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Influences of Preschool on Social-Emotional Development for Children with Disruptive Behavior Disorders

Sierra Brown

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INFLUENCES OF PRESCHOOL ON SOCIAL-EMOTIONAL DEVELOPMENT FOR
CHILDREN WITH DISRUPTIVE BEHAVIOR DISORDERS

A Dissertation

Submitted to the School of Education

Duquesne University

In partial fulfillment of the requirements for
the degree of Doctor of Philosophy

By

Sierra L. Brown

August 2015

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Sierra L. Brown

2015

DUQUESNE UNIVERSITY
SCHOOL OF EDUCATION
Department of Counseling, Psychology, and Special Education

Dissertation

Submitted in partial fulfillment of the requirements
for the degree
Doctor of Philosophy (Ph.D.)

School Psychology Doctoral Program

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July 9, 2015

**INFLUENCES OF PRESCHOOL ON SOCIAL-EMOTIONAL DEVELOPMENT FOR
CHILDREN WITH DISRUPTIVE BEHAVIOR DISORDERS**

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ABSTRACT

INFLUENCES OF PRESCHOOL ON SOCIAL-EMOTIONAL DEVELOPMENT FOR CHILDREN WITH DISRUPTIVE BEHAVIOR DISORDERS

By

Sierra L. Brown

August 2015

Dissertation supervised by Kara E. McGoey, Ph.D.

Childcare research has examined effects of center-based childcare on the cognitive, behavioral, and social development for young children, often finding mixed results and short-term benefits. Many studies focus on at-risk populations, specifically children from low-income backgrounds who are often enrolled in programs, such as Head Start that have a specific focus on fostering all areas of child development. However, there is minimal research showing the impact of childcare attendance for children with disabilities such as Attention Deficit/Hyperactivity Disorder and Oppositional Defiant Disorder, are at-risk for delayed school readiness due to deficits in social-emotional development. Using multiple regression, data from the Early Childhood Longitudinal Study- Birth Cohort was analyzed to examine whether childcare programs differed significantly in quality and have a significant impact on the social-emotional development of children diagnosed with a disruptive behavior disorder. Results indicated

significant differences across childcare types in regards to childcare quality such that public prekindergarten programs in general possessed more indicators of quality. In relation to the type of childcare program and predicting social-emotional development in kindergarten, results of the current study indicated that children enrolled in preschool programs predicted higher prosocial skills, children enrolled in private programs predicted lower problematic behaviors and school readiness skills. However, the study was unable to examine the relationship between disruptive behavior disorders and quality childcare programs due to the constraints on the data. The importance of these findings, as well as limitations are discussed in the current study, as well as directions for future research.

DEDICATION

This dissertation is dedicated to my family and friends who have guided me throughout the many years of school. You have celebrated with me in my successes and supported me through life's challenges. I would not have been able to reach my goals if it was not for everyone's love and support.

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Chapter I: Introduction

Recently, there has been a major shift in childcare practices in the United States. Traditionally, women were the sole providers for the care of their children; however, with an increasing number of women entering the workforce over the last five decades, there has been a shift from home-based childcare to center-based childcare. There has also been a shift in focus for center-based childcare from providing basic child needs to providing opportunities for children to learn basic skills needed for formal education. Historically, center-based childcare was not always an option for many families in the United States. During the Depression and World Wars, when parents were forced into work and could not stay home, "day nurseries" were created for childcare while the adults were away at work or at war. However, many of these nurseries closed their doors when the economy stabilized and the women returned home to take care of the children (Kalifeh et al., 2011). In the 1960s, as part of the "War on Poverty", federal funding was secured to subsidize ongoing childcare for families who were living in poverty (Currie, 2001). Over the years, preschool programs have changed focus due to the importance that has been placed on early learning experiences. Preschool programs are now utilized for a variety of reasons including a resource for childcare for working families as in the past, but also to provide childcare education and school readiness skills to young children from all economic backgrounds.

Though childcare in the past has solely targeted low-income, working families, recent statistics indicate that more children from affluent families attend center-based childcare, with as many as 65% of children from higher income families attending preschool as compared to 41% and 45% from poverty or low-income families (Child

Trends, 2012). Regardless of income, more children are attending center-based, non-maternal daycare, or preschool settings than in the past with only about 127,000 preschool children enrolled in 1965 to nearly 2.7 million preschool-age children in 2009 (Epstein & Barnett, 2012). With increased participation in preschool settings, and the implementation of No Child Left Behind (No Child Left Behind Act [NCLB], 2002), there is an increased importance in ensuring that children are entering school prepared to succeed.

Under the George W. Bush administration, a federal initiative called Good Start Grow Smart was introduced for states to create learning standards for preschool education that are similar to and a downward extension from elementary education focusing on language, literacy, and mathematic skills (Stipek, 2006). Implementation of these standards is a first step in not only promoting academic school success, but also providing quality preschool education and instruction. However, school success in preschool should not be measured only through age-appropriate mastery of pre-academic skills. School success in the preschool years should also be measured by appropriate social skills, emotional control, and behavioral control necessary to engage in pre-academic activities, which provides the cornerstones necessary to master future academic skills. Quality preschool programming incorporates quality academic instruction, as well as fostering social-emotional skills that are important for children to have entering into kindergarten. Interestingly, teachers indicate that social and behavioral skills are more essential for school readiness than academic skills (Lin, Lawrence, & Gorrell, 2003; Piotroski, Botsko, & Matthews, 2000).

