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Program Evaluation of Behavior Management Training for Preschool Teachers: Child Outcomes

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PROGRAM EVALUATION OF BEHAVIOR MANAGEMENT TRAINING FOR
PRESCHOOL TEACHERS: CHILD OUTCOMES

A Specialist Project
Presented to
The Faculty of the Department of Psychology
Western Kentucky University
Bowling Green, Kentucky

In Partial Fulfillment
Of the Requirements for the Degree
Specialist in Education

By
Erika Nicole Christianson

December 2013

PROGRAM EVALUATION OF BEHAVIOR MANAGEMENT TRAINING FOR PRESCHOOL TEACHERS: CHILD OUTCOMES

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ACKNOWLEDGMENTS

Completion of this project would not have been possible without support from several individuals. I would first like to thank my research advisor, Dr. Elizabeth Lemerise as she has not only used her vast knowledge of the child development field to guide my thinking and preparation of this specialist project but was unselfish with her time as she read multiple drafts of this work. Throughout completion of this project, Dr. Lemerise provided constructive criticism, encouragement, and had a genuine interest in the content of this project. Completing this project under her guidance has not only resulted in a specialist project to conclude program requirements to acquire my degree but has also provided me with a deeper understanding and appreciation for the research process. I feel very fortunate to have had the opportunity to work with and learn from her as I completed this project.

This project would not have been possible without the cooperation of the teachers, administrators, and children of the Western Kentucky University Child Care Center and Bryant Way center, or without the aid of the undergraduate research assistants who collected and entered data for this project. I would also like to thank Danielle Young, a fellow graduate student in the School Psychology program, for spending countless hours helping to collect data from participants.

Finally, I would like to thank the members of my committee, Dr. Kelly Madole and Dr. Andy Mienaltowski. Their careful reading, helpful suggestions, and support were truly an asset to this project.

I would like to offer many thanks and much appreciation to all who contributed to the completion of this specialist project.

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Due to the immense challenges faced by young children who exhibit emotion

regulation problems, prevention programs have been designed to train teachers on

strategies useful for improving classroom behavior. The current study examines the

effects of a prevention program implemented in a blended Head Start/daycare setting and

evaluates the outcomes of the training on children's cognitive/preliteracy skills, self-

regulation, and social competence in the fall and spring following teacher training. The

intervention group (Western Kentucky University Child Care Center) and control group

(Bryant Way Child Care Center) were part of a blended Head Start/child care preschool

program. Children's self-regulation, social competence, and cognitive/preliteracy skills

were assessed in the Fall and Spring of the school year. Children in the intervention

group exhibited better cognitive/preliteracy skills as shown by results on Woodcock-

Johnson subtests. Teacher ratings on the ERC showed that girls improved in teacher

reported self-regulation, the control group received higher scores on teacher rated lability

than did the intervention group, and boys were rated higher on the lability scale than were

girls. In addition, Head Start children were rated higher in emotional lability than were

daycare children. Teacher ratings on the SCBE scale indicated that children received

higher teacher ratings of social competence in the Spring than in the Fall and girls were

rated higher than were boys. Additionally, children received lower internalizing behavior

problem ratings in the Fall than in the Spring, Head Start children were rated higher in

internalizing behavior problems than children in daycare, and boys in the control group received higher ratings of internalizing problem behaviors than those received by any other group. Furthermore, children in the control group were rated higher than children in the intervention group in externalizing problem behaviors in both Fall and Spring, but neither group showed a significant change in externalizing problem behaviors from Fall to Spring. Self-regulation enables children to inhibit inappropriate emotional outbursts as well as control their reactions to situations. Understanding children's self-regulation skills is of vast importance to individuals in the field of education as the information provides practitioners the opportunity to improve children's self-regulation in the preschool years.

Chapter 1 Literature Review

Young children who engage in aggressive or hyperactive behaviors are at an increased risk for maladjustment in preschool (Spritz, Sandberg, Maher, & Zajdel, 2010) and elementary school (Miller, Gouley, Seifer, Dickstein, & Shields, 2004). Problem behaviors are often the result of children being unable to regulate their emotions effectively. Preschool is an important period for emotional development, as children acquire and begin to associate a number of fundamental emotional abilities (Shields et al., 2001). Classroom settings offer many opportunities for children to learn; however, many of the opportunities provided also bring about additional challenges for children who are unable to effectively manage their emotions and emotional responses.

Effective emotion regulation skills contribute to children's academic and social success by enabling children to control their behavior within the classroom. Difficulty regulating emotions within the preschool classroom setting may not only place the current school experience at risk but also interfere with the child's ability to engage in the learning activities that encourage future educational achievement (Miller et al., 2004). Children who experience poverty-related risk factors are especially likely to display emotion and behavior regulation difficulties, contributing to their higher risk for poor school adjustment (Raver et al., 2011). Due to the variability in young children's self-regulation abilities, teachers often report difficulty managing the multitude of behaviors in the classroom, and children with poor regulation abilities are at an increased risk for expulsion (Perry, Dunne, McFadden, & Campbell, 2007). Therefore, it is important to provide training for teachers to manage children's behaviors in the preschool classroom and to teach strategies for children to regulate their emotions effectively in order for children to be academically successful. Due to the immense challenges faced by young

children who exhibit emotion regulation problems, prevention programs have been designed to train teachers on strategies useful for improving classroom behavior. The current study examines the effects of a prevention program implemented in a Head Start setting.

Emotional Development in Early Childhood

A primary developmental accomplishment of early childhood is the establishment of effective emotion regulation, and individual differences in children's ability to regulate emotions at each developmental level are important for understanding the child's developing self-regulation skills (Blair, 2003). Skibbe, Connor, Morrison, and Jewske (2011) viewed self-regulation as a set of behaviors that include attention, working memory, and inhibitory control; these behaviors are related to children's behavioral and social skills. Bodrova and Leong (2005) defined self-regulation as the capacity to control one's impulses in order to delay gratification and suppress impulses long enough to think of the possible consequences of one's actions or determine more appropriate alternative actions.

Emotion regulation is one aspect of self-regulation and can be defined as the process of initiating, prohibiting, inhibiting, maintaining, or controlling the occurrence, intensity, or duration of internal feeling states, emotion-related physiological processes, and/or behavioral co-occurrences of emotion (Eisenberg & Morris, 2002). Eisenberg, Hofer, and Vaughan (2007) defined emotion-related self-regulation as the processes that can be intentionally controlled to determine how emotions are experienced, control one's emotion-related motivational and physiological states, and regulate how one's emotions are expressed. The development of regulatory skills involves multiple interconnected

processes such as inhibition, working memory, and cognitive flexibility, known as executive function skills (Thompson, 2009). Executive function skills play an integral part in the normal development of self-regulation, and interactions with other children and adults help to create an environment in which brain development unfolds and temperamental individuality is expressed (Thompson, 2009).

Children's regulatory skills develop throughout the preschool years and into early adulthood. During the preschool years, children are capable of regulating their emotions although their capacity for emotional and behavioral self-control is limited (Thompson, 2009). In order to manage their emotional and behavioral responses, young children may be required to seek assistance from others in difficult situations, focus on a task for an extended period of time, or follow simple instructions provided by an adult. Individual differences in young children's temperaments are also related to their self-regulation abilities; a child with an elevated level of impulsivity may face more self-regulatory challenges compared to a child with a lower level of impulsivity (Thompson, 2009). Research suggests that children's predisposition to inattention and impulsivity emerges as early as infancy and suggests that children's self-regulation is shaped by early experiences (Raver et al., 2011). In the home environment while children are young, parents and caregivers help to shield children from emotional over-arousal and scaffold children's developing regulation strategies. As children continue to develop their regulatory abilities, the involvement of parents and caregivers varies greatly depending on the child's temperament as well as the parenting style adopted.

