42) on the Penn Interactive Peer Play Scale (PIPPS-T; Fantuzzo et al., 1998). Although not directly observed, LOOK teachers reported target children

demonstrating more positive interactions with peers and more effectively regulating their own emotions.

Of the five studies that examined classroom-wide curriculum interventions that included social and emotional teaching practices, all demonstrated improvements in teachers' implementation of social and emotional teaching practices and improvements in children's social and emotional skills (Dometrovich et al., 2007; Downer et al., 2018; Feil et al., 2014; Steed & Durand, 2013; Webster-Stratton et al., 2008). Furthermore, Downer et al. (2018), Feil et al. (2014) and Webster-Stratton et al. (2008) demonstrated improvements in children's challenging behavior.

Summary

Understanding the contribution of the social context on children's challenging behavior and the need for the social environment to be responsive to challenging behavior is critically important to effectively preventing and reducing challenging behavior in preschool classrooms. Furthermore, an effective social context and environment is fundamental to teaching appropriate social and emotional skills as a preventative practice, and more importantly, to implement social and emotional teaching strategies to ameliorate challenging behavior in preschool classroom settings. The studies reviewed in this chapter provide ample evidence that teachers can effectively provide instruction on social and emotional skills. The evidence also suggests that children's outcomes are improved when social and emotional skills are taught in preschool classrooms. Children are able to improve their social and emotional skills and several studies also reported reductions in challenging behavior. To date, there are no known studies that specifically examine the effects of social and emotional teaching

strategies implemented classroom-wide that reduce the challenging behavior of preschoolers with persistent challenging behavior. Moreover, it is not clear which social and emotional skills, if any, may be more effective at reducing challenging behavior, especially for preschoolers who already exhibit persistent challenging behavior in classroom settings.

Children, families, teachers, and communities need and deserve more guidance in the area of preventing and addressing challenging behavior. One area to explore that may be helpful is to examine if there are particular social and emotional skills that might be more impactful or effective when taught during the early childhood years. The review of the current literature base does not include research about if and/or how much social and emotional skill instruction impacts behavioral outcomes and social skills of preschool children with challenging behavior. This study sought to examine if particular social and emotional skills correlated with greater changes in challenging behavior and greater changes in social skills when social and emotional skills were directly taught in the classroom. Specifically, this study sought to examine if there is a relationship between social and emotional teaching practices and greater changes in children's challenging behavior, and if a relationship exists between those social and emotional teaching practices and greater changes in children's social skills.

This chapter provided background information summarizing the understanding of young children who exhibit challenging behavior, what social and emotional skills are being taught in preschool classrooms, and the effects of teaching social and emotional skills to preschoolers in classrooms. The next chapter will describe the purpose, design, and description of the quantitative study designed to answer the research questions.

CHAPTER THREE – METHODOLOGY

Chapter Three describes the purpose and design of this quantitative study. This correlational study used data obtained from an extant archival data set of the randomized controlled trial (RCT) efficacy study of Prevent-Teach-Reinforce for Young Children (PTR-YC). PTR-YC is a tier 3 individualized intervention for preschoolers with persistent challenging behavior that was studied in two western states of the United States between 2012-2016. Parameters of the original RCT, including an overview of the participants, design, and results, are described after the research questions. The variables for the current study, measures used, and data analyses are described in detail.

The purpose of this quantitative study was to examine if children with persistent challenging behavior made greater changes in challenging behavior and social skills when social and emotional skills were taught in the classroom. Data were examined for relationships of the whole group of RCT participants, the control group, and the intervention group. This study seeks to examine two primary research questions.

Research Questions

1. What is the relationship between social and emotional teaching practices implemented in a preschool classroom and changes in children's challenging behavior for the whole group, control group, or intervention group?
 - a. Is there a relationship between each independent key teaching practice and changes in children's challenging behavior for the whole group, control group, or intervention group?
 - 1) Is there a relationship between *teaching behavior expectations* and changes in preschool children's challenging behavior?

- 2) Is there a relationship between *teaching social and emotional competencies* and changes in preschool children's challenging behavior?
- 3) Is there a relationship between *teaching friendship skills* and changes in preschool children's challenging behavior?
- 4) Is there a relationship between *teaching children to express emotions* and changes in preschool children's challenging behavior?
- 5) Is there a relationship between *teaching problem solving* and changes in preschool children's challenging behavior?

The hypothesis was that higher levels of social and emotional teaching practices implemented in a preschool classroom correlate with greater changes in children's challenging behavior. The null hypothesis was that no correlation exists.

2. What is the relationship between social and emotional teaching practices implemented in a preschool classroom and changes in children's social skills for the whole group, control group, or intervention group?

- a. Is there a relationship between each independent key teaching practice and changes in children's social skills for the whole group, control group, or intervention group?
 - 1) Is there a relationship between *teaching behavior expectations* and changes in preschool children's social skills?
 - 2) Is there a relationship between *teaching social and emotional competencies* and changes in preschool children's social skills?

- 3) Is there a relationship between *teaching friendship skills* and changes in preschool children's social skills?
- 4) Is there a relationship between *teaching children to express emotions* and changes in preschool children's social skills?
- 5) Is there a relationship between *teaching problem solving* and changes in preschool children's social skills?

The hypothesis was that higher levels of social and emotional teaching practices implemented in a preschool classroom correlate with greater changes in children's social skills. The null hypothesis was that no correlation exists.

RCT Data Base

Data for this study were obtained from an extant archival data set of the randomized controlled trial (RCT) efficacy study of Prevent-Teach-Reinforce for Young Children (PTR-YC), a tertiary individualized intervention for preschoolers with persistent challenging behavior. A detailed and thorough description of the RCT and intervention results are published (see Dunlap et al., 2018). This section will provide a brief overview of the RCT and results, to provide context for the original study and findings.

The RCT was completed in two western states of the United States from 2012-2016 in public and private preschool classrooms. Teacher-child dyads participated on a schedule similar to fall and spring semesters that lasted 4 months, with a total of seven participant cohort groups over the five years of the study. Baseline data were collected over a two-week period in the classroom for the randomly assigned intervention and control group study conditions. Baseline data included both teacher- and child-level measures. Once baseline data were collected and complete, teachers in the intervention

group (PTR-YC) began the PTR-YC process. Teachers who were randomly assigned to the control group were able to implement their typical classroom practices, as well as access any other types of services or supports that were available to them through their school or program. The research team personnel provided no direct services, information, or support for the control group. Post-test data were collected from both study groups three months after baseline data collection was complete. The total elapsed time from pre- to post-test was 4 months, regardless of group assignment.

The PTR-YC model is a manualized process of individualized positive behavior support designed for implementation by school personnel in early care and education settings with preschool-aged children who exhibit persistent challenging behavior (Dunlap et al., 2013). The individualized process includes five steps, with forms and process checklists to increase the fidelity of use of the PTR-YC model. The steps include: 1) teaming and goal setting, 2) data collection, 3) functional behavioral assessment, 4) behavior intervention plan, and 5) using data and next steps.

Regarding the results of the RCT, the children in the PTR-YC intervention group demonstrated statistically significant decreases in challenging behavior and increases in social skills compared to preschool children in the control group. The Social Skills Improvement System (SSIS; Gresham & Elliott, 2008) problem behavior and social skills subscales were used to measure preschoolers' challenging behavior and social skills. These data were collected at pre- and post-test, providing scores for each child in both study conditions. More detailed information and psychometrics about the SSIS is provided in the Measures section, below.

Additional results from the RCT included direct observation of challenging behavior, revealing statistically significant interaction effect between time and group from pre- to post-test. Direct observation of engaged time also revealed a statistically significant interaction effect between time and group from pre- to post-test. Social validity responses from teachers indicated that the PTR-YC process was acceptable, likely to produce favorable outcomes, and unlikely to have negative side effects. Social validity from parents of children who participated indicated acceptable and positive effects of the PTR-YC process.

This section provided a brief overview of the RCT design and results. A detailed and thorough description of the RCT design and intervention results can be found in the published main effects article (Dunlap et al., 2018). Other data were collected during the RCT. One of the child-level measures for the RCT is the SSIS (Gresham & Elliott, 2008) problem (challenging) behavior and social skills subscales, collected at pre- and post-test. The SSIS data from the RCT are used in the current study. The Teaching Pyramid Observation Tool (TPOT; Hemmeter et al., 2014) measures teacher's implementation of a social and emotional teaching framework and was collected at pre-test for the RCT. The data from the TPOT were not used in the main analyses for the RCT but are used for the current study. The next section provides an overview of the variables available from the extant archival data base and detailed descriptions of the participants.

RCT Data Base Variables Used in the Current Study

The PTR-YC RCT data base includes demographic information about participating teachers and children, which are detailed and summarized below. The SSIS data collected during the RCT demonstrated that the four-month period was enough time to demonstrate statistically significant changes in the problem behavior and social skills subscales of the SSIS for the preschoolers with persistent challenging behavior (Dunlap et al., 2018). The SSIS is described in the Measures section, below.

A potential moderating variable that was collected during pre-test data collection includes the Teaching Pyramid Observation Tool (TPOT; Hemmeter et al., 2014). The TPOT (described in the Measures section, below) is an instrument used to assess a teacher's implementation of Pyramid Model practices, a multi-tiered framework for supporting the social and emotional development of children in early childhood settings.