Based on research conducted on the benefits of attending quality preschools, early childhood education has shifted focus from providing basic daycare to preparing young children to enter into kindergarten, and providing quality, evidence-based curricula to teach children basic skills that are needed in the following years. Although literature has shown how attending center-based childcare may have benefits for pre-academic skills, there are now concerns about the effects of attending center-based care on children's emotional and behavioral development and the number of hours a week children spend in these facilities, with children attending childcare settings on average 36 hours per week (Epstein & Barnett, 2012). Although children appear to spend many hours per week in center-based care, the concerns seem unsubstantiated as research has shown significant social, emotional, and behavioral benefits for children, especially children from low-income families, as demonstrated by research conducted on the effects of programs such as Head Start; however, quality of the preschool setting is of utmost importance in providing academic, behavioral, and social benefits for children (Burchinal et al., 2002; Burchinal, Vandergrift, Pianta, & Mashburn, 2010; Peisner-Feinberg et al., 2001; Votruba-Drzal, Coley, & Chase-Landsdale, 2004). Thus, it is important that children are exposed to high-quality preschool education, as low quality preschool programming has adverse effects for young children both academically and behaviorally (Burchinal et al., 2010; NICHD, 2005). Quality early childhood education gives young children the opportunity to begin school with the necessary tools to succeed in elementary school and beyond. These programs prepare children for formal education not only academically, but socially, emotionally, and behaviorally as well.

Disruptive Behavior Disorders

Children diagnosed with Attention Deficit/Hyperactivity Disorder (ADHD) or Oppositional Defiant Disorder (ODD) often lack or are delayed in the social-emotional development necessary for proper behavior functioning within the preschool classroom (Campbell, 1994; McGoey, Eckert, & VanBrackle, 2001). Though there is a large body of research indicating the benefits of quality preschool for children, there is little research available on the impact of quality preschool programming in decreasing behaviors of children with a disruptive behavior disorder (i.e., ADHD, ODD).

Interventions aside, it is important to understand the effects of quality preschool on the symptomatology of disruptive behavior disorders. This understanding may contribute to important policy decisions in the future which may impact quality standards that states must follow, possibly leading to universal quality standards and affecting change in school readiness skills in young children. As research has shown, the more time spent in low-quality preschools produces more adverse behavioral problems within the classroom (Burchinal et al., 2010; NICHD, 2005). This is a major cause for concern as preschool has a higher expulsion rate than the national K-12 expulsion rate in the United States (Gilliam & Shahar, 2006). Children at-risk for school failure due to behavioral difficulties should benefit from high quality programs which foster academic, social, and behavioral development. For children with disruptive behaviors, high quality preschool programs are vital in providing services that will allow them to be successful in elementary school and beyond.

Importance of Quality Preschool

Quality is not standard between programs (i.e., Head Start and public prekindergarten) or across states. Quality can be measured through many different variables, though Epstein and Barnett (2012) identify several key factors in the assessment of center-based quality: staff experience and education, type of curriculum implemented, teacher and child interactions, physical environment of the center, and program structure, even the amount of monthly fees. Quality may also be assessed through formal assessments such as the Early Childhood Environment Rating Scale-Revised (ECERS-R; Harms, Clifford, & Cryer, 1998), the Classroom Assessment Scoring System (CLASS; Pianta, La Paro, & Hamre, 2008), following state quality standards, or joining a state or national accreditation body, such as the National Association of the Education of Young Children, or NAEYC. Although quality can be measured in many different ways, it is important to identify key factors that make a quality early childhood program and understand the benefits that the program may have on child development, including pre-academic and social-emotional skills.

Preschool attendance has been shown to increase children's academic skills for the first few years in elementary school, as demonstrated in the 1960s by the Carolina Abecedarian Project (Campbell & Pungello, 2007) and the High/Scope Perry Preschool Project (Weikart, Deloria, Lawser, & Wiegerink, 1970) and in recent literature studying the effect of preschool in low-income children (Peisner-Feinberg et al., 2001; Welsh, Nix, Blair, Bierman, & Nelson 2010). However, although there is an increase in academic skills, the literature is mixed in terms of social-emotional benefit for children who attend preschool. Though there is some evidence to suggest preschool attendance is beneficial

in preparing children socially, behaviorally, and emotionally to enter into kindergarten, there is contradictory evidence that suggests preschool attendance, especially low-quality childcare programs, may increase negative behaviors of children.

Longitudinal Preschool Studies

The three instrumental longitudinal studies in early education started in the 1960s, with the implementation of Head Start, The Carolina Abecedarian Project, and the High/Scope Perry Preschool Program, which studied the effect of quality preschool programming on low-income, primarily minority children (Campbell & Pungello, 2007; Rose, 2010; Weikart, Deloria, Lawser, & Wiegerink, 1970; Zigler & Styfco, 2003). Each of the longitudinal studies found significant academic, cognitive, and behavioral effects for the children enrolled in the programs three years after the preschool program. However, academic and cognitive gains were not shown for children in the programs into elementary school (Campbell & Pungello, 2007; Schweinhart & Weikart, 1981; U.S. Dept. of Health and Human Services, 2010; Weikart, Deloria, Lawser, & Wiegerink, 1970). Although these effects were not seen, longitudinal analysis showed that well into their adulthood, children who attended these programs had a higher graduation rate, lower delinquency, and higher salary than children who did not receive the programming (Heckman et al., 2010; Schweinhart et al., 1993; Schweinhart, Montie, Xiang, Barnett, Belfield, & Nores, 2005).