Preschool-age children are expected to make great advances in the ability to regulate and adapt their emotions and behavior appropriately in different social situations

(Miller et al., 2004). The preschool classroom environment presents immense regulatory challenges, due to novel situations and a more structured environment, as well as potential influences on later development and adjustment, due to the enrichment opportunities and play experiences available within the context of the preschool classroom (Miller et al., 2004). Displays of intense negative emotion, activity, and aggression are viewed as behaviors that young children need to restrain in order to do well within the preschool setting. Maladaptive responses to the regulatory challenges, primarily aggressive and disruptive behaviors, tend to persevere into the elementary school years, placing children at a higher risk for later negative outcomes in adolescence (Anthony, Anthony, Morrel, & Acosta., 2004).

The challenges presented within the preschool classroom environment may be easier to face for children who are able to regulate their emotions effectively as these children have been found to display greater social competence, better social skills, and greater peer popularity (Graziano, Reavis, Keane, & Calkins, 2007). When children are better able to tolerate frustration, they are more able to adjust to classroom structure, abide by set limits, and have supportive relationships with peers (Shields et al., 2001). The ability to maintain an appropriate level of emotional excitement throughout the school day nurtures children's learning as well as their engagement in classroom activities. In addition, the ability for empathy and emotional connections to others enhances children's peer relationships. Over time, deficits in self-regulation in preschool have profound implications for children's early school performance and adjustment to the classroom setting (Shields et al., 2001).

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An important component for young children to succeed in achieving many goals, such as maintaining attention and sustaining positive peer interactions, is a child's capability to regulate behavior in the classroom (Miller et al., 2004). Throughout the preschool years, children are better able to gradually recognize their own emotional experiences and identify antecedents and possible consequences of their reactions to the experiences (Shields et al., 2001). The ability to recognize one's own emotional experiences nurtures a heightened ability to control one's emotional reactions as the ability to recognize, anticipate, and reflect on different emotional experiences underlies adaptive coping skills (Shields et al., 2001). Preschoolers are often challenged to practice new regulatory skills within the classroom setting among a group of teachers and peers. During the preschool period, children learn how to control their expressions of intense negative emotions by using strategies to calm themselves after becoming upset (Denham, 1998), and most preschool-age children develop the ability to follow principles regarding highly active motor behavior in situations that require behavior control (Miller et al., 2004). For example, a rule in most preschool classrooms is that children walk, not run, in the classroom, and children who consistently violate this rule may be seen as disruptive to the rest of the class (Miller et. al., 2004).

Deficits in behavioral control within the classroom negatively impact the child's ability to concentrate on information as well as complete tasks that promote learning (Graziano et al., 2007). Preschool is a significant time in which young children can develop the essential skills for later school success. Recently, emphasis has been placed on the importance of young children's social competence as an essential aspect of school readiness (Cohen & Mendez, 2009). According to teacher reports, externalizing

problems, deficits in social competence, behavior problems, and poor classroom adjustment are outcomes associated with complications regulating emotions and behavior (Miller et al., 2004). Emotional and behavioral dysregulation have also been related to increased rates of peer conflict, social isolation, peer rejection, and school difficulties (Miller et al., 2004).

Children who are slow to master the necessary emotional abilities are at risk for a multitude of negative developmental outcomes, including disruptive behaviors and impaired social functioning (Shields et al., 2001). Previous research suggests that young children who consistently demonstrate an inability to properly regulate their behavior and who display disruptive behavior in the classroom are less engaged and less positive about learning, and have fewer opportunities to learn from others (Raver et al., 2011). Improving children's ability to inhibit impulsive behavior and control attention may support them in being able to focus on learning and perform better on assessments of pre-academic material in the preschool classroom settings (Raver et al., 2011). Therefore, social and emotional skills have been found to be essential in early school engagement and classroom adjustment for all children (Bulotsky-Shearer, Dominguez, Bell, Rouse, & Fantuzzo, 2010).

The Impact of Poverty on Children's Emotional and Behavioral Regulation

Unfortunately, not all young children are able to learn the appropriate social and emotional skills due to limited opportunities in their environment. Specifically, young children in poverty may experience fewer learning opportunities provided than their socioeconomically advantaged peers due to the amount of stress encountered by their families. Children in poverty have a greater risk of school failure (Whitted, 2011) due to

the poverty-related risks that may increase the chance that children will demonstrate less socially competent behavior as well as poorer emotional self-regulation and more behavior problems than their more economically advantaged peers (West, Denton, & Reaney, 2001).

The Children's Defense Fund (2011) reported that young children are most at risk of being poor. In 2011, one in four infants, toddlers and preschoolers were poor, at the very same time that their brains are rapidly developing and attention to their developmental needs is so important (Children's Defense Fund, 2011). Low-income children can be at risk for a variety of behavioral and learning problems as early as the preschool years. It may be especially challenging for low-income preschoolers to learn regulatory skills important for successful classroom adjustment (Raver, 2002) due to the increased chance of risk factors being encountered. Risk factors, such as low levels of maternal education, high levels of maternal depression, inconsistent and harsh disciplinary practices, familial stress, and exposure to substance abuse, domestic violence, child abuse, and other forms of trauma may be faced by young children growing up in low-income families (Thompson, 2009; Whitted, 2011). Emotional factors may be particularly prominent among children living in poverty due to deficits in emotional understanding and regulation; these deficits may manifest due to over-arousal, familial stress, and unresponsive parenting. Children living in poverty experience a heightened amount of stress and arousal that overwhelms their immature regulatory strategies; these children have more difficulty withstanding distractions, inhibiting impulsive tendencies, and managing emotional reactions due to the effects of chronic stress (Thompson, 2009). Parents and caregivers of children in poverty have more

difficulty shielding children from emotional over-arousal and scaffolding regulatory strategies due to parental over-arousal; unfortunately, parents and caregivers also contribute to the emotional over-arousal with harsh discipline and unresponsive parenting (Lemerise & Harper, 2014). Young children whose family lives have been faced with multiple risk factors, such as chronic stress, familial instability, and negative responses are equipped with fewer strategies when faced with regulatory challenges (Lemerise & Harper, 2014).

The hazards associated with living in poverty can be reflected in preschoolers' inability to effectively regulate their emotions and behavior in the classroom setting (Miller et al., 2004). Low-income preschoolers may lack the opportunity for learning experiences in the home environment (Skibbe et al., 2011) due to parental stress and an increased work load in order to make a living. Opportunities for children to learn critical skills throughout development are unavailable when children are raised in homes and communities in which a number of risk factors are present (Whitted, 2011). Individual differences in children's self-regulation and academic skills may also be due to environmental variables, such as children's differential access to enriched environmental settings (Raver et al., 2011). According to Thompson (2009), children from lower socioeconomic groups show poorer performance on measures of the executive functions that are essential to self-regulation compared with more advantaged peers. Considerable evidence suggests that early adversity and exposure to stress are related to later difficulties with regulation, and consequently, with poor school adjustment (Blair, 2002). Young children growing up in poverty are more likely to have self-regulatory difficulties, greater challenges in learning and academic achievement, and difficulties in social and

emotional adjustment in school (Thompson, 2009). According to Anthony et al. (2004), emotional and behavioral maladjustment is more likely in young children of low-income families and low socioeconomic status may be associated with increased problem behaviors within the classroom context.