The data extracted from the RCT data base and used for this study includes the TPOT and SSIS Rating Scales subscale scores. The description of how the data were extracted from the data base and used in the current study is detailed in a later section, Data Collection.

Participants

Participants in the RCT included preschool teachers (n=108) and preschool-aged children (3-5 years old) with persistent challenging behavior (n=168).

Selected teachers. Preschool teachers with children in their classrooms who demonstrated challenging behaviors volunteered to participate in the RCT. Teachers provided informed consent and identified children in their classrooms with challenging behaviors. The 108 participating teachers worked in classrooms in northern Nevada or

central Colorado, with 72 teachers in public preschool (state-funded preschool or early childhood special education), 20 teachers in Head Start and 16 teachers in private childcare. Teachers who participated did so with only one child in their classroom at a time, but could participate in multiple cohorts (semesters) with a different child each time the teacher participated. Thirty-six teachers participated in two or more cohorts, with participation possible in any of the seven total cohorts of the RCT, dependent upon having a child in their classroom with challenging behavior. When teachers were randomly assigned to a study group upon initial participation, teachers remained in that group for the duration of the study. In other words, if a teacher was assigned to the control group (or intervention group), that teacher remained in the control group (or intervention group) regardless of how many cohorts in which the teacher participated.

Most teachers were female (97%) and varied widely in experience and education. Teachers who participated ranged from first-year teachers to those with over twenty years of teaching experience in preschool classrooms, and had educational backgrounds ranging from a high school diploma to master's degrees. Participating teachers in both study groups were similar in their characteristics. Demographic information about the participating teachers was extracted from the archival data set in summary form, reported here. Additional details of teacher demographics were not available for analyses for the current study. See Table 1 on the following page for a summary of demographic information for teachers that participated.

Table 1

Teacher Demographics by Gender, Classroom Type, and Participation in 2 or More Cohorts

Teacher Demographics	n (%)
Gender	
Female	104 (97)
Male	4 (3)
Classroom Type	
Public Preschool	72 (67)
Head Start	20 (18)
Private Childcare	16 (15)
Participated in 2 or more cohorts	36 (33)

Selected children. Children (3 – 5 years old) from the classrooms were eligible to participate if they (a) demonstrated challenging behaviors in the classroom at least twice a week, (b) demonstrated challenging behavior in the classroom for at least the past six weeks (or in other settings for at least three months), and (c) were not regularly absent from the classroom more than once a week. Children were selected by teacher nomination, with teachers identifying children with persistent challenging behavior in the classroom and obtaining parental consent for their child to participate in the study. Once parental consent was obtained for a child with challenging behavior, the research team member would initiate the study process.

Of the 168 preschool children who participated, most were White or Hispanic males. Almost half of the children had an Individualized Education Plan (IEP), identified

with a disability and/or developmental delay. Children were mostly in public preschool classrooms, but also included Head Start and private childcare classrooms. Participating children ranged from 34 to 72 months old at baseline data collection, and most spoke English as a primary language at home. As with the teachers, child characteristics were essentially identical across study groups and were extracted from the data set in summary form, reported here. Additional details of child demographics were not available for analyses for the current study. See Table 2 on the following page for details on demographic information for children that participated.

Table 2

Child Demographics by Gender, Ethnicity, Classroom Type, IEP Status, and English as Primary Home Language

Child Demographics	n (%)
Gender	
Male	138 (82)
Female	30 (18)
Ethnicity	
White	77 (65)
Hispanic	27 (23)
Black	7 (6)
Asian or Other	7 (6)
Classroom Type	
Public Preschool	117 (70)
Head Start	25 (15)
Private Childcare	25 (15)
IEP Status	
Yes	75 (45)
English as primary home language	90 (53)

Measures

Teaching Pyramid Observation Tool

The Teaching Pyramid Observation Tool for Preschool Classrooms, Research Edition (TPOT; Hemmeter et al., 2014) is an assessment instrument designed to measure a preschool teacher's implementation of Pyramid Model teaching practices. The Pyramid Model is a multi-tiered framework of evidence-based teaching practices to support young children's social and emotional competence and address challenging behavior. The Pyramid Model is the early childhood version of schoolwide positive behavior interventions and supports (PBIS; Horner et al., 2005), which is inspired from and modeled after the public health tiered model of promotion, prevention, and intervention (Gordon, 1983; Simeonsson, 1991). The Pyramid Model is comprised of universal, secondary, and tertiary teaching practices to teach and support social and emotional skills for all children, targeted practices to teach and support children at risk for developmental delays, and individualized intervention for children with persistent challenging behavior (Fox et al., 2003). The TPOT assesses a preschool teacher's implementation of Pyramid Model teaching practices, which includes indicators measuring the explicit instruction of social, emotional, and behavioral skills.

TPOT data collected from 130 preschool classrooms prior to any training on Pyramid Model practices revealed that on average, mean implementation of the key teaching practices measuring teaching behavior expectations, social skills and emotional competencies, problem solving, and friendship skills were low at 30% or lower (Hemmeter et al., 2013). From a study of 50 preschool classrooms, psychometric properties include minimal error variance (less than 1%) from generalizability analyses

and a high G coefficient (.94) averaged over occasions and raters (Hemmeter et al., 2011). TPOT scores are reliable and consistent, with high interrater score reliability reported across 50 classrooms with pairs of trained raters and stable scores across TPOT administrations. Comparisons to the Classrooms Assessment Scoring System (CLASS; Pianta, La Paro, & Hamre, 2008) include Pearson product-moment correlation coefficients between TPOT and CLASS for emotional support (.70), classroom organization (.73) and instructional support (.76).

TPOT administration requires a 2-hour observation of teaching practices in the classroom and a 15- to 20-minute interview with the teacher by a trained observer. The TPOT includes 14 key teaching practices with a total of 108 skill indicators, 16 red flag items, 7 indicators about environmental arrangement, and multiple indicators if challenging behavior occurs during the observation. Indicators are scored yes or no by a trained observer, scoring “yes” if the teaching practice is observed in use in the classroom and “no” if the practice is not used in the classroom. For each key teaching practice, the indicators associated with that teaching practice are organized by difficulty, with the first indicators measuring basic strategies for that practice and progressing to more difficult strategies as the indicators increase. The teaching practices that are less often scored “Yes” are those that require explicit teaching (e.g. teaching behavior expectations, problem solving, friendship skills).

The first eight key teaching practices are scored by observing the teacher engaging in those teaching practices in the classroom during the observation period. Three of the key teaching practices are scored by observation and interview responses. The final three key teaching practices are scored by interview responses only. If the key

teaching practice indicators are not observed or reported, it is marked no. The TPOT also includes 16 red flag items, 7 indicators about environmental arrangement, and one item with multiple indicators if challenging behaviors occur in the classroom during the observation period.

For the purpose of the current study, only five of the 14 Key Teaching Practices subscale items were used, the practices that specifically measure teaching of social and emotional skills. These Key Teaching Practices include: (a) Teaching Behavior Expectations, with 7 indicators that measure proactively teaching children what behavior is expected rather than responding to challenging behavior when it occurs; (b) Teaching Social Skills and Emotional Competencies, with 8 indicators that measure practices for teaching a range of social skills and emotional competencies; (c) Teaching Friendship Skills, with 9 indicators that measure practices for teaching how to interact with other children, organize play, request materials, and work together; (d) Teaching Children to Express Emotions, with 8 indicators that measure practices for teaching children how to communicate their emotions in appropriate ways; and (e) Teaching Problem Solving, with 9 indicators that measure practices for teaching children the steps of a social problem solving process; for a total of 41 indicators. The first two key teaching practices analyzed for this study, teaching behavior expectations and teaching social skills and emotional competencies, are scored by observation only, marked “yes” if the trained observer saw the teacher demonstrating those indicator items. The remaining three key teaching practices (friendship skills, expressing emotions, and problem solving) are scored by observation and/or interview, with any observed behaviors superseding what teachers report during the interview. If the trained observer witnesses the use of the teaching

practice indicator, “yes” is marked on the TPOT scoring protocol. If the indicator is not observed during the TPOT observation but the teacher describes use of the teaching practice indicator during the interview portion of the TPOT, the observer marks “yes” for that indicator. If the observed behavior contradicts what is reported during the interview, the item is scored based on what is observed. The implementation of these 41 indicators from the TPOT that specifically address teaching social and emotional skills were examined and included in the current data analyses. See Appendix A for an excerpt of the TPOT, with the five Key Teaching Practices and indicators used for this study.

Social Skills Improvement System Rating Scales

The Social Skills Improvement System Rating Scales (SSIS; Gresham & Elliott, 2008) is a screening and assessment tool for identifying students with significant social skill delays/deficits and identifying interventions for those students. The SSIS replaces the *Social Skills Rating System* (SSRS; Gresham & Elliott, 1990), which was a widely used tool for identifying students with social skills deficits. While preserving the strengths of the SSRS, the SSIS adds improvements in detecting behavior change in preschool-aged children, enhanced psychometric properties (including a 4-point frequency rating scale), updated national norms, and a direct link to interventions (Frey et al., 2011).