Quality and Preschool Outcomes

Quality preschool classrooms have been shown to increase social-emotional development in preschool children (Burchinal et al., 2002; Burchinal, Vandergrift, Pianta, & Mashburn, 2010; Votruba-Drzal, Coley, & Chase-Landsdale, 2004). The Head Start

Impact Study, in particular, indicated that children enrolled in Head Start programs decreased symptoms of hyperactivity and withdrawal with two years of programming in Head Start classrooms (U.S. Department of Health and Human Services, 2010).

However, these studies often focus attention on children from disadvantaged backgrounds and often do not consider diagnoses that may impact their behavior and social-emotional development within the classroom.

Burchinal and colleagues (2010) examined the relationship between the quality of the classroom, the quality of teacher-child interaction, and academic and social-emotional outcomes of the children in a sample of low-income children. Results of the study concluded that high quality classrooms with quality teacher-child interaction predicted increased social skills and lower behavior problems than low-quality classrooms.

However, increase in pre-academic skills, namely in reading, language, and math were related to quality instructional skills. This study highlights that social-emotional development in preschool is not fostered just by the quality environment as a whole.

While the classroom may have many resources available to the children to foster their learning, social-emotional development may rely on other factors, including a warm, positive relationship with the classroom teacher.

Keys and colleagues (2013) also conducted a study that examined the impact of quality on preschooler's social skills and behavioral outcomes. The study analyzed data from four longitudinal research databases, including the NICHD Study of Early Childcare and Youth Development (SECCYD), the Early Childhood Longitudinal Study- Birth Cohort (ECLS-B), National Center for Early Development and Learning (NCEDL), and the Early Head Start study (EHS), using meta-analytic techniques to examine the

relationship between quality and child development. The study concludes that quality preschool programming has differing benefits for children of differing backgrounds. Children whose mothers obtained a high school degree or less, or children who experience lower cognitive skills, achieved the most social gains from quality classrooms. In addition, the quality of the preschool classroom was significantly related to increased language development for children from mothers who were highly educated. The study also examined whether preschool attendance had an effect on problematic behavior within the classroom. Interestingly, results from two longitudinal studies were mixed indicating that children from mothers who obtained a high school degree or less experienced more problem behaviors if they participated in the NCEDE study, though similar children participating in the ECLS-B study showed a decrease in problematic behaviors. The authors concluded that small effect sizes and nonsignificant meta-analytic effect sizes could not determine that preschool had a significant effect on problematic behavior within the classroom.

Problem Statement

Research has evidenced that low-quality preschools produce adverse social and behavioral development; on the other hand, high quality preschools encourage the cognitive, academic, and social-emotional development necessary to be academically and socially successful later in education. Children diagnosed with a disruptive behavior disorder in preschool (i.e., ADHD or ODD) typically exhibit high levels of negative behaviors that interrupt the daily routine of the classroom, cause the teacher daily stress, and put the child at-risk for suspension and expulsion from their childcare setting (Campbell, 2002 ; Gadow et al., 2001; Gilliam & Shahar, 2006). These children would

likely benefit greatly from structured, supportive environments that are based in developmentally appropriate practices and focus on quality teaching, quality teacher-child interactions, as well as quality prosocial peer interactions.

Most of the research that has been conducted has focused on the effects of quality preschool programming for low-income children, and there is very little research showing whether there are benefits for reducing the symptomatology for children who are diagnosed with a disruptive behavior disorder. As children with DBDs are considered to be less socially competent and at-risk for school failure, it is important to determine all the avenues possible to prevent academic and social problems in the future. Using an ecological framework, where the environment and its effects on behavior and development of the child is the main focus, the present study explores how attendance in center-based childcare affects social-emotional development for children with disruptive behavior disorders.

Research Questions and Hypotheses

1. Do children with a disruptive behavior disorder differ in their mean social-emotional development scores from children without a disruptive behavior disorder?
 - a. Hypothesis 1: Children diagnosed with ADHD and/or ODD will have significantly lower social-emotional development than typically developing peers.
2. Does the type of preschools differ on measures of quality, including ECERS-R composite scores and other measures of quality (i.e. teacher education, teacher experience, teacher-child interaction as measured by the Arnett)?

- a. Hypothesis 2: Public prekindergarten programs will have the highest ECERS-R composite scores, teacher education, and teacher-child interaction scores.
 - b. Hypothesis 3: Head Start programs will have teachers with the most experience teaching.
3. Does the type of childcare center attended (i.e. Head Start, public prekindergarten, preschool/nursery, private, childcare, other) influence the social-emotional development score in kindergarten?
- a. Hypothesis 4: Children who attend public prekindergarten programs will experience the highest social-emotional development.