Children exposed to the stressors associated with poverty are at considerable risk for behavioral difficulty; Head Start teachers report children's behavioral dysregulation and externalizing behaviors among their top concerns (Raver et al., 2009). Research has shown that in addition to low-income risks for children's social competence, emotion regulation, and behavior problems, teachers who do not have well-defined classroom management skills have an increased number of behavioral problems within the classroom (Raver et al., 2008). Unfortunately, it is common for teachers with poor classroom management skills to have children with behavioral concerns and an increased risk for school failure in their classrooms. The results of the study completed by Anthony et al. (2004) support the idea that classroom interventions are critical components in preventing the development of social and emotional problems in young children. It has been found that child outcomes are correlated with income level; low-income children tend to have worse cognitive, academic, and behavioral problems in the preschool and early elementary school years (Chazan-Cohen et al.,2009). Therefore, encouraging early positive experiences in school may place a high-risk child on a more positive developmental course by fostering interest for academics and positive relationships with peers (Miller et al., 2004).

Self-Regulation and School Readiness

Self-regulation is emerging as a significant indicator of school readiness. Measures of self-regulation have been related to children's current as well as future academic success (Blair, 2002); however, it has been reported that nearly half of the students entering kindergarten have not acquired the necessary academic or social skills that are necessary to succeed in school (Skibbe et al., 2011). Much attention has been focused on the importance of social and emotional readiness for a positive school transition and early school success. Research suggests that behavior problems in young children place them at risk for social and academic difficulties both within preschool and throughout the transition into kindergarten (Bulotsky-Shearer et al., 2010; Huffman, Mehlinger, & Kerivan, 2000). Skibbe et al. (2011) explain that self-regulation, literacy, and language skills are achieved through normal development as well as learning experiences. This explanation is especially important given the complex relationship between learning and development. Peer social competence and engagement play an important role in promoting the development of emotion regulation skills, problem-solving skills, empathy, and other school readiness skills (Bulotsky-Shearer et al., 2010).

According to Skibbe et al. (2011), school readiness generally refers to characteristics of children's development, including emotional maturity and social competence, such as self-regulation, as well as general knowledge, cognitive ability, and language, that are associated with children's preparedness for school. School accomplishment, including areas of reading, math, and language abilities, has been positively associated with children's ability to regulate their emotions and emotional responses (Eisenberg, Valiente, & Eggum, 2010). Research suggests that children with

more developed self-regulation skills show higher levels of achievement in math and language skills than do their more impulsive and inattentive peers (Raver et al., 2011). When children are able to make academic gains, teachers are able to provide more learning opportunities and teachable moments within the classroom. On the other hand, children who exhibit disruptive behaviors require additional assistance and redirection which may lead to poor relationships between children and teachers. A series of research studies conducted in Head Start programs support the finding that preschool children who exhibit difficulties engaging socially and connecting to learning opportunities within the classroom environment perform poorly in important areas of school readiness prior to the transition to kindergarten (Fantuzzo, McWayne, & Bulotsky, 2003; Fantuzzo, Perry, & McDermott, 2004) as well as on first-grade outcomes (Downer & Pianta, 2006). For example, Fantuzzo et al. (2003) found that children demonstrating early withdrawn problem behaviors performed poorly on academic and social outcomes at the end of the year.

In addition, recent research has found that an ever-increasing number of children are being expelled from child care and preschool settings due to their problem behavior, primarily aggression or hyperactivity (Perry et al., 2007). *Expulsion* is typically defined as the permanent removal of a child from an educational system. Expulsion is the definitive disciplinary action that ultimately concludes in the student being banned from attending any educational program in the school system in which the student was removed (Gilliam & Shahar, 2006). Gilliam (2005) determined that 6.67 preschoolers were expelled per 1,000 enrolled nationally; over 5,000 preschool students are expelled each year based on the current preschool enrollment rates, and the preschool expulsion

rate is over three times the rate for K-12 students. According to Perry et al. (2007), more than one-third of the teachers reported having expelled at least one preschool child in the previous 12 months. Out of the classroom settings identified for the study, the lowest rates of expulsion were in school settings where teachers expelled children at a rate of 6.2 per 1,000, and Head Start locations where teachers expelled preschool children at a rate of 6.6 per 1,000. Overall, children expelled from preschool classroom settings are much less likely to be prepared for kindergarten and elementary school and are, therefore, more likely to be at risk for school failure.

Problem behaviors exhibited by children in the preschool classroom have been reported to be difficult to cope with by teachers. Child care providers determine coping with challenging behaviors as an area of great need for additional training, technical assistance and support. With more young children spending longer hours in child care settings, the need for effective strategies to manage children who are displaying problem behaviors is growing (Perry et al., 2007). While young children are learning how to regulate their emotions, the transition to kindergarten presents a challenge for many children as there are many novel demands of learning new skills, and these demands may elicit emotions such as excitement, anxiety, and fear. Children's ability to regulate the elicited emotions effectively may smooth the transition from preschool to kindergarten and enable the children to acquire new information and skills (Graziano et al., 2007). Unfortunately, a survey conducted by the National Center for Early Development and Learning indicated that approximately half of the kindergarten teachers reported that at the start of kindergarten more than half of the children in their classes lacked the self-regulatory skills and social competence necessary to function productively in order to

learn (West et al., 2001). Outcomes by Anthony et al. (2004) suggest that whereas some teachers report very few children as displaying difficulty regulating their emotions within the classroom, other teachers report up to 60% of their children as presenting serious behavioral difficulty in the classroom. Among the children most in need of early enrichment opportunities are those with behavior problems. Although there is potential for improvement within the classroom setting, it may come at the cost of not meeting learning objectives.

According to Gilliam (2005), children with behavior problems are most likely to exhibit continued learning and behavioral difficulties in school. Moreover, teacher attention may be inadvertently diverted from the needs of the other students when dealing with children with behavioral problems. Improving the ability of schools and teachers to manage the behavior of the children within the preschool setting can improve children's future academic and social success (Gilliam, 2005). Teachers who work with young children need to be thoroughly prepared and have the necessary support available in order to work effectively with young children. A wide range of behavioral problems are evident within the young children who attend preschool programs, and these behavioral problems interfere with the child's ability to pay attention and interact with others in appropriate ways (Gilliam, 2005).

Universal Prevention Programs: Training Teachers to Promote Self-Regulation

Recent research and policy have focused attention on the consequences of behavioral problems for preschoolers' adjustment to preschool, capacity to profit from learning opportunities, and chances for later adjustment to and success in school (Raver et al., 2009, 2011). Furthermore, it has also been reported that teachers often report

receiving little to no pre-service training in how to deal effectively with children's

disruptive behaviors (Brouwers & Tomic, 2000). Teachers are expected to manage large

numbers of preschool-age children in their classrooms although they often have little

training or support in effective methods of classroom management (Raver et al., 2009).

Teachers may experience "burnout" due to emotional exhaustion and depersonalization

as a result of trying to meet classroom demands without the necessary support and

therefore may be unlikely to implement proactive steps to support children's behavioral

self-regulation (Raver et al., 2009). According to Whitted (2011), educators who are not

equipped with the necessary skills to deal with challenging behaviors often respond to

children who are disruptive, aggressive, and noncompliant with punitive measures that

cause further problems. Children with behavior problems often become increasingly

frustrated and may respond to the punitive measures by acting out behaviorally. Under

these conditions, teaching and learning cannot occur, leading down a path to school

failure (Whitted, 2011).