The SSIS measures seven domains of social skills functioning and five domains of problem (challenging) behavior of children in their classroom. The SSIS also measures academic competence for students from kindergarten through 12th Grade, so for the preschoolers in this study, this part of the tool was not used. The Social Skills Subscale measures 46 skills on a four-point frequency scale (never, seldom, often, almost always) and three-point importance scale (not important, important, critical).

Appropriate social skills are learned behaviors that demonstrate positive interactions with others which are incompatible with inappropriate interactions. The Social Skills Subscale includes common social skills related to communication, cooperation, assertion, responsibility, empathy, engagement, and self-control. The Problem Behavior Subscale measures 30 skills on a four-point frequency scale (never, seldom, often, almost always). Problem (challenging) behavior impedes a student's ability to learn and/or demonstrate appropriate social skills. The Problem Behavior Subscale includes problem behaviors related to externalizing behaviors, bullying, hyperactivity/inattention, internalizing behaviors, and behaviors indicative of Autism Spectrum Disorder (ASD).

The SSIS was used because it is a brief assessment that efficiently and effectively identifies preschoolers who exhibit challenging behavior (indicating a lack of appropriate social skills) and requires no training for administration. The SSIS includes four types of forms: teacher, parent, student (ages 8-12), and student (ages 13-18). The Teacher Form was used, with teachers indicating the frequency of each social skill and problem behavior on a 4-point scale (never, seldom, often, almost always) and importance of each skill to the student's development or success in the classroom on a 3-point scale (not important, important, and critical). Teachers were instructed to complete the form in a single session, that it would take about 15 – 20 minutes, to mark every item, and to provide a rating for each skill or behavior based on the student's behavior over the past two months. Forms were left with teachers to complete when they could dedicate time and attention to do so and a research team member collected the form within the data collection timeline. Teachers completed the SSIS about the child's behavior at baseline and four-month post-test. Raw scores were calculated for each child for the Social Skills

and Problem Behavior Subscales. The pre- and post-test scores were used to calculate a change score by subtracting the pre-test score from the post-test score. This numerical value indicates the amount of improvement in problem (challenging) behavior and social skills for each child during the four-month time period. For problem (challenging) behavior, lower scores indicate less problem behavior and negative change scores indicate improvement in problem behavior, or that their problem behavior raw score was higher at baseline and decreased at post-test. For the Social Skills Subscale, higher scores indicate the presense of more social skills and positive change scores indicate improvements in social skills, or that their social skills raw score was lower at pre-test and increased at post-test.

The SSIS Rating Scales were developed and standardized to classify students as representative of social skills strengths, social skills performance deficits, or acquisition deficits with or without competing problem behaviors. These clasifications allow school personnel to easily identify students with deficits/delays in social skills and link specific behaviors or skills that can be taught using a detailed intervention plan with direct links to the SSIS Intervention Guide (Elliott & Gresham, 2008). The authors of SSIS report very high internal consistency (.96) and 6-week test reliability (.90; Frey et al., 2011). The authors also report validity evidence along with separate-sex (gender) norms to neutralize any overall sex differences. The SSIS correlates highly with the Child Behavior Checklist (Achenbach & Rescorla, 2000; .81) and the Walker-McConnell Scale of Social Competence (Walker, 1995; .75). See Appendix B for a copy of the SSIS.

Data Collection for Current Study

The archival data described previously was used for this study's data collection. Data from the Teaching Pyramid Observation Tool (TPOT; Hemmeter et al., 2014) was scored independently for the current study. The study described here used 41 of the 108 indicators, from the five key teaching practices that specifically measure the direct teaching of social and emotional skills. The specified TPOT indicators were calculated for each participant for each key teaching practice, independently. Each key teaching practice was scored and recorded, as well as the summative score of the combined five key teaching practices. The summative score was a total score out of a possible 41 indicators. Each key teaching practice had a variable number of indicators (from 7 to 9) and was recorded by indicating how many indicators were scored "yes" on the TPOT for each key teaching practice. The researcher reviewed each TPOT scoring protocol, found the sections of the specified indicators, and counted how many of the specified indicators were marked "yes" and "no" for each teacher for each indicator. Scores indicating how many indicators were marked "yes" and "no" were recorded for each key teaching practice (from 7 to 9), and scores for each key teaching practice were added up and recorded for an overall score (out of 41). The TPOT raw scores were out of a total of 41 indicators, and the total raw score for each teacher was documented on the data sheet, input into SPSS, and used in the data analyses. Independent observers calculated over 39% of the TPOT scoring protocols to assess interrater reliability, with reliability on data collection and input at 100%.

Data for the Social Skills Improvement System Rating Scales (SSIS; Gresham & Elliott, 2008) were extracted from the extant archival data set. SSIS data for the problem

behavior and social skills subscales were collected and documented for each child who participated, using pre-test and post-test raw scores. For each participant, their pre- and post-test scores were recorded on the data sheet for each subscale, and a difference score was calculated. The difference score was calculated by taking the pre-test SSIS subscale score and subtracting it from the post-test SSIS subscale score. The difference scores for the problem behavior and social skills subscales were recorded on the data sheet, input into SPSS, and used in the data analyses.

The data base for the current study contained (a) TPOT scores of each of the five key teaching practices independently, (b) a summative score of the combined five key teaching practices of the TPOT scores, (c) SSIS Problem Behavior subscale change score, and (d) SSIS Social Skills subscale change score.

Data Analysis

Both research questions were analyzed using Pearson's correlation. Pearson's correlation is appropriate when examining the relationship between a categorical variable and a ratio-level variable. Correlation measures the strength and the direction of the relationship between two variables, resulting in a correlation coefficient that varies from -1 to 0 to +1.

The data for this study were input into SPSS and included: (a) TPOT summative raw score (out of 41), (b) TPOT score for each of the five key teaching practices independently (7-9 indicators each, depending on the key teaching practice), (c) SSIS Problem Behavior subscale change score (post-test score minus pre-test score), (d) SSIS Social Skills subscale change score (post-test score minus pre-test score), and (e) what group (PTR-YC intervention or control) the participant was assigned. Question 1 was

answered by analyzing the summative TPOT score of the five key teaching practices in relation to the SSIS Problem Behavior subscale change score for the whole group, intervention group, and control group. Question 1a was answered by analyzing each of the TPOT key teaching practice scores independently by practice, in relation to the SSIS Problem Behavior subscale change score for the whole group, intervention group, and control group. Question 2 was answered by analyzing the summative TPOT score of the five key teaching practices in relation to the SSIS Social Skills subscale change score for the whole group, intervention group, and control group. Question 2a was answered by analyzing each of the TPOT key teaching practice scores independently by practice, in relation to the SSIS Social Skills subscale change score for the whole group, intervention group, and control group.

For each question, the Pearson Product-Moment Correlation Coefficient was calculated, symbolized as “r.” The first step was to graph the scores in a scatterplot via SPSS. The scatterplot graph allowed for visual analysis to determine if a linear relationship existed between the two variables being analyzed. Assuming the scatterplot shows the data points in roughly a straight line, Pearson’s correlation is an appropriate test for these data. When the scatterplot is more like a curve, then Pearson’s correlation is not the appropriate test for this relationship. SPSS produced a visual scatterplot and identified a Pearson r score, specifying the strength of the relationship and the direction of the relationship. The Pearson correlation coefficient was also examined by checking its significance.

Summary

This quantitative study examined if children with persistent challenging behavior demonstrated greater changes in challenging behavior and social skills when social and emotional skills were taught in the classroom. This correlational study used data from an extant archival data set for the TPOT and SSIS measures. Both research questions were answered using Pearson's correlation. The results of the data analyses are presented in the following chapter.

CHAPTER FOUR – RESULTS

This quantitative study examined if children with persistent challenging behavior demonstrated greater changes in challenging behavior and social skills when social and emotional skills were taught in the classroom. Data for this study were extracted from an archival data set that included the Teaching Pyramid Observation Tool for Preschool Classrooms (TPOT; Hemmeter et al., 2014) and Social Skills Improvement System Rating Scales (SSIS; Gresham & Elliott, 2008) measures. This chapter begins with a brief review of the sample and description of the data.

As mentioned in the previous chapter, demographic characteristics of both participating teachers and children were similar across study groups, and were extracted from the archival data set in summary form. Teachers were primarily female, with a wide range of experience and education from first-year teachers to those with more than twenty years of teaching preschool, and high school diplomas to master's degrees. Children were mostly White or Hispanic males, nearly half had an Individualized Education Plan (IEP), and mostly attended public preschool classrooms. Participating children ranged in age from 34 to 72 months at baseline data collection and most spoke English as a primary language at home. Additional details of teacher and child demographics were not available for analyses for the current study. Demographic information describing teachers or children by group participation were not available for analyses, so descriptive statistics by group could not be calculated for this study (see pages 45 – 49 for details on study participants).

Descriptive statistics were calculated by group for each variable. Means and standard deviations by group were calculated for the SSIS Problem Behavior (PB) and

Social Skills (SS) subscales, TPOT summative score of the five key teaching practices, and TPOT score by key teaching practice. These data are summarized in Table 3.