Summary

High quality, center-based preschool is essential for the social-emotional development of young children. Research has reflected that preschool can have a significant impact on social-emotional development; however, much of the research has focused primarily on typically developing children and children from low-income families. Children with disruptive behavior disorders often exhibit behaviors that may further impact their social-emotional development. As research has shown quality childcare has produced social, emotional, and behavioral gains for children, quality childcare should also have a positive impact on the symptomatology of disruptive behavior disorders and foster social-emotional development and behavioral control. However, there are significant differences in the types of preschool programming that is available to families, all with varying degrees of quality. The current study aims to address whether quality differences are present in the between types of preschool programming (i.e., Head Start, public prekindergarten, preschool/nursery), and if quality

is affected by additional factors such as teacher experience and training or accreditation status. Additionally, this study aims to evaluate the relationship between the quality of the preschool program and its effect on social-emotional development of children who are diagnosed with disruptive behavior disorders.

Chapter II: Literature Review

Background

Before considering the effects of center-based childcare on subsequent child development, one must consider the history of the initiatives driving the need for children to start school prepared to succeed both academically and behaviorally. In the 1960s, the Johnson administration's "War on Poverty" developed several recommendations for the development of early childhood programs for young, disadvantaged children. The movement spurred the creation of government programs targeting health, well-being, and education, such as the Head Start program (Zigler & Styfco, 2003). These child-focused initiatives aimed to prepare children to succeed academically, physically, and emotionally (Kalifeh, 2011; Vinovskis, 2005). Early preschool programs, like Head Start, recognized that early education should not only focus on academic success of young children, but also incorporate all aspects of child development, including appropriate social-emotional skills.

The programs proposed during the "War on Poverty" era not only highlighted the academic and cognitive concerns for economically and intellectually disadvantaged children, but also emphasized the importance of providing services that focused on social and psychological growth vital for success. Until the 1960s early childhood education services that had been provided by the government had been low in quality and had not shown to be effective. In the 1960s, the Childhood Development Task Force, comprised of child development experts, produced an in-depth examination of the existing literature on the effectiveness of preschool programming and research base regarding child development. The task force was highly critical of the low quality services that were

being provided and of claims that the early childhood programming produced large academic gains for young children, as the previous studies were severely flawed (Vinovskis, 2005). The panel provided recommendations specifically for the improvement of early childhood education initiatives that were proposed at the time. Though the task force supported early childhood initiatives, it did not support what they believed was the little help the government provided in assistance and guidance in the development and implementation of these programs. This critical evaluation of the preschool programming at the time led to important changes in the delivery of preschool programs and solidified the whole-child approach, focusing not only on academics but also on wellness and social-emotional development. Leading to an important change in the way school readiness was defined.

What is School Readiness?

The concept of school readiness encompasses many different skills that preschool age children need to master to be successful in kindergarten and beyond. Typically, school readiness is considered to be mastery of pre-academic skills (i.e., knowledge of letters, numbers, shapes, basic numerical skills, and early literacy skills). However, social emotional development including skills such as social skills, emotional knowledge and control, and behavioral control is also considered an integral part of school readiness (Mehaffie & Fraser, 2007). National groups, such as the National Education Goals Panel and Head Start, have established widely adopted definitions of school readiness.

National Education Goals Panel

The National Education Goals Panel (NEGP) developed goals that addressed the need for the improved quality of education in the United States. The NEGP developed

eight specific goals regarding education including: school readiness, completion, student achievement, teacher education, goals specific to mathematics and science, adult literacy, safe schools, and parental participation (NEGP, 1991). Specific to school readiness, NEGP initiated Ready to Learn that stated by the year 2000, preschool children would start school ready to learn. The NEGP (1991, 1998) provided three basic objectives for the definition of School Readiness: (a) children will have access to high quality preschool programs, (b) parents and teachers will assist in the child's learning, and (c) nutrition, physical activity, and healthcare will be provided. The NEGP's School Readiness goals address the need for high quality preschool, as well as parent and teacher engagement in children's learning. However, the goals do not specifically address social-emotional development that contributes highly to school readiness.

Head Start

As with the NEGP, the Office of Head Start (OHS) has also created standards for school readiness. Head Start defines school readiness as, “children are ready for school, families are ready to support their children’s learning, and schools are ready for children” (Administration on Children, Youth, and Families, Office of Head Start, 2011). Head Start programs are required to establish school readiness goals with recommended goals outlined by the OHS’s National Center on Quality Teaching and Learning (NCQTL). Specifically, the OHS outlines five domains of school readiness including: (a) language and literacy, (b) approaches to learning, (c) cognitive development and general knowledge, (d) physical and motor development, and (e) social-emotional learning. Based on the goals, individual Head Start programs must develop goals which address “the expectations of children's status and progress across domains of language and

literacy development, cognition and general knowledge, approaches to learning, physical health and well-being and motor development, and social and emotional development that will improve readiness for kindergarten goals" (Head Start Performance Standards, 2011). These goals must address the steps to achieving appropriate development and programs are required to document the ways in which children are meeting the individual agencies school readiness standards.