An important element within the classroom setting is the relationship between the

teachers and the children in the classroom. The teacher-child relationship is a critical

factor in children's adjustment to preschool and transition to kindergarten; sensitive and

responsive teacher–child interactions have been found to predict social and academic

achievements in preschool (Bulotsky-Shearer et al., 2010; Howes et al., 2008; Mashburn

et al., 2008; Palermo, Hanish, Martin, Fabes, & Reiser, 2007). A high quality teacher-

child relationship supports the child throughout the challenging and novel transition to

new academic environments as well as serves as a protective factor for children at risk for

behavioral problems (Graziano et al., 2007). Hamre and Pianta (2001) found that young

children whose relationships with their teachers were positive had fewer disciplinary actions and were less likely to be suspended from school through the eighth grade; however, a negative child-teacher relationship increases a child's risk for future behavioral problems.

Prevention programs designed specifically to improve young children's social-emotional competence within the preschool and kindergarten classrooms have been shown to produce positive changes in classroom behavior. Programs such as *I can Problem Solve* (Shure, 1997), Second Step (Grossman et al., 1997), and the First Step curriculum (Walker et al., 1998) combined training for children's emotional and social skills with cognitive strategies to promote school readiness. Results showed improvements in children's school readiness and less aggressive behavior (Webster-Stratton, Reid, & Stoolmiller, 2008). The PATHS program (Promoting Alternative Thinking Strategies; Greenberg, Kusche, Cook, & Quamma, 1995) was adapted for use in preschool with economically disadvantaged populations (Domitrovich, Cortes, & Greenberg, 2006) and was delivered by teachers in 20 Head Start classrooms. Results of the PATHS program showed that young children who received the intervention had advanced knowledge of emotion skills and were rated by teachers and parents as more socially competent when compared to peers who did not receive the intervention. However, the intervention did not report changes in children's problem-solving abilities or levels of aggressive behavior.

The Chicago School Readiness Project (CSRP) was designed to support low-income children's emotional and behavioral regulation and provide opportunities to learn in the early educational settings in order to reduce the risk of behavioral difficulty in the

classroom (Raver et al., 2011). CSRP provided teachers with extensive training and support to effectively manage children's behavior regulation difficulties (Raver et al., 2011). CSRP results indicate that the classroom-based intervention offers a promising model for supporting the emotional and behavioral development of low-income preschool children exposed to a number of poverty-related risk factors (Raver et al., 2011). The Foundations of Learning Demonstration (FOL) (Morris, Raver, Millenky, Jones, & Lloyd, 2010) was designed as an intervention program to provide teachers with the necessary skills and strategies to help guide young children's behavior and emotional development in the preschool setting. FOL teachers were provided with extensive training in effective classroom management with weekly classroom consultation (Morris et al., 2010). FOL results indicated that the intervention improved teachers' ability to address problem behaviors in the classroom, reduced children's conflicts with teachers and peers, and increased children's level of engagement in the classroom activities (Morris et al., 2010).

The training provided to Head Start teachers in the Raver et al. (2011) study was based on the Incredible Years (IY) Child Training curriculum (Webster-Stratton, 2000). This curriculum was initially developed to treat young children diagnosed with oppositional defiant disorder or early-onset conduct problems and was later revised and adapted to be used by teachers as a preventive model for preschool and early school-based programs (Webster-Stratton et al., 2008). Teachers were trained on how to deliver the Dinosaur School curriculum as well as utilize effective classroom management strategies (Webster-Stratton et al., 2008). As presented in Figure 1, the IY intervention program grouped risk and protective factors into four categories: a) teacher classroom

management skills and classroom environment; b) teacher-parent involvement; c) child school readiness (social competence, emotional self-regulation, and absence of behavior problems); and d) poverty. Although the fourth area of risk (poverty) is not one that can be easily changed by schools, children living in poverty are at increased risk, indicating that more focus needs to be placed on intervention services in low-income schools (Webster-Stratton et al., 2008). An essential characteristic of the study is the significant improvement in child behavior problems at school; there were significant experimental effects in children's observed externalizing behavior at school and teacher reports of social competence (Webster-Stratton et al., 2008). The findings suggest the importance of training and supporting teachers for improving social outcomes and preparing children for kindergarten; there were few effects on children's behaviors at school without teacher training (Webster-Stratton et al., 2008).
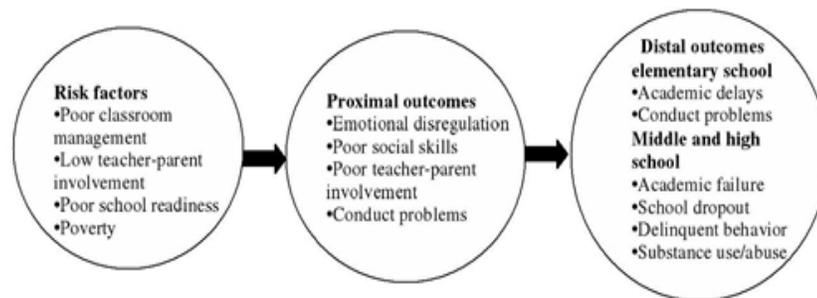
Figure 1 Cascading risk factors

Children's accomplishments in school are not merely due to their prior preparation and ability to learn; social behavior and relationships, as well as children's abilities to regulate their behavior, attention, and emotions, are also important factors (Eisenberg et al., 2010). The findings of the study conducted by Graziano et al. (2007) suggest that children who have difficulty regulating their emotions have trouble learning

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in the classroom and are therefore less productive and accurate when completing assignments. Learning new information may arouse young children's emotions, ranging from anxiety to frustration. Poor emotion regulation skills may impact the performance of young children who are unable to cope with the emotional arousal (Graziano et al., 2007). Substantial evidence indicates that well-trained and supportive teachers can play a particularly essential role in fostering the development of social and emotional skills and preventing the development of conduct problems in young children when high levels of praise, proactive teaching strategies, and non-harsh discipline are incorporated within the classroom setting (Webster-Stratton et al., 2008).

The Present Study

Due to the immense challenges evident in prekindergarten settings, a teacher training program was designed that was grounded in evidence-based practices (Webster-Stratton, 2000; Webster-Stratton et al., 2008) that have been shown to be effective both in improving teachers' practices as well as enhancing children's self-regulation and preventing conduct problems (e.g., Bierman et al., 2008; Bierman, Nix, Greenberg, Blair, & Domitrovich, 2008; Raver et al., 2009, 2011; Webster-Stratton et al., 2008). The teacher training sessions and topics are outlined in Table 1.

The focus of the current study is to evaluate the outcomes of this training on children's cognitive/preliteracy skills, children's self-regulation, and children's social competence. We hypothesize that, relative to comparison children whose teachers did not receive the intervention children whose teachers received the intervention: a) will exhibit greater cognitive and preliteracy skills, b) will improve more in self-regulation as

measured by teacher report and the PSRA, and c) will show better teacher-reported social

competence.

Teacher Training Sessions	
Praise	Training pyramid: What teachers do Activity: Identification of behaviors to encourage How to encourage and praise desired behaviors Using circle time to promote peer praise (culture of praise) Using praise with children who are inattentive, highly distractible, and oppositional
Proactive measures	Providing a predictable and safe learning environment Using creative ways of getting & holding children's attention Effective limit setting and redirecting
Managing Misbehaviors	Ignoring misbehavior Redirecting Misbehavior Using Time Out
Helping Children Learn to Manage their Emotions	What is emotion regulation? How do children learn emotional regulation? What determines how quickly children learn emotion regulation? What can teachers do? Using Games and Activities to promote use of feeling language Teaching students self-calming and relaxation strategies Identify typical situations which trigger emotional explosions and using them as springboards to teach problem solving and anger management Working collaboratively with parents

Table 1: Training Topics

Chapter 2 Method

Teacher Training Overview

Eight teachers at the Western Kentucky University Child Care Center (WKU

CCC) expressed concerns about behavior problems within the preschool classroom

setting to the Associate Director and requested training in behavior management

strategies. The Associate Director relayed the concerns to the research advisor.