Table 3

Means and Standard Deviations by Group and Variable

Variable	Whole Group (n=100)		Control Group (n=52)		Intervention Group (n=48)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
SSIS - PB	-4.83	9.43	-1.98	8.92	-7.92	9.07
SSIS - SS	10.24	16.23	6.54	13.28	14.25	18.22
TPOT Total	24.67	10.37	23.59	10.60	26.13	9.91
Teaching Behavior Expectations	3.30	2.49	2.71	2.50	3.94	2.35
Teaching Social and Emotional Competencies	3.81	2.74	3.50	2.71	4.15	2.76
Teaching Friendship Skills	5.71	2.75	5.48	2.70	5.96	2.82
Teaching Children to Express Emotions	6.15	1.89	5.90	2.14	6.42	1.56
Teaching Problem Solving	5.70	2.43	5.75	2.43	5.65	2.45

A Pearson product-moment correlation was computed to examine two relationship questions. Results for each of the research questions are reported in narrative form and are summarized in Tables 4 - 7.

Relationship Between Social and Emotional Teaching Strategies and Challenging Behavior

Question 1 examined the relationship between the summative Teaching Pyramid Observation Tool (TPOT; Hemmeter et al., 2014) score of the five key teaching practices in relation to the Social Skills Improvement System Rating Scales (SSIS; Gresham & Elliott, 2008) Problem Behavior subscale change score for the whole group, control group, and intervention group. For the whole group, there was a negative correlation with non-significant results, $r(98) = -.038, p = .706$. For the control group, there was a negative correlation with non-significant results, $r(51) = -.235, p = .094$. For the intervention group, there was a positive correlation with non-significant results, $r(47) = .281, p = .053$. Overall, there were no statistically significant correlations between the summative TPOT score of the five key teaching practices in relation to the SSIS Problem Behavior subscale change score for the whole group, control group, and intervention group. Table 4 on the next page provides a summary of these results.

Table 4

Correlation Matrix of Social and Emotional Teaching Practices and Changes in Children's Challenging (Problem) Behavior

Group	Pearson Correlation	Significance
Whole Group (n=100)	-.038	.706
Control Group (n=52)	-.235	.094
Intervention Group (n=48)	.281	.053

Question 1a examined the relationship between each of the five TPOT key teaching practice scores independently by practice, in relation to the SSIS Problem Behavior subscale change score for the whole group, control group, and intervention group.

Teaching Behavior Expectations

The Teaching Behavior Expectations key teaching practice was examined in relation to the SSIS Problem Behavior subscale change score for the whole group, control group, and intervention group. For the whole group, there was a negative correlation with non-significant results, $r(98) = -.050, p = .622$. For the control group, there was a negative correlation with non-significant results, $r(51) = -.215, p = .125$. For the intervention group, there was a positive correlation with significant results, $r(47) = .310, p = .032$. There were no statistically significant correlations between the Teaching Behavior Expectations key teaching practice in relation to the SSIS Problem Behavior

subscale change score for the whole group and control group. There was a statistically significant positive correlation for the intervention group.

Teaching Social and Emotional Competencies

The Teaching Social and Emotional Competencies key teaching practice was examined in relation to the SSIS Problem Behavior subscale change score for the whole group, control group, and intervention group. For the whole group, there was a negative correlation with non-significant results, $r(98) = -.068, p = .504$. For the control group, there was a negative correlation with non-significant results, $r(51) = -.199, p = .157$. For the intervention group, there was a positive correlation with non-significant results, $r(47) = .143, p = .332$. Overall, there were no statistically significant correlations between the Teaching Social Skills key teaching practice in relation to the SSIS Problem Behavior subscale change score for the whole group, control group, and intervention group.

Teaching Friendship Skills

The Teaching Friendship Skills key teaching practice was examined in relation to the SSIS Problem Behavior subscale change score for the whole group, control group, and intervention group. For the whole group, there was no correlation with non-significant results, $r(98) = .004, p = .970$. For the control group, there was a negative correlation with non-significant results, $r(51) = -.206, p = .143$. For the intervention group, there was a positive correlation with non-significant results, $r(47) = .277, p = .056$. Overall, there were no statistically significant correlations between the Teaching Friendship Skills key teaching practice in relation to the SSIS Social Skills subscale change score for the whole group, control group, and intervention group.

Teaching Children to Express Emotions

The Teaching Children to Express Emotions key teaching practice was examined in relation to the SSIS Problem Behavior subscale change score for the whole group, control group, and intervention group. For the whole group, there was a negative correlation, with non-significant results, $r(98) = -.121, p = .231$. For the control group, there was a negative correlation with non-significant results, $r(51) = -.201, p = .153$. For the intervention group, there was a positive correlation with non-significant results, $r(47) = .088, p = .552$. Overall, there were no statistically significant correlations between the Teaching Emotional Competencies key teaching practice in relation to the SSIS Problem Behavior subscale change score for the whole group, control group, and intervention group.

Teaching Problem Solving

The Teaching Problem Solving key teaching practice was examined in relation to the SSIS Problem Behavior subscale change score for the whole group, control group, and intervention group. For the whole group, there was a positive correlation, with non-significant results, $r(98) = .054, p = .592$. For the control group, there was a negative correlation with non-significant results, $r(51) = -.186, p = .187$. For the intervention group, there was a positive correlation with significant results, $r(47) = .300, p = .038$. There were no statistically significant correlations between the Teaching Problem Solving key teaching practice in relation to the SSIS Problem Behavior subscale change score for the whole group and control group. There was a statistically significant positive correlation for the intervention group.

In summary, statistically significant correlations were found for the intervention group only with Teaching Behavior Expectations [$r(47) = .310, p = .032$] and Teaching Problem Solving [$r(47) = .300, p = .038$]. No statistically significant correlations were found for any of the other key teaching practices for the intervention group or for any of the key teaching practices for the whole group or control group. See Table 5 on the next page for the correlation and significance data for all key teaching practices in relation to changes in children's problem (challenging) behavior.

Table 5

Correlation Matrix of Key Teaching Practice and Changes in Children's Challenging (Problem) Behavior

Key Teaching Practice	Whole Group (n=100)		Control Group (n=52)		Intervention Group (n=48)	
	Corr.	Sig.	Corr.	Sig.	Corr.	Sig.
Teaching Behavior Expectations	-.050	.622	-.215	.125	.310*	.032
Teaching Social and Emotional Competencies	-.068	.504	-.199	.157	.143	.332
Teaching Friendship Skills	.004	.970	-.206	.143	.277	.056
Teaching Children to Express Emotions	-.121	.231	-.201	.153	.088	.552
Teaching Problem Solving	.054	.592	-.186	.187	.300*	.038

* $p < 0.05$ level.

Relationship Between Social and Emotional Teaching Strategies and Social Skills

Question 2 examined the relationship between the summative TPOT score of the five key teaching practices in relation to the SSIS Social Skills subscale change score for the whole group, control group, and intervention group. For the whole group, there was a

negative correlation with non-significant results, $r(98) = -.002, p = .985$. For the control group, there was positive correlation with non-significant results, $r(51), p = .534$. For the intervention group, there was a negative correlation with non-significant results, $r(47), = -.142, p = .335$. Overall, there were no statistically significant correlations between the summative TPOT score of the five key teaching practices in relation to the SSIS Social Skills subscale change score for the whole group, control group, or intervention group. Table 6 provides a summary of these results.

Table 6

Correlation Matrix of Social and Emotional Teaching Practices and Changes in Children's Social Skills

Group	Pearson Correlation	Significance
Whole Group (n=100)	-.002	.985
Control Group (n=52)	.088	.534
Intervention Group (n=48)	-.142	.335

Question 2a examined the relationship between each of the TPOT key teaching practice scores independently by practice, in relation to the SSIS Social Skills subscale change score for the whole group, control group, and intervention group.

Teaching Behavior Expectations

The Teaching Behavior Expectations key teaching practice was examined in relation to the SSIS Social Skills subscale change score for the whole group, control group, and intervention group. For the whole group, there was a positive correlation with

non-significant results, $r(98) = .068, p = .502$. For the control group, there was a positive correlation with non-significant results, $r(51) = .093, p = .513$. For the intervention group, there was a negative correlation with non-significant results, $r(28) = -.060, p = .684$. Overall, there were no statistically significant correlations between the Teaching Behavior Expectations key teaching practice in relation to the SSIS Social Skills subscale change score for the whole group, control group, or intervention group.

Teaching Social and Emotional Competencies

The Teaching Social and Emotional Competencies key teaching practice was examined in relation to the SSIS Social Skills subscale change score for the whole group, control group, and intervention group. For the whole group, there was no correlation with non-significant results, $r(98) = .003, p = .979$. For the control group, there was a positive correlation with non-significant results, $r(51) = .043, p = .762$. For the intervention group, there was a negative correlation with non-significant results, $r(47) = -.081, p = .584$. Overall, there were no statistically significant correlations between the Teaching Social and Emotional Competencies key teaching practice in relation to the SSIS Social Skills subscale change score for the whole group, control group, and intervention group.