Social-emotional School Readiness Skills

There are many definitions of school readiness that are used nationally, and locally by individual programs, though the many definitions are similar in what they address. School readiness encompasses many age-appropriate skills that are needed to be successful at the start of school and beyond, such as early academic achievement, motor development, language development, as well as social-emotional development. Lin et al. (2003) examined teachers' perceptions of school readiness through kindergarten teacher survey data from the Early Childhood Longitudinal Study- Kindergarten Cohort (ECLS-K). Results found that teachers were most concerned with the social-emotional aspect of school readiness more so than concerns of academic school readiness. In fact, only 21.4% of teachers report that children knowing most of the alphabet was very important and essential to school readiness; however, 83.9% of teachers rated emotional expression as important for school readiness, and 78.6% of teachers rated behavioral control as essential and very important to school readiness (Lin et al., 2003). Of the questions related to academic school readiness (e.g., color and shape knowledge, alphabetic awareness, and numerical awareness), between 14.2 and 32.3% of the teachers rated those skills as very important and essential. The study highlights the fact that it is

important to teachers and vital for children to enter into school behaviorally, socially, and emotionally prepared to follow the rules and routines of the classroom.

Piotrowski, Botsko, and Matthews (2000) conducted a similar study in which parents, preschool teachers, and kindergarten teachers were surveyed on their views of school readiness. Between 65 and 87% of parents rated indicators of academic school readiness (i.e., body part naming, alphabetic awareness, color naming, counting, and understanding comparisons or sizes) as absolutely necessary for school entry. Both preschool and kindergarten teachers, on the other hand, did not rate academic-related school readiness skills as necessary as frequently as parents did, with even fewer kindergarten teachers rating these areas as absolutely necessary (Piotrowski et al., 2000). Teachers endorsed items related to social and emotional development as absolutely necessary for school readiness. Teachers are willing to teach academic skills that children entering into kindergarten may be lacking, but they believe it is essential for these children to enter school with social-emotional skills to be ready to receive this academic information.

Social-emotional Development

Social-emotional development involves the integration of many complex skills that young children typically acquire by the time they reach preschool age. It involves awareness of and ability to identify the child's own emotions as well as other's emotions and perspectives. Social-emotional development also involves the child's ability to regulate his or her emotions appropriately to the situation and make decisions on how to behave in that situation. In addition, young children learn to utilize social skills and their own emotions to keep and maintain friendships (Denham, 2006). These skills are learned

through explicit teaching of emotions (e.g. what it looks like or feels like to have an emotion, how to control one's body when having a strong emotion), through other's reactions to events, and through modeling emotional expression. Social-emotional skills are also influenced by the child's individual cognitive and language development, as well as the quality of relationships with those around him or her (Denham, 2006). Social-emotional skills within the preschool classroom can be seen as a child having the ability to control his or her impulses and sit appropriately during circle time, sharing toys with his or her peers, and standing in a line without hitting a peer near him- or herself. Social-emotional development also includes empathy for other children, including recognizing when others are physically or emotionally hurt, engaging in cooperative play with other children, and problem-solving conflicts with peers.

Social-emotional development is vital for preschool, and school readiness particularly in the earlier years of education, as children need to develop age-appropriate behavioral control in order to learn the pre-academic concepts necessary for school entry. Social-emotional development also fosters age-appropriate peer relations and positive adult-child relationships as well. In a review of literature on social-emotional development, Ranver and Knitzer (2002) noted that children who do not have appropriate social-emotional development, are less likely to have peer and teacher acceptance, receive less instruction, and receive less positive feedback from teachers. Thus, these children evidence long-term difficulties, including academic difficulties, grade retention, delinquency, and high school dropout.

Early Preschool Programs

Beginning in the 1960s, three very important programs were implemented with results that showed immediate and longitudinal gains for children, particularly those from low-income families who attend center-based care. Head Start, the Carolina Abecedarian Project, and the Perry Preschool Project, are three programs that have been extensively evaluated and have shown to contribute greatly to the development of modern center-based care.

Head Start

Head Start began in 1965 as a federal initiative as part of the "War on Poverty" during President Lyndon Johnson's administration. The initiative was sparked by psychologists' interest in early child development coupled with the finding that children made up for nearly half of the poor living in the United States (Rose, 2010; Schweinhart, 2003). The program, planned by a committee of child development experts, was designed to encompass academic and cognitive development, the health and well-being of the whole child (including mental and physical health), and to foster relationships between the family and the community, social responsibility, and self-efficacy for the child and families the program served (Zigler & Styfco, 2003). The Head Start program began as a summer program over a six to eight week period serving over 500,000 children and expanded in 1972 as a school-year early childhood program (Rose, 2010; Zigler & Styfco, 2003).

In order to ensure quality preschool programming, the Head Start Performance Standards were put in place in 1975 and have evolved and adapted since the creation of the standards. The standards included serving children who had disabilities, increased

accountability and improvement to the quality of the program, and providing education and school readiness standards for preschool children. Head Start Performance Standards aimed to increase literacy skills and prepare children for kindergarten (Kalifeh et al., 2011). Today, the Office of Head Start (OHS) highlights the five areas of school readiness to include: (a) cognition and general knowledge, (b) physical development, (c) social and emotional development, (d) learning approaches, and (e) language and literacy skills as well as English language development for children who speak English as a second language (Administration on Children, Youth, and Families, OHS, 2011). The areas include specific targets for school readiness that are used throughout programming and are areas of focus to prepare children for kindergarten.