Preliminary observations conducted by Western Kentucky University School Psychology

graduate students in the summer backed up concerns expressed by the WKU CCC

teachers and were used to determine the type of training required for the teachers. The

most commonly observed areas of concern were yelling and providing attention to the children for negative behaviors. It was determined that the Webster-Stratton (2000) Incredible Years program was the most logical classroom management training program. The preliminary observations also provided a basis for the critical areas of training to incorporate the most intensively throughout the program. The training sessions, which were provided in the summer of 2011, included classroom management strategies under the topics of praise, proactive measures, managing misbehaviors, and helping children learn to manage their emotions and are described in Table 1. Evaluation of the participants occurred in October and November of 2011 and in March and April of 2012.

Participants

Western Kentucky University Child Care Center children enrolled in the preschool program (N=61; 25 girls and 36 boys) ranging in age from 3 to 5 years (M=3.44 years, SD=.533 years) were volunteered to participate by parents/guardians. Comparison children were drawn from a satellite classroom at Bryant Way Child Care Center (N=21; 9 girls and 12 boys) ranging in age from 3 to 5 years (M=3.52 years, SD=.602 years) where teachers did not receive the training. A total of 4 preschool classrooms at WKU CCC, with approximately 20 children in each classroom, and one Bryant Way preschool classroom (comparison) were included in the study. All classrooms were part of a blended Head Start/child care program; parents paid fees for children in daycare whereas parents did not pay fees for Head Start as families met Head Start guidelines. A total of 82 children were volunteered to participate in the study; however, four participants did not complete the study in either the fall 2011 or spring 2012 semester due to reasons such as shyness or no longer being enrolled in the program.

Measures

All measures and procedures were conducted once in the early part of the school year and once in the spring. Children were tested in quiet rooms at the center. The various measures were administered in separate sessions on different days to avoid fatiguing the children.

Teacher measures.

Eight classroom teachers from WKU CCC and two classroom teachers from Bryant Way filled out questionnaires for each participant that assessed the behaviors of children in the classroom who had parental permission to participate in the study. These questionnaires were given at the beginning and end of the school year. The purpose of the questionnaires is to track children's progress over the school year in self-regulation and social competence. The questionnaires measure: a) each child's social competence and behavior problems and b) each student's emotionality and capacity to regulate that emotionality.

Social Competence and Behavior Evaluation, Preschool edition (SCBE). This measure evaluates children's social competence, internalizing behavior problems, and externalizing behavior problems (LaFreniere & Dumas, 1996; LaFreniere, Duman, Capuano, & Dubeau, 1992) and has been validated for use with Head Start populations. The scale evaluates foundational components of preschool children's social competence and affective functioning that best predict current and continual functioning. The measure assesses each child's behavior in order to determine the child's social and emotional adjustment to the classroom setting. The scale provides social competence (e.g., "works easily in groups", "shares toys with other children"; alphas for fall and spring for both

teachers range from .865 to .901), externalizing (e.g., "easily frustrated", "defiant when reprimanded"; alphas for fall and spring for both teachers range from .923 to .943), and internalizing subscales (e.g., "worries", "remains apart, isolated from a group of children"; alphas for fall and spring for both teachers range from .824 to .894). The short form (30 questions rather than 80) was used in order to reduce teacher work load. The response format was a 6-point Likert-type scale ranging from 1 (never) to 6 (always). Teachers completed this measure on WKU CCC and Bryant Way children for whom parental permission was granted.

Emotion Regulation Checklist (ERC). This validated measure evaluates teacher perceptions of the children's emotionality (lability) and emotion regulation (Shields & Cicchetti, 1997) using 24 items. The emotion regulation components include an evaluation of empathy, self-awareness of emotion, and appropriateness of emotional displays (e.g., "cheerful", "empathic"; alphas for fall and spring for both teachers range from .893 to .921), whereas lability components evaluate the child's negative emotionality (e.g., "easily frustrated", "tantrums"; alphas for fall and spring for both teachers range from .766 to .853). Teachers were asked to rate the children on how characteristic each item is of the child using a 4-point Likert-type scale ranging from 1 (rarely/never) to 4 (almost always). Teachers completed this measure on WKU CCC and Bryant Way children for whom parental permission was granted.

Measures administered by project personnel.

Woodcock Johnson Tests of Achievement subtests. The Woodcock-Johnson Tests of Achievement-III (Woodcock, McGrew, & Mather, 2001) is a standardized achievement test; this test has been validated for use with Head Start samples and has been used in many previous studies (e.g., Raver et al., 2011). The 4 subtests from the

Woodcock-Johnson Tests of Achievement-III that were administered include: i) Letter

Word Identification; ii) Understanding Directions; iii) Applied Problems, and iv) Picture

Vocabulary. The Woodcock-Johnson Tests of Achievement subtests were administered

by school psychology graduate students enrolled in Western Kentucky University's

School Psychology graduate program; the students had been trained in the administration

and scoring of the achievement test. Participants were tested individually in a quiet room.

The standardized procedures for administration were followed for participant assessment.

Once administration of the Woodcock Johnson subtests was completed, participants were

taken back to their respective classrooms.

      Preschool Self-Regulation Assessment (PSRA). The PSRA is a field-based

measure of children's self-regulation that has been validated on Head Start children

(Smith-Donald, Raver, Hayes, & Richardson, 2007) as well as used in a large scale study

testing the effects of teacher training on children's self-regulation (Raver et al., 2011).

The PSRA consists of 10 short tasks that are designed to assess children's ability to

wait/delay gratification and follow directions. The total battery took approximately 30

minutes to complete. Training materials and manuals were provided by the Chicago

School Readiness Project, the original developers of the measures. The tasks are as

follows (from Smith-Donald et al., 2007, p. 177):

    a. *Balance beam*. After walking a long line once, child directed to walk same line slowly; difference in time (seconds) between slow and regular trials.

    b. *Pencil tap*. Child to tap once when assessor taps twice and tap twice when assessor taps once; percent of correct responses recorded.

    c. *Tower task*. Child instructed to take turns with assessor placing blocks to build a tower; level of turn sharing is recorded.

    d. *Tower clean up*. Child instructed to clean up blocks from Tower task; latency (in seconds) to complete clean up.

e. *Toy sorting*. Child asked to sort and put away small toys without playing with them; latency (in seconds) to complete clean up is recorded.

f. *Toy wrap*. Child asked not to peek while assessor noisily wraps a "surprise"; latency (in sec) to first peek is measured.

g. *Toy wait*. Child directed to wait without touching the wrapped "surprise;" latency (in sec) to touch surprise

h. *Toy return*. Child asked to return a fun toy after a brief period of play; latency (in seconds) to return toy.

i. *Snack delay*. Child instructed to wait for a signal before "finding" an M & M under a clear cup; level of waiting measured with a 4 point scale.

j. *Tongue tas*k. Child and assessor wait with an M & M on their tongues to see who will eat it first; latency to wait to eat M & M measured in seconds

Administration of the Preschool Self-Regulation Assessment was completed by advanced undergraduate students enrolled in Western Kentucky University's Psychology program. Assessors were trained to reliability on the tasks and a second assessor assisted by timing the latency variables with a stop watch. The assessors removed one participant at a time to partake in the administration of the assessment in a quiet room with adequate space for the assessment. The standardized procedures outlined by the Chicago School Readiness Project manual were followed for each administration. After returning the child to the classroom following the administration of the PSRA, the assessor completed a 28 item assessor report (Smith-Donald et al., 2007) which provided a global measure of the child's emotions, attention, and behavior throughout the session.