Teaching Friendship Skills

The Teaching Friendship Skills key teaching practice was examined in relation to the SSIS Social Skills subscale change score for the whole group, control group, and intervention group. For the whole group, there was a negative correlation with non-significant results, $r(98) = -.051, p = .617$. For the control group, there was a positive correlation with non-significant results, $r(51) = .081, p = .569$. For the intervention

group, there was a negative correlation with non-significant results, $r(47) = -.192, p = .191$. Overall, there were no statistically significant correlations between the Teaching Friendship Skills key teaching practice in relation to the SSIS Social Skills subscale change score for the whole group, control group, and intervention group.

Teaching Children to Express Emotions

The Teaching Children to Express Emotions key teaching practice was examined in relation to the SSIS Social Skills subscale change score for the whole group, control group, and intervention group. For the whole group, there was a positive correlation with non-significant results, $r(98) = .034, p = .735$. For the control group, there was a positive correlation with non-significant results, $r(51) = .122, p = .390$. For the intervention group, there was a negative correlation with non-significant results, $r(47) = -.128, p = .384$. Overall, there were no statistically significant correlations between the Teaching Emotional Competencies key teaching practice in relation to the SSIS Social Skills subscale change score for the whole group, control group, and intervention group.

Teaching Problem Solving

The Teaching Problem Solving key teaching practice was examined in relation to the SSIS Social Skills subscale change score for the whole group, control group, and intervention group. For the whole group, there was a negative correlation with non-significant results, $r(98) = -.050, p = .620$. For the control group, there was a positive correlation with non-significant results, $r(51) = .049, p = .732$. For the intervention group, there was a negative correlation with non-significant results, $r(47) = -.122, p = .410$. Overall, there were no statistically significant correlations between the Teaching

Problem Solving key teaching practice compared to the SSIS Social Skills subscale change score for the whole group, control group, and intervention group.

In summary, no statistically significant correlations were found for any of the key teaching practices for the whole group, control group, or intervention group. See Table 7 for the correlation and significance data for all key teaching practices in relation to changes in children's social skills.

Table 7

Correlation Matrix of Key Teaching Practice and Changes in Children's Social Skills

Key Teaching Practice	Whole Group (n=100)		Control Group (n=52)		Intervention Group (n=48)	
	Corr.	Sig.	Corr.	Sig.	Corr.	Sig.
Teaching Behavior Expectations	.068	.502	.093	.513	-.060	.684
Teaching Social and Emotional Competencies	.003	.979	.043	.762	-.081	.584
Teaching Friendship Skills	-.051	.617	.081	.569	-.192	.191
Teaching Children to Express Emotions	.034	.735	.122	.390	-.128	.384
Teaching Problem Solving	-.050	.620	.049	.732	-.122	.410

CHAPTER FIVE - DISCUSSION

The purpose of this study was to examine if children with persistent challenging behavior made greater changes in challenging behavior and social and emotional skills when social and emotional skills were taught in the classroom. The Social Skills Improvement System (SSIS) was used to measure changes in preschoolers' challenging (problem) behavior and social skills, collected at pre- and post-test of study participation. Five social and emotional key teaching practices were measured using the Teaching Pyramid Observation Tool (TPOT), collected at pre-test. Correlations between the teaching practices and children's change scores for challenging behavior and social skills were analyzed for possible statistical significance for the whole group, the control group, and the intervention group. Results showed that for three of the five key teaching practices examined, no statistically significant relationships were found with any of the groups for changes in challenging behavior or changes in social skills. Similarly, for the remaining two key teaching practices, no statistically significant relationships were found for the whole group or control group with changes in challenging behavior, or for any of the three groups for changes in social skills. However, statistically significant relationships were found for participants in the intervention group between teaching behavior expectations and teaching problem solving with reductions in preschoolers' challenging behavior.

These statistically significant relationships are intriguing since they were only found for two of the teaching practices and only in the intervention group. Explanations are difficult to surmise at this juncture, but there are some features worthy of consideration. Primarily, the TPOT assessment includes indicators for teaching behavior

expectations and teaching problem solving that are more concrete, specific, and appear more related to procedures from the Prevent Teach Reinforce for Young Children (PTR-YC; Dunlap et al., 2013) intervention plans in relation to the other three teaching practices. All PTR-YC intervention plans from the original study included a teaching strategy for an appropriate behavior that is intended to serve as a functional replacement for the child's challenging behavior. In other words, it is possible that the intervention plans included instruction on skills related to the classroom's behavior expectations and/or using the problem solving process. The increased magnitude of change in reduction of challenging behavior for the intervention group in relation to the control group suggests this as a possible explanation. In order to elaborate on this potential relationship, experimental analyses may be warranted to test for any causal relationships.

The essential message from the statistically significant correlations is that, within the intervention group, the greater the implementation of the indicators for teaching behavior expectations, the greater the decrease in the preschooler's challenging behavior. Similarly, the greater the implementation of the indicators of teaching problem solving, the greater the decrease in the preschooler's challenging behavior. These associations were not demonstrated with the other three teaching practices and only occurred in the intervention group. The intervention group produced enough change in challenging behavior to make detection of these relationships possible. Teaching behavior expectations and teaching problem solving both include indicators that are more concrete, specific, and possibly related to procedures from the PTR-YC intervention plans.

Teaching behavior expectations encompasses proactive strategies where teachers provide direct instruction on specific appropriate behaviors for children to demonstrate

and practice, and teachers support the use of the appropriate behaviors throughout the day in daily interactions (Hemmeter et al., 2014). Generally, there are a small number of expectations (three to five) for preschoolers to follow for any given area or daily routine in the classroom. When teachers systematically teach a small number of expected skills and support the use of these skills throughout the day, behavior expectations contribute to a positive learning environment that supports children's engagement in daily routines and activities in the classroom (Fox et al., 2003; Hemmeter et al., 2014). The direct instruction of concrete skills for children to demonstrate, combined with teachers' reminders and reinforcement of those expectations, have been demonstrated to improve behaviors of preschoolers as a universal practice (Fox et al., 2009; National Research Council, 2001) and may be a contributing factor in behavioral improvement for preschoolers with persistent challenging behavior. In other words, teaching and reinforcing appropriate behavior in the classroom has been demonstrated as an effective strategy for reducing preschoolers' challenging behavior, and may be an effective strategy for preschoolers with persistent challenging behavior. It is also possible that teaching behavioral expectations works in combination with other social and emotional teaching practices to improve challenging behavior of preschoolers. These speculations are issues for further research.

Problem solving is a complex process that involves a child's ability to recognize a social problem, identify possible solutions, evaluate if the solutions are appropriate, and use the identified appropriate solution (Hemmeter et al., 2014). Although complex, this teaching practice lays out a specific and concrete process for children to follow in order to solve social problems that may occur in the classroom. Similar to teaching behavior

expectations, specific steps to follow may be helpful in teaching preschoolers to identify and use socially appropriate behaviors to resolve those problems instead of responding with challenging or inappropriate behavior. Social problems, like wanting to play with the same toy, engage in the same activity, or not wanting a child to interfere in their play, occur often in preschool classrooms. Hune & Nelson (2002) demonstrated decreases in preschoolers' aggressive behavior and increases in prosocial responses when children were taught a problem solving strategy for resolving social problems in the classroom. These common social problems may be contributing factors to preschoolers' challenging behaviors and abilities to engage in socially sophisticated interactions with peers. In other words, teaching and reinforcing appropriate behavior to resolve social problems in the classroom has been demonstrated as an effective strategy for reducing preschoolers' challenging behavior and may be an effective strategy for preschoolers who already demonstrate persistent challenging behavior. It is also possible that the effectiveness of problem solving works in tandem with other social and emotional skills. These speculations are also issues for future research.

In contrast, the other three key teaching practices are comprised of indicators that appear less specific or concrete, or include less action-oriented behaviors for children to engage in. The three key teaching practices that did not demonstrate statistically significant correlations for this study include teaching social skills and emotional competencies, teaching friendship skills, and teaching children to express emotions. Interestingly, teaching social skills and emotional competencies include indicators for teaching any social skill and teaching emotional competencies in general, and can include teaching friendship skills, teaching children to express emotions and teaching problem

solving. It is possible that teaching social skills and emotional competencies did not show any relationships because the teaching practice not only encompasses items that are included in other teaching practices, but that the indicators include less action-oriented or concrete behaviors for preschoolers to engage in.

In addition, teaching friendship skills and teaching children to express emotions include a varied set of skills and emotions. Although friendship skills and expressing emotions are important skills for preschoolers to use in classrooms and are concrete skills, the skills are more “vague” in that there is not a specified set of rules of when a specific friendship skill is to be used in a specific circumstance or how and when emotions are appropriately expressed for any given circumstance. The behaviors included in friendship skills and expressing emotions are entirely dependent upon the context in which they occur, and there is not a particular formula or set of explicit rules about what skill to implement in what context and how to respond to others’ behavior and emotions. This becomes much more complicated during a common occurrence where one child uses an appropriate social skill, but the other child does not respond with an appropriate social skill. In this example, a child would benefit from using the problem solving process to identify another friendship or emotional skill to try. These behaviors can and may work in tandem with the problem solving process, but those associations were not revealed in the current study. It is unknown if the statistically significant differences are influenced by the concrete or specific skills and steps of teaching behavior expectations and problem solving in relation to the more variable set of skills and emotions from teaching friendship skills and expressing emotions. Likewise, these speculations are considerations for future research.