The Head Start Impact Study. The effects of Head Start on child development have been researched for decades and continue to be examined, with more than 1,000 studies that have been conducted in primary and secondary analyses; however, the research has been mixed regarding benefits of attending Head Start (Currie 200; Kalifeh et al., 2011), which could be due to a multitude of factors including state differences in standards, teacher education, and the geographic location of the individual programs. In order to determine the effects of Head Start and quality of programming in a large-scale randomized control study, the Head Start Impact Study, conducted by the U.S. Department of Health and Human Services (2010), collected data from 2002 through 2006 on 5,000 randomly assigned children who were either enrolled in Head Start programs or enrolled in other childcare programs without Head Start services. Two cohorts of the treatment group were included in the study, 3-year-olds who were entering into the program and received two years of Head Start experience and 4-year-olds who

were entering the program and received only one year of services. Results of the impact study indicated that two years of experience in Head Start programming contributed to gains in the following skills: vocabulary, language and literacy, emergent writing and motor skills, numerical knowledge as well as behavioral gains with the decrease of hyperactivity and withdrawal. With one year of experience in Head Start programming, children experienced gains primarily in language and literacy skills. Though the study did demonstrate some short-term gains during the preschool years, there were few gains that persisted through kindergarten and first grade. Particularly, the three year-old cohort demonstrated higher vocabulary and oral comprehension skills than the four year-old cohort, though other gains that were shown in preschool were no longer significant in the kindergarten and first grade years.

The Head Start Impact Study also examined the differences in quality between Head Start programs and examined these effects through the third grade (Peck & Bell, 2014). Using the Early Childhood Environment Rating Scale- Revised (ECERS-R; Harms, Clifford, & Cryer, 1998) the Arnett Caregiver Interaction Scale (Arnett, 1989), 19 item teacher reported scale of academic activities, as well as measures of cognitive and academic ability, researchers aimed to understand if there were quantitative differences in quality between Head Start programs, and whether these differences contributed to differences in cognitive, social, emotional, and behavioral development (Peck & Bell, 2014). The Head Start Impact Study defines quality in three dimensions, which include: (a) the physical aspects of the childcare setting, (b) the interactions between teachers and children, and (c) academically-focused activities (Peck & Bell, 2014). Academic activities examples were defined by the researchers as age-appropriate activities such as:

showing and reading a book to the class, storytelling, learning letters and letter sounds, learning new words, counting, learning numbers and playing math games, learning to write one's name (Peck & Bell, 2014).

In the Head Start Impact Study, the researchers defined “high quality” preschools as centers which received a score of 5 or higher on the ECERS-R and cited 5 is a standard at which other studies have used to define as “high quality”, though it should be noted that a rating of 5 is considered to be an “average” rating as indicated by the ECERS-R manual. To determine quality for interactions between teachers and children, researchers combined the interaction items from the ECERS-R with the Arnett and summed the items together. To be considered “high quality” interactions, the composite of the two scores must total at least 6 out of 7. Finally, to be considered “high quality” for exposure, or academic activities, teachers must have reported an average of 6 or higher.

For the three and four year-old cohort, results indicated that for the three year-old cohort, 62% of the Head Start programs across the United States were considered to be high quality and for the four year-old cohort, 73% of the Head Start programs were considered to be high quality as measured by the ECERS-R (Peck & Bell, 2014). In addition, The Head Start Impact Study found few statistically significant differences between high quality programs when examining the three year-old cohort, four year-old cohort, kindergarten year, first grade year, or third grade year. For the three year-old cohort, there was some evidence to suggest that higher exposure to academic activity produced significantly lower performance on letter-word identification and social competence at the end of the kindergarten year. In addition, results indicate significant

decreases in problem behaviors in low exposure to academic activities for the three year-old cohort.

In contrast to the three year-old cohort, high exposure to academic activities contributed to gains in letter-word identification at the end of preschool year and kindergarten year. Low resource quality also contributed to higher gains in math reasoning scores in kindergarten year. However, no other significant differences were noted for the four year-old cohort in the areas of social or behavioral domains. Researchers of the study concluded that differences between high and low quality Head Starts did not produce as many differences for child development as indicated in previous literature, particularly in the domains of academic development, social and emotional development, and problem behaviors.

With the different types of programming for young children, there is also varying degrees in the quality of instruction and environment provided by the Head Start centers. Quality of a center-based childcare program is not solely based on the type of curriculum the center can provide and the amount of resources available to the centers and the families they serve. Instead, quality refers to a number of different characteristics of childcare that have been shown to be effective within the literature to produce positive outcomes for child development within social, emotional and cognitive domains. Head Start, for example, is a federally-funded program with federal regulations stipulating the minimal requirements for quality, though Head Start is managed locally. The Impact Study conducted by the U.S. Department of Health and Human services (2010) found that children enrolled in Head Start classrooms were, on average, exposed to higher quality programs than children who were not enrolled in Head Start classrooms, though

the impact study also showed variability between Head Start programs. Teachers in Head Start were more likely to hold at least a Child Development Associate (CDA) degree and receive more professional development, higher quality literacy and math instruction, better teacher-child ratios, and better ratings on measures of environmental quality such as the Early Childhood Environment Rating Scales-Revised (ECERS-R; Harms, Clifford, & Cryer, 1998) an indicator of quality of preschool programming. Though Head Start programs provide quality childcare overall, there were differences found between these programs. Head Start programs, with about 30% of children enrolled in centers that did not meet at least a good or better quality rating on the ECERS-R (Peck & Bell, 2014). Overall, Head Start programs offer quality preschool programming to low-income children who may otherwise be enrolled in childcare programs that may not offer the same benefits as Head Start offers, including quality instruction, health care benefits, and community resources.