Procedures

Participants for the study were recruited through letters addressed to parents explaining the project and requesting their participation in the research. Parental consent was obtained for each participant to contribute to the research project in both the fall and spring semesters. All children were given an age appropriate explanation of all

procedures. For children this young, verbal assent was used. Participants were treated in accordance with the "Ethical Principles of Psychologists and Code of Conduct" (American Psychological Association, 2010).

Each child was assigned a unique identification number at the start of the project to ensure confidentiality. In the fall and spring semesters, teachers were given the Social Competence and Behavior Evaluation and the Emotion Regulation Checklist questionnaires for each participant in a brown manila envelope with which they also used to return the measures. When questionnaires were initially handed out, each child's name and identification number was on the questionnaires. When questionnaires were returned, children's names were blacked out with a permanent marker. A similar procedure was followed for data collected by research assistants (Woodcock Johnson subtests, PSRA).

Chapter 3 Results

Preliminary Analyses

Descriptive statistics and sample sizes for all measures are presented in Table 2. All available data were used for each analysis; therefore the sample size varies among analyses.

Analysis Strategy

The dependent measures in Table 2 were examined in a series of repeated measures analyses of variance. Between-subjects independent variables for all analyses were: group (2, intervention, control), gender (2), and Head Start status (2, Head Start, Daycare); the within-subjects repeated measure was wave (2, Fall, Spring). Results of these analyses are presented below, organized by dependent measure. Interactions of

Head Start status and Group will be reported, but they cannot be examined with post hoc

tests due to a cell size of one in the control/daycare group. For the current study, we

hypothesize that relative to comparison children, whose teachers did not receive the

intervention, children whose teachers received the intervention: a) will exhibit greater

cognitive and preliteracy skills, b) will improve more in self-regulation as measured by

teacher report and the PSRA, and c) will show better teacher-reported social competence.

Table 2   *Descriptive Statistics for All Measures*

	Fall			Spring		
	N	M	SD	N	M	SD
SCBE (6-point scale)						
Social Competence	82	3.75	0.82	80	4.03	0.92
Internalizing Behaviors	82	1.40	0.43	80	1.54	0.49
Externalizing Behaviors	81	1.59	0.69	80	1.70	0.80
ERC (4-point scale)						
Emotional Lability	82	1.82	0.42	80	1.88	0.47
Emotion Regulation	82	3.64	0.44	80	3.65	0.45
PSRA						
Beam (difference in time)	75	2.03	3.86	69	3.21	5.17
Pencil Tap (% correct)	75	0.39	0.31	70	0.58	0.31
Tongue Task (seconds)	75	33.61	12.46	64	36.63	8.28
Toy Sort (seconds)	76	91.28	29.82	71	76.42	29.50
Snack (4-point scale)	76	3.60	0.73	76	3.60	0.73
Impulse Control	75	2.19	0.71	69	2.48	0.57
Assessor Rated Aggression	83	0.06	0.29	83	0.02	0.15
Positive Emotion	74	2.06	0.83	71	2.11	0.77
Woodcock-Johnson						
Letter-Word Identification	74	100.95	13.17	75	99.93	13.27
Understanding Directions	74	95.95	14.19	75	95.88	13.72
Applied Problems	74	103.05	12.97	75	103.61	12.22
Picture Vocabulary	74	101.99	12.71	75	102.15	10.74

Teacher-rated Social Competence and Behavior Problems (SCBE)

Social Competence

A repeated measures ANOVA on the social competence subscale of the SCBE

revealed a significant within-subjects effect of wave, $F(1, 72) = 5.11$, $p < .03$. Children

received higher social competence ratings in the Spring (M = 4.06, SD = 0.87) than in the

Fall (M = 3.77, SD = 0.82). In addition, a significant between-subjects effect of gender,

$F(1, 72) = 10.90$, $p < .002$ was found; boys were rated lower in social competence (M = 3.59,

SE=.118) than were girls (M = 4.30, SE=.175).

Internalizing Behavior Problems

The repeated measures ANOVA on teacher-rated internalizing behavior problems

revealed a significant within-subjects effect of Wave, $F(1, 72) = 12.28$, $p < .001$. Children

received lower internalizing ratings in the Fall (M = 1.39, SD = 0.435) than in the Spring

(M = 1.53, SD = 0.48). Significant between-subjects effects were found for Group, $F(1,$

$72) = 10.76$, $p < .002$, Head Start status, $F(1, 72) = 7.61$, $p < .007$, and gender, $F(1, 72)$

$= 5.07$, $p < .027$. Children enrolled in Head Start were rated higher in internalizing

behavior problems (M = 1.65, SE = 0.048) than were children enrolled in daycare (M =

1.156, SE = 0.099). The effects of group and gender were modified by a significant

interaction of group by gender, $F(1, 72) = 4.68$, $p < .04$ (see Table 3). Tukeys HSD tests

showed that control boys received ratings of internalizing problem behaviors that were

higher than those received by any other group.

Table 3   *Group by Gender Interaction for Internalizing Scale of SCBE*

	Estimated Marginal Means		95% Confidence Interval	
	M	SE	Lower Bound	Upper Bound
Group				
Control (1)	1.6820	0.0960	1.491	1.873
Intervention (2)	1.2530	0.0520	1.15	1.356
Gender				
Male	1.5510	0.0530	1.444	1.657
Female	1.3510	0.0790	1.194	1.509
Group x Gender*				
Male (1)	2.0870	0.1050	1.877	2.297
Female (1)	1.4790	0.1340	1.212	1.745
Male (2)	1.2820	0.0600	1.163	1.402
Female (2)	1.2240	0.0840	1.056	1.392

*For this interaction, the mean for the control males is higher than all other groups at $p < .01$

Externalizing Behavior Problems

The repeated measures ANOVA on teacher-rated externalizing behavior problems revealed a significant between-subjects effect of group, $F(1, 71) = 15.43$, $p < .001$, that was modified by a Wave by Group interaction, $F(1, 71) = 4.01$, $p < .05$. This interaction is presented in Table 3. Tukey's HSD tests were used to probe the interaction. Control children were rated higher than intervention children in externalizing problem behaviors in both Fall and Spring, $p < .01$, but each group did not show a significant change in externalizing problem behaviors from Fall to Spring (see Table 4).

Table 4   *Interaction of Wave and Group for Externalizing Scale of SCBE*

		Fall		Spring		
	N	M	SD	M	SD	Significance
Group						
Control	19	2.1530	0.8200	2.2810	0.8670	N.S.
Intervention	59	1.4250	0.5610	1.4400	0.4760	N.S.
Significance		p<.01		p<.01		

Teacher Ratings of Emotion Regulation and Emotional Lability (ERC)

Emotion Regulation

A repeated measures ANOVA on teacher ratings on the emotion regulation scale of the ERC revealed a significant between-subjects effect of gender, $F(1, 72) = 6.93$, $p < .01$. Teachers rated girls (M = 3.875, SE = .091) higher on emotion regulation than they did boys (M = 3.539, SE = .062).