Implications for Practice

If specific social and emotional skills can be identified as more effective and efficient at reducing the challenging behavior of preschoolers with persistent challenging behavior, there are several potential implications for practice. First and foremost, there is a sense of urgency for identifying and implementing effective interventions when preschool children exhibit persistent challenging behavior. When challenging behavior persists, a variety of discipline practices are frequently implemented and may ultimately result in exclusionary discipline practices like suspension and expulsion. There is abundant evidence that challenging behavior that is not addressed before children enter kindergarten is not likely to improve and typically worsens over time, extending into problems in adulthood (e.g. Dodge et al., 2006; Fox et al., 2009; Moreland & Dumas, 2008; National Research Council, 2001). The immediate and long-term implications for the child, family and overall community are critical to address as early and efficiently as possible.

Second, and equally as urgent, are implications for practice at the classroom level. If teachers or behavior support personnel can identify possible intervention strategies more efficiently, it is possible to address persistent challenging behavior in a shorter period of time with lasting effects. Teaching preschoolers to engage in appropriate and acceptable social and emotional skills provides the foundation upon which to build more sophisticated skills as they progress. Identifying skills that are more effective at reducing preschoolers' persistent challenging behavior has potential implications for the classroom in regard to preschool teacher preparation programs, professional development and continuing education opportunities, collaboration with behavior support personnel,

collaboration with paraprofessionals, administrative support, teacher satisfaction, and quality indicators, just to name a few.

There are also implications for practice that impact preschool programs as a whole and the broader community. When preschool children engage in persistent challenging behavior, there is a need for an individualized intervention plan. This typically involves a team approach that includes classroom personnel, behavior support personnel (e.g. mental health consultants, psychologists, behavior analysts), school/program administrators, and families (Fox et al., 2009). The team is convened to develop and implement the individualized plan, which requires much time, effort, and resources. Making this process more efficient would likely be welcomed by all team members. In addition to the impacts on the school/program, it can take a great toll on the child's family, who may need to take time off work to attend meetings, to seek additional intervention for their child, and may ultimately result in referrals to special education services or other interventions provided in the community, as a few examples (Doubet & Ostrosky, 2016). To reduce impacts on families and their communities, this study revealed relationships that suggest that teaching behavior expectations and teaching problem solving may be more efficient at reducing preschoolers' persistent challenging behavior.

In summary, there are several potential implications for practice regarding the relationship between social and emotional teaching practices and improvements in preschoolers' challenging behavior in the classroom. There is an urgent need to implement effective interventions for preschoolers with persistent challenging behavior, in a shorter period of time with lasting effects, in order to reduce the impact on children,

families, and their communities for immediate and long-term effects. For preschoolers with persistent challenging behavior, this study discovered statistically significant relationships between greater changes in challenging behavior when more indicators of teaching behavior expectations and teaching problem solving were implemented in the classroom. The necessity of preventing and addressing challenging behavior as early as possible cannot be emphasized enough, so future research is needed to continue to improve the classroom experiences of preschoolers with persistent challenging behavior.

Implications for Teacher Education

The results from this study suggest several implications for early childhood teacher education programs and professional development opportunities. In any given community, classroom or group care settings for preschoolers can vary widely in availability, accessibility, cost, and quality (Shonkoff & Phillips, 2000). Furthermore, requirements for teachers in classrooms of preschool-aged children can vary, ranging from minimal state or local child care licensing requirements for the adults caring for preschoolers, to programs that employ teachers with master's degrees in educating young children (National Research Council and Institute of Medicine, 2009). Regardless of the teacher's level of education, preschool teachers often report that they need and want more training in preventing and addressing challenging behavior (e.g. Hemmeter et al., 2006, Snell et al., 2012). Teachers may not be aware that what they need is instruction and training on teaching and supporting young children's social and emotional skills. There is a need for well-trained teachers and professionals in early care and education settings.

Institutions of higher education, including two- and four-year degree programs, could and should incorporate more coursework and experiences for teaching and

supporting young children's social and emotional skills. State and colleagues (2011) examined a sample of university syllabi from elementary teacher preparation programs and discovered that very few programs included the topic of challenging behavior in any of their courses. If programs included challenging behavior, the topic was only covered for several hours (at most) during a semester-long course. However, it is not known how much instruction and experience for teaching and supporting social and emotional skills for young children occur in institutions of higher education, but preschool teachers report that they need and want more training on preventing and addressing challenging behavior (e.g. Snell et al., 2012). If elementary teacher preparation programs do not generally include much coursework devoted to preventing or even addressing challenging behavior, it is likely that early childhood teacher preparation programs are similar and do not include much coursework to preventing or addressing challenging behavior.

If pre-professional training programs rarely provide the relevant coursework and experiences for teaching and supporting appropriate social and emotional skills to prevent and address challenging behavior, professional development training opportunities could be focused on providing this information for teachers in preschool classrooms and for those who are not in programs to pursue a degree in early childhood education and/or early childhood special education. The research reviewed for the current study clearly indicate that teachers can learn to teach and support social and emotional skills with preschool-aged children in classroom settings and see improvements in social and emotional skills and reductions in challenging behavior. The early childhood field continues to struggle with closing the research-to-practice gap to provide the information and strategies that teachers say they want and need (e.g. Snell et al., 2012). Professional

development training opportunities can be focused on improving the capacity of preschool teachers to prevent and address challenging behavior in their classrooms by increasing access to, and requirements for, teaching and supporting social and emotional skills.

Early childhood teacher education programs and professional development opportunities for teachers in preschool classrooms need to put a greater emphasis on, and accessibility of, information and strategies for teaching appropriate social and emotional skills. Training is critical to improve the capacity of preschool teachers, and there is plenty of literature documenting successful implementation of teaching social and emotional skills in the classroom and reducing challenging behavior. Current and prospective teachers need to be better advocates for getting the information and support they need for preventing and managing challenging behavior in preschool classrooms.

Research Directions

This study provides data to suggest that certain social and emotional skills, like teaching behavior expectations and problem solving, might be especially effective in reducing preschoolers' persistent challenging behavior. Research to experimentally examine whether or not teaching behavior expectations and/or teaching problem solving reduces preschoolers' persistent challenging behavior is intriguing and worthy of future research. For example, single case research could examine whether a problem solving strategy reduces preschoolers persistent challenging behavior. Hune and Nelson (2002) used an A-B single-subject design to reduce aggressive behavior in four preschoolers after teaching the children a problem solving strategy. Replicating or expanding upon this research holds promise for identifying more effective teaching strategies for reducing

preschoolers' persistent challenging behavior. Although the data obtained and used in this study was not collected for this study's particular purpose, the data revealed statistically significant relationships and suggest further exploration through experimental analysis.

Another potential research direction includes examining individual behavior support/intervention plans to identify what specific social or emotional skill(s) is taught or what class of skill is taught. Analyses of the individualized plans could reveal if certain teaching practices are identified for specific types of challenging behavior, if universal classroom practices are incorporated into individualized plans or if most strategies involve direct and individualized instruction. A closer examination of individual plans and the specific skills that are taught might reveal some useful information. Similarly, examining plans to determine if the specific function of the child's challenging behavior relates to the identified teaching strategy for the replacement or appropriate behavior in the classroom would be interesting to assess. Studies that examine the contents of individualized intervention/support plans for preschoolers with persistent challenging behavior might reveal information that could inform intervention practices. It is possible that behavior expectations and problem solving play a role in individual plans.

In addition, research that experimentally examines the effects of instruction on specific social and emotional skills would be beneficial. For one, it might be helpful to identify if certain social and emotional skills are more effective than others for specific contexts. For example, are there prerequisite social and emotional skills that are more basic but necessary in order to engage in other social and emotional skills that are more

sophisticated? Or do some social and emotional skills work more effectively when used on their own or when used together with other skills? Or are some skills more important for interacting with adults whereas others are more important for interacting with other children? Or are some skills more effective in reducing challenging behavior with different classes or types of challenging behavior? Since there is evidence that social and emotional skill instruction is effective in preventing and reducing challenging behavior, there is still more work to be done to determine the most effective interventions for preschoolers with persistent challenging behavior. The data analyses from this study suggest teaching behavior expectations and teaching problem solving may be effective skills. Single case experimental designs studying the effects of specific social and emotional teaching practices on preschoolers' challenging behavior may shed some light on this particular area for future research.

Limitations

Although there are several limitations of this study, the findings are worthy of continued examination. The primary limitation of this study is how the study was designed, with threats to internal and external validity. First, this study used archival data from a randomized controlled trial study on individualized interventions for persistent challenging behavior, not a study on teaching social and emotional skills. Given that this study used existing data, this study is not replicable. Furthermore, the data extracted for use in this study came from a study designed for a different purpose, which compromises the validity of the results of this study.

Another limitation of this study includes the data analyses. Since correlational analyses were completed, relationships can only be identified and no conclusions can be

determined from the results. Future studies could be designed where preschoolers with persistent challenging behavior receive instruction on a specific social skill like problem solving (the independent variable), and examine if the ability to use that skill reduces a preschooler's challenging behavior (dependent variable). Experimental research designs could provide the evidence needed to determine if certain social and emotional skills are more effective at reducing challenging behavior than others.