The Carolina Abecedarian Project

Similar to the Head Start program, the Carolina Abecedarian Project was created to investigate the effects of an early childhood program with children from low-income families who were at high risk for developmental delays or school failure (Campbell & Pungello, 2007; Ramey, Collier, Sparling, Loda, Campbell, Ingram, & Finkelstein, 1974). The founders of the Abecedarian Project also wanted to determine whether gains in a preschool program could be continued through elementary school and to determine if early childhood education was sufficient enough to improve academic and cognitive skills in children from low-income families.

The study recruited 111 low-income families between 1972 and 1975 with infants who were randomly assigned to either the preschool treatment group or to a control group, with 57 infants included in the treatment sample, and 54 infants included in the control group (Campbell & Pungello, 2007; Ramey et al., 1974). Overall, the sample was African American families, with single young mothers who had a mean age of 20 and obtained 10 years of schooling on average. The program began when the participants were infants and included a curriculum designed to enhance cognitive, language, and adaptive skills for infants. The program continued from preschool through the children's third year of school. The preschool program included a group-based curriculum that focused on language skills.

The school-age program included 96 of the children who participated in the original recruitment. Groups were re-randomized into four groups, which included children who received a total of 8 years of treatment, children who received treatment only in preschool for 5 years, children who received treatment only in elementary school for three years, and children who were in the control group through all phases of the study. For school-age treatment, children were assigned teachers called Home School Resource Teachers (HST) who assisted families in communication with the children's schools and teachers, and assisted the families by facilitating active participation of parents in their children's education. Families were given activities by the HSTs for the parents and children to complete, which were individualized to each child based on his or her identified academic needs by his or her classroom teacher (Campbell & Pungello, 2007; Ramey et al., 1974).

Overall, the Abecedarian project showed significant benefits for children in the study throughout preschool and elementary school years. Children who received intervention in the preschool years demonstrated higher cognitive gains than children who were included in the control group. These effects were also seen for children who received both preschool and school-age treatment; however, children in the school-age only group did not demonstrate significant gains in cognitive functioning over other groups. Children who participated in all phases of treatment also demonstrated higher academic skills than the other treatment groups (Campbell & Pungello, 2007; Ramey et al., 1974).

High/Scope Perry Preschool Program

The Perry Preschool program began in 1962 in Ypsilanti, Michigan, after examining the state of school-age education in the Ypsilanti Public School district (Weikart, Deloria, Lawser, & Wiegerink, 1970). Weikart, then the Ypsilanti Public School Special Education Director, had examined data from the district and found that the average achievement for the district was well below the national average, and found even worse outcomes for schools that had higher proportions of children from low-income families (Schweinhart, Barnes, Weikart, 1993; Weikart et al., 1970). In addition, almost half of the students in the district were old for their grade by the time they reached the ninth grade and there were significant discrepancies in and achievement rates between schools that were considered to be low-income and schools that were considered to be middle-income, with middle-income schools outperforming low-income schools (Weikart et al. 1970). The realities of the racial and income-based disparities within the district spawned an initiative to target minority, low-income children and to foster academic

success prior to entering school-age education. A prevention program was implemented for children who were considered at that time to be within the "educable retarded range" (Weikart et al., 1970, p.7), meaning children who achieved an IQ within the mentally retarded range, but impaired functioning was mainly due to environmental influences that did not completely impede the child's ability to learn (Weikart et al., 1970).

The study recruited 123 African American, low-income children in the Ypsilanti, Michigan area. The study selected children within what was considered to be borderline educable mentally retarded range (i.e., 70 – 85 range), with a median IQ range of 80 to 86. The study selected children who were from low-income families, had a low IQ, and were without secondary impairments. Fifty-eight children within the study were randomly selected into the treatment group, children who received a preschool education, and 65 children to the control group, those who did not receive treatment (Schweinhart et al., 1993; Weikart et al., 1970).

The Perry Preschool program consisted of treatment within the center and at home. Teachers, who were certified in elementary education, early childhood education, and special education, delivered a curriculum within the classroom daily for 2.5 hours a week in class, with an additional home visit for 1.5 a week. The home sessions were to provide supplemental support to mothers in their children's education and to implement the curriculum in the home environment (Heckman, Moon, Pinto, Savelyev, & Yavitz, 2010; Schweinhart et al., 1993). The curriculum was developed by the staff throughout each wave, or year, of the study. By the fourth year of implementing the program the curriculum that is now known as High/Scope was created. The High/Scope curriculum is based on Piagetian theory and focuses on active learning with child planned, teacher

guided activities on a "Plan-Do-Review" routine (Schweinhart et al., 1993). In this model, children take an active role in their learning and their environment while still having a focus on vital pre-academic skills needed for school entry.

Overall, children who received the preschool programming experienced benefits from the curriculum across the board during preschool and school entry. The preschool group demonstrated a higher mean IQ, higher vocabulary skills, higher academic skills, and better socio-emotional development than the control group (Weikart et al., 1970). Though the differences continued through kindergarten, many of the group differences closed over time and were no longer statistically significant in second grade (Weikart et al., 1970). Although differences in these areas were not established throughout school-age years, the study was still successful in preparing at-risk children to enter into kindergarten with vital skills needed to succeed.