Emotional Lability

A repeated measures ANOVA on teacher ratings on the emotional lability scale on the ERC revealed significant between-subjects effects of group, $F(1, 72) = 3.78$, $p < .056$, and gender, $F(1\ 72) = 5.75$, $p < .019$. The control group (M = 1.957, SE = .105) received higher scores on teacher-rated emotional lability than did the intervention group

(M = 1.700, SE = .056). Boys (M = 1.938, SE = .058) were rated higher on the emotional

lability scale than were girls (M = 1.714, SE = .086). There was a significant within-

subjects effect of Wave, $F(1, 72) = 5.70$, $p < .02$. Children received lower emotional

lability ratings in the Fall (M = 1.8127, SD = .421) than in the Spring (M = 1.8600, SD =

.429). The significant effect of Wave was modified by an interaction of Wave by Head

Start status at a trend level, $F(1, 72) = 3.86$, p = .053. The data from this interaction are

presented in Table 5; mean differences were tested with Tukey's HSD tests which

revealed that in both Fall and Spring, Head Start children were rated higher in emotional

lability than were daycare children, and that daycare children received higher lability

ratings in the Spring than in the Fall.

Table 5   *Interaction of Wave and Head Start status for Lability Scale of ERC*

		Fall		Spring		Significance
	N	M	SD	M	SD	
HS Status						
Head Start	61	1.8831	0.4310	1.8940	0.4630	N.S.
Day Care	18	1.5740	0.2820	1.7440	0.2650	p<.05

Note: For Fall, HS > DC, p < .01; for Spring, HS > DC, p < .05

Preschool Self-Regulation Assessment (PSRA)

Pencil Tap

A repeated measures ANOVA of the proportion of correct trials on the Pencil Tap

test of the PSRA revealed a significant within-subjects effect of Wave, $F(1, 59) = 7.63$, p

< .008. Children scored higher on the pencil tap task in the Spring (M = .5881, SD =

.311) than in the Fall (M = .4006, SD = .31).

Toy Sort

A repeated measures ANOVA on the latency in seconds to correctly sort toys

revealed significant between-subjects differences of Head Start status, $F(1, 61) = 6.15$, *p*

< .016, and gender, $F(1, 61) = 6.43$, $p < .014$. These effects were modified by significant

interactions of Group by Head Start status, $F(1, 61) = 7.29$, $p < .009$, and Group by

Gender, $F(1\ 61) = 4.92$, $p < .030$. Head Start children took less time to sort the toys (M =

77.10, SE = 3.60) than did daycare children (M = 96.766, SE = 9.18). Boys (M = 87.804,

SE = 4.231) took more time to sort toys than did girls (M = 83.819, SE = 7.094). Tukey's

HSD tests were used to probe the group by gender interaction; no significant mean

differences were found (see Table 6). The Group by Head Start Status interaction could

not be probed because of cell size problems.

Table 6   *Interaction of Group and Gender for Toy Sort Scale of PSRA*

	Estimated Marginal Means		95% Confidence Interval	
	M	SE	Lower Bound	Upper Bound
Head Start status				
Head Start	77.0980	3.5980	69.904	84.292
Day Care	96.7660	9.1780	78.412	115.119
Group*Gender				
Control Male	84.2390	7.9740	68.294	100.183
Control Female	85.2460	12.7860	59.678	110.814
Intervention Male	89.5870	4.9380	79.713	99.461
Intervention Female	82.3930	6.1280	70.139	94.647

Woodcock-Johnson Tests of Achievement (WJ-III)

Understanding Directions

A repeated measures ANOVA revealed a significant between-subjects effect of

Group on the Woodcock-Johnson Understanding Directions subtest, $F(1, 62) = 11.31$, $p <$

.001. The intervention group (M = 101.272, SE = 1.818) performed better than the

control group (M = 86.185, SE = 4.182). The significant effect of group was modified by

an interaction of group by Head Start status, $F(1, 62) = 7.42$, $p < .008$, but this interaction

could not be probed due to cell size problems.

Picture Vocabulary

A repeated measures ANOVA on the Woodcock-Johnson Picture Vocabulary subtest revealed a significant between-subjects effect of group, $F(1, 62) = 7.03$, $p < .01$. The control group (M = 95.987, SE = 3.1840) received lower scores on the subtest than did the intervention group (M = 106.159, SE = 1.6580). Group effects were modified by a significant interaction of group by Head Start status, $F(1, 62) = 8.86$, $p < .004$, but this interaction was not probed due to cell size problems. The repeated measures ANOVA also revealed a significant interaction of Wave by Head Start Status by Gender, F(1, 62) = 4.86, p < .04. Tukey's HSD tests showed that in the Fall Daycare girls scored higher than all other groups, and in the Spring, Daycare boys and girls scored higher than both Head Start boys and girls, but daycare boys and girls did not differ from each other in the Spring (see Table 7).

Table 7   *Woodcock Johnson Picture Vocabulary: Interaction of Wave by HS Status by Gender*

		Fall		Spring		Significance
	N	M	SD	M	SD	
Head Start status & Gender						
Male						
Head Start	32	101.5000	10.2890	100.19	8.368	N.S.
Day Care	9	103.3300	13.5000	109.78	12.101	N.S.
Female						
Head Start	22	100.8600	14.0150	100.82	11.947	N.S.
Day Care	6	112.8300	17.8820	110.67	11.075	N.S.

Note: For fall, female DC > male DC, p < .05; female DC > male and female HS, ps <.01. For Spring, male DC > male & female HS, ps < .05; female DC > male and female HS, ps < .01

Letter-Word Identification

A repeated measures ANOVA on the Woodcock-Johnson Letter-Word Identification subtest revealed significant between-subjects interactions of Group by Head Start status, $F(1, 62) = 5.44$, $p < .023$, and wave by gender, F(1, 62) = 4.86, $p <$

.04. The Group by Head Start status interaction was not probed due to cell size problems. The means for the Wave by Gender interaction are presented in Table 8. Tukey's HSD tests revealed that in the Fall girls scored higher than boys; there were no other significant mean differences (see Table 8).

Table 8		*Woodcock-Johnson Letter-Word Identification: Interaction of Wave by Gender*				
		Fall		Spring		Significance
	N	M	SD	M	SD	
Gender						
Male	41	97.7600	11.8190	99.37	11.821	N.S.
Female	28	103.6800	13.8220	101.21	15.24	N.S.

Note: In fall, female > male, p < .01

Applied Problems

A repeated measures ANOVA on the Woodcock-Johnson Applied Problems subtest revealed significant between subjects effects of group, $F(1, 62) = 11.77, p < .001$, and gender, $F(1, 62) = 9.71, p < .003$. The control group (M = 95.519, SE = 3.4360) received lower scores than did the intervention group (M = 107.691, SE = 1.4940). Girls (M = 103.183, SE = 2.7320) out-performed boys (M = 101.528, SE = 1.5820). A significant between-subjects interaction of group by Head Start status, $F(1, 62) = 10.30, p < .002$, was found, but it could not be probed due to cell size problems. Finally, a significant effect of Wave, $F(1, 62) = 4.25, p < .05$, was modified by a significant Wave by Head Start status interaction, $F(1, 62) = 6.61, p < .002$ (see Table 9). Tukey's HSD tests revealed that in the Spring, daycare children received higher scores on the Applied Problems subtest than did Head Start children; no other mean differences were significant.

Table 9   *Woodcock Johnson Applied Problems: Interaction of Wave by HS status*

		Fall		Spring		Significance
	N	M	SD	M	SD	
HS Status						
Head Start	54	101.6300	11.2690	102.0000	9.831	N.S.
Day Care	15	106.7300	17.5190	112.2000	13.089	N.S.