A related limitation of this study is that although the correlations were statistically significant for two of the indicators for the intervention group, the correlations were not strong. These correlations suggest that either the relationship between the two variables is not that strong, or perhaps the sample size is not large enough to detect a stronger relationship. Since the sample size for this study was relatively small (another limitation), future studies could include larger sample sizes or use more refined measures to detect relationships between teaching specific social and emotional skills and reductions in challenging behavior in preschoolers.

An additional limitation is the assessment measures used for this study. The SSIS was used to measure the social skills and problem behavior of the preschool children, but this measure is based solely on teacher report, which is subjective and does not provide internal validity. Future studies should include a direct observation measure that includes measures of the child's social skills and challenging behavior in the classroom. Despite these limitations, the speculations derived from the results of this study are worthy of further examination through experimental analysis, including design elements to address the internal and external validity concerns described here.

In summary, there are many future directions for examining the effects of social and emotional skill instruction on the challenging behavior of preschool children. The results from this study suggest further exploration of the relationship between reductions of challenging behavior and teaching behavior expectations and/or problem solving to preschoolers with persistent challenging behavior. This study has only just begun to explore the possibility of identifying certain skills like behavior expectations and problem solving as more effective and efficient than others at reducing preschoolers' persistent challenging behavior. More research is needed to determine whether or not specific social and emotional skills are more effective and efficient than others at reducing preschoolers' persistent challenging behavior.

Overall Summary

The purpose of this study was to examine if specific teaching strategies to support social and emotional skills for the whole class correlated with changes in the challenging behavior and social skills of preschoolers with persistent challenging behavior. Using correlational analyses, statistically significant reductions in preschoolers' challenging behavior were associated with teaching behavior expectations and teaching problem solving for children in the intervention group. Implications were discussed, with urgency being the most critical implication of note. But several possible implications were identified for the child, classroom, and the school/program and larger community. Likewise, research directions discussed the experimental evaluation of the effects of social and emotional skill instruction on reductions of challenging behavior for preschoolers with persistent challenging behavior. In particular, the effects of teaching behavior expectations and teaching problem solving suggest further inquiry. Although

prevention practices and strategies are preferred, the intervention technology for addressing and improving persistent challenging behavior in preschool classrooms is necessary, urgent, and worthy of continued and further examination.

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Appendix A – Teaching Pyramid Observation Tool excerpt

SUBSCALE 1: Key Practices



7. Teaching Behavior Expectations

	INDICATOR	YES	NO	NOTES
TBE1	Teacher has posted behavior expectations OR rules that are positively stated, include a visual, and are limited in number.			
TBE2	Posted behavior expectations or rules are reviewed with children during large-group OR small-group activities.			
TBE3	Children are reminded of posted behavior expectations or rules throughout the observation.			
TBE4	Teacher provides instruction OR reminders on posted behavior expectations or rules to individual children, during play or within small-group activities.			
TBE5	Teacher comments on appropriate child behavior, linking the behavior to the posted classroom rules or expectations.			
TBE6	Throughout the observation, teacher provides specific positive feedback to children on meeting posted behavior expectations or rules.			
TBE7	Teacher facilitates discussions where children are involved in critically thinking about posted behavior expectations or rules AND their importance in the classroom.			
TOTAL:				

NOTES:



SUBSCALE 1: Key Practices

8. Teaching Social Skills and Emotional Competencies

	INDICATOR	YES	NO	NOTES /
TSC1	Teacher uses naturally occurring opportunities across the day to teach social skills OR emotional competencies.			
TSC2	Teacher structures activities or opportunities for children to work together.			
TSC3	Teacher uses a variety of strategies to help children learn the concept associated with specific skills. Examples of strategies include discussion, role play, and description of observations of children in the classroom who demonstrated the skill.			
TSC4	Teacher uses small-group OR large-group activities to teach social skills OR emotional competencies (e.g., friendship skills, problem solving, emotional literacy).			
TSC5	Teacher models expected social skills AND emotional competencies while describing his or her behavior.			
TSC6	Teacher comments positively AND descriptively on children who are using social skills AND expressing their emotions in appropriate ways.			
TSC7	Teacher helps children reflect on their use of social skills OR emotional competencies either individually OR in groups.			
TSC8	Teacher individualizes instruction of social skills OR emotional competencies (e.g., one-to-one instruction as needed, different prompting strategies) based on children's developmental needs. Procedures OR materials vary across children.			
TOTAL:				

NOTES:

SUBSCALE 1: Key Practices

9. Teaching Friendship Skills (continued)

	INDICATOR	YES	NO	NOTES
FR1	Teacher encourages children to play together.	R ☐ O ☐		
FR2	Teacher comments positively AND descriptively on children who are working together, helping each other or engaging in other friendship behaviors.	R ☐ O ☐		
FR3	Teacher uses a variety of strategies AND materials (e.g., discussion, puppets, books) in small-group OR large-group activities to teach friendship skills (e.g., helping others, taking turns, organizing play).	R ☐ O ☐		
FR4	Teacher provides children with planned opportunities to practice friendship skills (e.g., role playing, pairing up with a buddy).	R ☐ O ☐		
FR5	Teacher explicitly teaches OR prompts individual children how to initiate AND respond to their peers.	R ☐ O ☐		
FR6	Teacher provides individualized assistance to help children maintain interactions (multiple interaction exchanges) with their peers.	R ☐ O ☐		
FR7	Teacher uses a variety of strategies (e.g., peer buddies, structuring activities) to support peers in helping their friends learn AND practice social skills.	R ☐ O ☐		
FR8	Teacher models friendship skills in interactions with children or other adults.	R ☐ O ☐		
FR9	Teacher supports children in reflecting on interactions with their peers with children doing most of the talking.	R ☐ O ☐		
TOTAL:				

NOTES:

SUBSCALE 1: Key Practices

10. Teaching Children to Express Emotions *(continued)*

	INDICATOR	YES	NO	NOTES
TEE1	Teacher uses a variety of strategies to teach children about emotion words.	☐ R ☐ O		
TEE2	Teacher teaches about a variety of both positive AND negative emotions.	☐ R ☐ O		
TEE3	Teacher uses a variety of strategies to teach children how to recognize emotions in themselves and others.	☐ R ☐ O		
TEE4	Teacher validates children's emotions by labeling them AND helping children talk about their emotions.	☐ R ☐ O		
TEE5	Teacher provides children with strategies to use when they are angry to calm down.	☐ R ☐ O		
TEE6	Teacher models or labels own emotions OR appropriate ways to express emotions.	☐ R ☐ O		
TEE7	Teacher uses a variety of strategies to teach children how to respond to other children's emotions.	☐ R ☐ O		
TEE8	Teacher individualizes instruction on emotions based on children's developmental needs. Procedures and materials vary across children.	☐ R ☐ O		
TOTAL:				

NOTES:

SUBSCALE 1: Key Practices



11. Teaching Problem Solving (continued)

	INDICATOR	YES	NO	NOTES
TPS1	Teacher supports children as they work through the problem-solving process in naturally occurring situations.	☐ R ☐ O		
TPS2	Teacher engages children in generating solutions to common classroom problems.	☐ R ☐ O		
TPS3	Teacher explicitly teaches problem-solving steps using visuals.	☐ R ☐ O		
TPS4	Teacher provides visual reminders about problem-solving steps or possible solutions.	☐ R ☐ O		
TPS5	Teacher notes problem situations AND uses those as examples during group situations to talk about how to problem solve.	☐ R ☐ O		
TPS6	Teacher comments on AND recognizes children who have been "good problem solvers."	☐ R ☐ O		
TPS7	Teacher helps children reflect on their own use of problem solving.	☐ R ☐ O		
TPS8	Teacher individualizes instruction on problem solving based on children's individual needs.	☐ R ☐ O		
TPS9	Teacher uses problem solving in interactions with children AND models problem-solving steps.	☐ R ☐ O		
TOTAL:				

NOTES:

Appendix B – Social Skills Improvement System

SSIS Social Skills Improvement System

Frank M. Gresham, PhD • Stephen N. Elliott, PhD

**Rating Scales
Teacher
Computer-Entry Form**

DIRECTIONS

- Use a No. 2 pencil only.
- Make solid marks that fill the circle completely.
- Make no stray marks on this form.
- Erase cleanly any marks you wish to change.