Note: In spring, DC > HS, p < .01

Chapter 4 Discussion

Statement of Major Findings

Previous research exists demonstrating that training similar to the training implemented in this study has shown gains for children in the form of improved self-regulation, enhanced cognitive achievement, and reduced behavior problems (e.g., Bierman, Domitrovich et al., 2008; Bierman, Nix et al., 2008; Raver et al., 2009, 2011; Webster-Stratton et al., 2008). Self-regulation enables children to inhibit inappropriate emotional outbursts as well as control their reactions to situations. Understanding the significance of children's self-regulation skills is of vast importance to many individuals in the field of education as the information allows practitioners the opportunity to improve children's self-regulation in the preschool years.

The focus of the current study was to evaluate the outcomes of the teacher training on children's cognitive/preliteracy skills, children's self-regulation, and children's social competence. We hypothesized that, over the course of the school year, relative to comparison children whose teachers did not receive the intervention, children whose teachers received the intervention: a) will exhibit a greater cognitive and preliteracy skills, b) will improve more in self-regulation as measured by teacher report and the PSRA, and c) will show greater teacher-reported social competence.

Supporting the first hypothesis, it was determined that children in the intervention group exhibited better cognitive and preliteracy skills as shown by results on the Woodcock-Johnson subtests. The intervention group performed significantly better than the control group on the Understanding Directions, Picture Vocabulary, and Applied Problems subtests, indicating that effects of the teacher training program improved children's early academic skills. Although the Letter Word subtest showed the intervention group received higher scores than the control group, this difference was not found to be statistically significant. Previous studies also found that children whose teachers received classroom behavior management intervention training received higher scores on early academic and preliteracy skills as compared to children in the control group (e.g., Bierman, Domitrovich, et al., 2008; Graziano et al., 2007; Morris et al., 2010; Raver et. al, 2011).

In support of the second hypothesis, it was found that the control group received higher scores on the teacher-rated lability measure than did the intervention group. It was also found that boys were rated higher on the lability scale than were girls. In addition, Children enrolled in Head Start in the current study were rated higher on teacher-reports of emotional lability than children enrolled in day care. Further support was found through PSRA task results, which indicate that children scored higher on the pencil tap task in the Spring than the Fall. Boys took more time to sort toys than did girls; however, children enrolled in Head Start did show some strength as they took less time to sort the toys on the PSRA. Many of the teachers who had mostly Head Start children in their classrooms stressed putting away toys in the correct bins as a clean-up rule and this may be a reason why Head Start children took less time sorting toys on the PSRA. A similar

study conducted by Raver et al. (2011) found that children's ability to control their impulses, as measured by the PSRA, increased following treatment. In addition, the Woodcock-Johnson Understanding Directions subtest was a measure of self-regulation, and the children in the intervention group performed significantly better than did children in the control group.

Supporting the third hypothesis, it was found that children received higher teacher ratings of social competence in the Spring than in the Fall. Boys in the control group received higher ratings of internalizing problem behaviors than those received by any other group. Furthermore, children in the control group were rated higher than children in the intervention group in externalizing problem behaviors in both Fall and Spring, but neither group showed a significant change in externalizing problem behaviors from Fall to Spring. The findings suggest that the intervention improved children's social competence from Fall to Spring. Results also indicate that children in the intervention group received lower ratings on teacher-reported internalizing behavior problems, externalizing behavior problems, and emotional lability.

Consistent with previous reports (e.g., Bierman, Domitrovich, et al., 2008; Morris et al., 2010; Raver et al., 2011; Webster-Stratton et al., 2008), the children enrolled in Head Start in this study evidenced more teacher-rated behavior and emotion regulation problems than did children enrolled in daycare (whose parents paid their fees). That children enrolled in Head Start have higher ratings in emotional lability is consistent with other literature suggesting they have more negative emotionality and problems with regulation. It is interesting that the day care children increase in lability over the school

year; this may be a possible effect of exposure to Head Start children's greater negative emotionality.

Limitations

Although every effort was made to conduct this research in an experimentally sound manner, this study does have limitations. The primary limitation associated with this study is the relatively small sample size of children in the control group. Future studies should determine ways in which to extend the sample size to be more representative of the population. One way to complete this task is to reach out to neighboring child care centers and implement the intervention in approximately half of the available classrooms.

Another limitation to consider is the validity of the intervention implementation in the classroom setting. Although the project personnel provided training and materials to all teachers involved in the intervention group, project personnel were not available to ensure daily follow-through with intervention strategies. Future research would benefit from ensuring complete follow-through with strategy implementation. One way to ensure proper use of strategies would be for project personnel to observe classroom implementation and offer suggestions on ways in which implementation could be improved.

Although results suggest that the teacher training intervention improved children's outcomes, pre-test/baseline data was not compiled. It is recommended that future studies collect and compare pre- and post-intervention data to determine whether the exposure to the intervention improves child outcomes in additional areas and to what extent.

Although the current study was conducted throughout a school year, it was a relatively short period of time. It is recommended that future studies follow children through the remaining preschool years or kindergarten year and determine whether the benefits of the program continue.

Implications

Results of this study provide further support for the necessity of teacher training programs focused on the reduction of problem behaviors in the preschool setting. As many teachers report receiving little to no pre-service training (Brouwers & Tomic, 2000), the Incredible Years intervention program as implemented in this study showed gains in children's cognitive/preliteracy skills and a reduction in teacher rated problem behaviors. Future research in this area should examine social competence, self-regulation, and problem behaviors on a broader basis. Examining social competence, self-regulation, and problem behaviors within a child's chronological age rather than within the preschool classroom with varying ages would be a positive step. By broadening the field, project personnel can ensure that results would show a true representation of regulation skills according to age. Additionally, longitudinal study of children's regulation skills would give evidence concerning how malleable regulation skills are when focused on age of acquisition of the skills.

Parents play an important role in children's acquisition of regulation abilities and it is recommended that future research investigates the parental involvement to determine the extent to which parents can make the intervention more effective. Home and school collaboration is critical during the school years and parents play a large role in ensuring the children can generalize their regulation abilities.

Further examination of Head Start and daycare differences would be beneficial in determining the impact of socio-economic status on acquisition of regulation skills. In addition, increasing the sample size for children enrolled in Head Start and daycare facilities would be beneficial in order to determine the impact of low-income status.

Conclusion

Preschool is a critical period for the development of regulation of emotions and emotional responses. The teacher training program was delivered in the Fall and Spring of the 2011-2012 school year to blended Head Start/daycare classrooms and the control group was derived from an off-site blended Head Start/daycare site. Results indicate that children in the intervention group exhibited greater increase in their cognitive/preliteracy skills than children in the control group. Teacher ratings on the ERC showed that the control group received higher scores on teacher rated lability than did the intervention group. In addition, Head Start children were rated higher in emotional lability than were daycare children. Teacher ratings on the SCBE scale indicated that children received higher teacher ratings of social competence in the Spring than in the Fall. Additionally, children received lower internalizing behavior problem ratings in the Fall than in the Spring, Head Start children were rated higher in internalizing behavior problems than were children in daycare, and boys in the control group received higher ratings of internalizing problem behaviors than those received by any other group. Furthermore, children in the control group were rated higher than children in the intervention group in externalizing problem behaviors in both Fall and Spring. Overall, results indicate that the teacher training intervention improved child outcomes and provided teachers with appropriate behavior management strategies.

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