Correct ● Incorrect ✓ ✗ ◐ ◑

STUDENT'S BIRTH DATE

MONTH	DAY	YEAR
☐ Jan	1 11 21	19 0 9
☐ Feb	2 12 22	20 1 1
☐ Mar	3 13 23	2 2
☐ Apr	4 14 24	3 3
☐ May	5 15 25	4 4
☐ Jun	6 16 26	5 5
☐ Jul	7 17 27	6 6
☐ Aug	8 18 28	7 7
☐ Sep	9 19 29	8 8
☐ Oct	10 20 30	9 9
☐ Nov	31	
☐ Dec		

TODAY'S DATE

MONTH	DAY	YEAR
☐ Jan	1 11 21	● 0 0
☐ Feb	2 12 22	1 1
☐ Mar	3 13 23	2 2
☐ Apr	4 14 24	3 3
☐ May	5 15 25	4 4
☐ Jun	6 16 26	5 5
☐ Jul	7 17 27	6 6
☐ Aug	8 18 28	7 7
☐ Sep	9 19 29	8 8
☐ Oct	10 20 30	9 9
☐ Nov	31	
☐ Dec		

STUDENT'S NAME

FIRST	MI	LAST
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H H H H H H H H H H	H	H H H H H H H H H H H H H H H H
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K K K K K K K K K K	K	K K K K K K K K K K K K K K K K
L L L L L L L L L L	L	L L L L L L L L L L L L L L L L
M M M M M M M M M M	M	M M M M M M M M M M M M M M M M
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R R R R R R R R R R	R	R R R R R R R R R R R R R R R R
S S S S S S S S S S	S	S S S S S S S S S S S S S S S S
T T T T T T T T T T	T	T T T T T T T T T T T T T T T T
U U U U U U U U U U	U	U U U U U U U U U U U U U U U U
V V V V V V V V V V	V	V V V V V V V V V V V V V V V V
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X X X X X X X X X X	X	X X X X X X X X X X X X X X X X
Y Y Y Y Y Y Y Y Y Y	Y	Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y
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STUDENT'S GRADE

☐ Pre-K	☐ 6
☐ K	☐ 7
☐ 1	☐ 8
☐ 2	☐ 9
☐ 3	☐ 10
☐ 4	☐ 11
☐ 5	☐ 12

STUDENT'S SEX

☐ Female
☐ Male

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PLEASE DO NOT WRITE IN THIS AREA

Product Number 14105

Instructions

This booklet contains statements describing a student's behavior and level of academic performance. It consists of three parts: Social Skills, Problem Behaviors, and Academic Competence.

Social Skills & Problem Behaviors

Please read each item and think about this student's behavior during the past two months. Then, decide **how often** this student displays the behavior.

If this student **never** exhibits the behavior, fill in the **(N)**.

If this student **seldom** exhibits the behavior, fill in the **(S)**.

If this student **often** exhibits the behavior, fill in the **(O)**.

If this student **almost always** exhibits the behavior, fill in the **(A)**.

For each of the Social Skills items, please also rate **how important** you think the behavior is for success in your classroom.

If you think the behavior is **not important** for success in your classroom, fill in the **(N)**.

If you think the behavior is **important** for success in your classroom, fill in the **(I)**.

If you think the behavior is **critical** for success in your classroom, fill in the **(C)**.

Please mark every item. In some cases, you may not have observed this student perform a particular behavior. If you are uncertain of your response to an item, give your best estimate. There are no right or wrong answers.

Social Skills	How Often?	How Important?
1. Asks for help from adults.	N S O A	N I C
2. Follows your directions.	N S O A	N I C
3. Tries to comfort others.	N S O A	N I C
4. Says "please."	N S O A	N I C
5. Questions rules that may be unfair.	N S O A	N I C
6. Is well-behaved when unsupervised.	N S O A	N I C
7. Completes tasks without bothering others.	N S O A	N I C
8. Forgives others.	N S O A	N I C
9. Makes friends easily.	N S O A	N I C
10. Responds well when others start a conversation or activity.	N S O A	N I C
11. Stands up for herself/himself when treated unfairly.	N S O A	N I C
12. Participates appropriately in class.	N S O A	N I C
13. Feels bad when others are sad.	N S O A	N I C
14. Speaks in appropriate tone of voice.	N S O A	N I C
15. Says when there is a problem.	N S O A	N I C
16. Takes responsibility for her/his own actions.	N S O A	N I C
17. Pays attention to your instructions.	N S O A	N I C
18. Shows kindness to others when they are upset.	N S O A	N I C
19. Interacts well with other children.	N S O A	N I C
20. Takes turns in conversations.	N S O A	N I C
21. Stays calm when teased.	N S O A	N I C
22. Acts responsibly when with others.	N S O A	N I C
23. Joins activities that have already started.	N S O A	N I C
24. Says "thank you."	N S O A	N I C
25. Expresses feelings when wronged.	N S O A	N I C
26. Takes care when using other people's things.	N S O A	N I C
27. Ignores classmates when they are distracting.	N S O A	N I C
28. Is nice to others when they are feeling bad.	N S O A	N I C
29. Invites others to join in activities.	N S O A	N I C
30. Makes eye contact when talking.	N S O A	N I C
31. Takes criticism without getting upset.	N S O A	N I C
32. Respects the property of others.	N S O A	N I C
33. Participates in games or group activities.	N S O A	N I C
34. Uses appropriate language when upset.	N S O A	N I C
35. Stands up for others who are treated unfairly.	N S O A	N I C
36. Resolves disagreements with you calmly.	N S O A	N I C
37. Follows classroom rules.	N S O A	N I C

	How Often?	How Important?
38. Shows concern for others	N S O A	N I O
39. Starts conversations with peers	N S O A	N I O
40. Uses gestures or body appropriately with others	N S O A	N I O
41. Responds appropriately when pushed or hit	N S O A	N I O
42. Takes responsibility for part of a group activity	N S O A	N I O
43. Introduces herself/himself to others	N S O A	N I O
44. Makes a compromise during a conflict	N S O A	N I O
45. Says nice things about herself/himself without bragging	N S O A	N I O
46. Stays calm when disagreeing with others	N S O A	N I O
Problem Behaviors		
47. Acts without thinking	N S O A	
48. Is preoccupied with object parts	N S O A	
49. Bullies others	N S O A	
50. Becomes upset when routines change	N S O A	
51. Has difficulty waiting for turn	N S O A	
52. Does things to make others feel scared	N S O A	
53. Fidgets or moves around too much	N S O A	
54. Has stereotyped motor behaviors	N S O A	
55. Forces others to act against their will	N S O A	
56. Withdraws from others	N S O A	
57. Has temper tantrums	N S O A	
58. Keeps others out of social circles	N S O A	
59. Breaks into or stops group activities	N S O A	
60. Repeats the same thing over and over	N S O A	
61. Is aggressive toward people or objects	N S O A	
62. Gets embarrassed easily	N S O A	
63. Cheats in games or activities	N S O A	
64. Acts lonely	N S O A	
65. Is inattentive	N S O A	
66. Has nonfunctional routines or rituals	N S O A	
67. Fights with others	N S O A	
68. Says bad things about self	N S O A	
69. Disobeys rules or requests	N S O A	
70. Has low energy or is lethargic	N S O A	
71. Gets distracted easily	N S O A	
72. Uses odd physical gestures in interactions	N S O A	
73. Talks back to adults	N S O A	
74. Acts sad or depressed	N S O A	
75. Lies or does not tell the truth	N S O A	
76. Acts anxious with others	N S O A	

Academic Competence (for students from kindergarten through Grade 12)

Please assess this student's academic or learning behaviors in your classroom. Compare this student with other students in the same classroom.

Mark all items using a scale of 1 to 5. Mark "1" if this student is in the lowest 10% of the class. Mark "5" if this student is in the highest 10% of the class.

	Lowest 10%	Next Lowest 20%	Middle 40%	Next Highest 20%	Highest 10%
	1	2	3	4	5
77. Compared with other students in my classroom, the overall academic performance of this student is:	1	2	3	4	5
78. In reading, how does this student compare with other students?	1	2	3	4	5
79. In mathematics, how does this student compare with other students?	1	2	3	4	5
80. In terms of grade-level expectations, this student's skills in reading are:	1	2	3	4	5
81. In terms of grade-level expectations, this student's skills in mathematics are:	1	2	3	4	5
82. This student's overall motivation to succeed academically is:	1	2	3	4	5
83. Compared with other students in my classroom, this student's intellectual functioning is:	1	2	3	4	5

YOUR NAME

FIRST	MI	LAST
-	-	-
A	A	A
B	B	B
C	C	C
D	D	D
E	E	E
F	F	F
G	G	G
H	H	H
I	I	I
J	J	J
K	K	K
L	L	L
M	M	M
N	N	N
O	O	O
P	P	P
Q	Q	Q
R	R	R
S	S	S
T	T	T
U	U	U
V	V	V
W	W	W
X	X	X
Y	Y	Y
Z	Z	Z

YOUR POSITION

- ☐ Regular-education teacher
☐ Special-education teacher
☐ Other _____

HOW LONG HAVE YOU KNOWN THIS STUDENT?

- ☐ Less than 1 month
☐ 1-2 months
☐ 3-5 months
☐ 6-11 months
☐ 12 months or more

FOR OFFICE USE ONLY**STUDENT'S IDENTIFICATION NUMBER (Optional)**

-	-	-	-	-	-	-	-
0	0	0	0	0	0	0	0
1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6
7	7	7	7	7	7	7	7
8	8	8	8	8	8	8	8
9	9	9	9	9	9	9	9

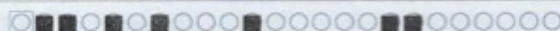
FIELD A (Optional)

-	-	-	-	-	-	-	-
0	0	0	0	0	0	0	0
1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6
7	7	7	7	7	7	7	7
8	8	8	8	8	8	8	8
9	9	9	9	9	9	9	9

FIELD B (Optional)

-	-	-	-	-	-	-	-
0	0	0	0	0	0	0	0
1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6
7	7	7	7	7	7	7	7
8	8	8	8	8	8	8	8
9	9	9	9	9	9	9	9

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PLEASE DO NOT WRITE IN THIS AREA