The research group also conducted a study on the impacts of different curriculum that could be used within a preschool setting (Schweinhart & Weikart, 1981). Sixty-eight children were randomly selected to participate in preschool programs with three different instructional techniques (High/Scope, Direct Instruction, and nursery school) to compare the teaching methods (Schweinhart & Weikart, 1997). Those in the treatment group attended a preschool program for 12.5 hours a week for a year as well as home visits with the participants' mothers for 1.5 hours every other week of the intervention (Schweinhart & Weikart, 1981). Using ability and achievement measures, rating scales, interviews with parents and children, and school record reviews, the Perry Preschool Project evaluated the effects of high-quality program and followed the children through 40 years of age. Results of the study reported significant long-term effects for the children who

received early childhood education under the Perry Preschool Project, including academic achievement, high school graduation, and less involvement in criminal activity (Lamy, 2011; Schweinhart & Weikart, 1981). The Perry Preschool Project showed many benefits; however, by elementary school, the groups did not show differences in cognitive ability or achievement. Children in the experiment group exhibited higher cognitive abilities than children enrolled in the control group until the second grade at which time there were no differences (Schweinhart & Weikart, 1981). For the experimental group between the ages of 15 and 23, those who were educated with the High/Scope method or traditional Nursery curriculum showed lower delinquent behavior (Schweinhart & Weikart, 1997).

The Perry Preschool Project, and its Curriculum Comparison study, has shown significant benefits for children who participated well into their adulthood. Follow-up interviews with the participants were conducted over the years, with reported outcomes when the participants were three years old and again at 11, 15, 19, 27, and 40 years of age (Heckman et al., 2010; Schweinhart et al., 1993). Those who participated in the study demonstrated lower delinquency rates and arrests into adulthood, higher school completion, and had earned a higher salary than the control group by age 40 (Heckman et al., 2010; Schweinhart et al., 1993; Schweinhart, Montie, Xiang, Barnett, Belfield, & Nores, 2005).

Head Start, Perry Preschool, and the Abecedarian Project were three key preschool initiatives in the 1960s that built upon the existing knowledge of child development and the importance of education of young children. The programs each had similar results; children in the programs had academic and cognitive gains immediately

following the program compared to children who did not participate in the program. However, across all programs these group differences diminished over time and typically were not significantly significant following first or second grade of elementary school. Though academic gains were not significant over time, it is important to note that social-emotional development was significantly impacted through participation of these programs. Head Start demonstrated fewer behavioral problems demonstrated by participation in the program and the Perry Preschool Project showed more pro-social behavior in adulthood. In the early stages of Head Start, as well as the Abecedarian and Perry Preschool projects, preschool quality was not a factor that was yet measured as in the standards in which quality is measured today. However, the services which were provided in each of the programs were considered to be high-quality compared to the preschool programs which were offered at the time.

Types of Early Childhood Programs

Historically, center-based childcare was provided only in times in which women had to go into the workforce, such as war, or provided to economically-challenged children through government-run or subsidized programs and initiatives, such as Head Start. More recently, more children are entering into center-based childcare settings that offer services to many children. Though programs, such as Head Start, still exist to provide services to disadvantaged children, many other different types of programs are also available to offer enrichment and preparation for school entry, or provide daycare for working families despite economic need or disability.

The three programs mentioned previously (i.e., Head Start, the Carolina Abecedarian Project, and the High/Scope Perry Preschool Project) were modeled

similarly, each with curricula to teach specific academic subjects, as well as planned activities throughout the day; however, not all programs are the same. There are many different center-based early childhood programs that are available from which families to choose, all with varying degrees of academic demand, quality, and staff experience. Each of these qualities, and others, has the potential to affect the social-emotional development, either positively or negatively, of the child who attends these programs and it is important to consider each type of program carefully. Pianta and colleagues (2009) highlight three broad categories of childcare centers available including: childcare centers, Head Start, and pre-kindergarten classrooms associated with public education.

For-profit and Non-profit Childcare

Childcare centers differ vastly in the type of programming they offer. These centers can be for-profit or nonprofit centers in which may or may not include a particular teaching orientation (i.e., Montessori, Reggio Emilia), or may not in many daycare centers. Teachers, or daycare providers, may or may not have early childhood experience or an advanced degree relating to early childhood development or education.

Even within childcare centers, some children may receive full day, half day, or no preschool programming, depending on the age of the child and the resources available to the center (Magnuson, Meyers, Ruhm, Waldfogel, 2004). Regulated childcare can vastly differ in organization from for-profit childcare, which can be home-based, with care by family or nonfamily providers, or can be center-based (Fiene & Wodward-Isler, 2007; Schweinhart, 2003). These centers typically follow state dictated regulations for each type (i.e., home-based and center based) and can apply for accreditation status with an accrediting organization. Funding for these programs can differ by the type, quality, and

sometimes location of the program, and financial responsibility, or tuition, is primarily the responsibility of the family.

Public School Pre-Kindergarten Program

Contrary to childcare, public school prekindergarten programs are more uniform in their programming, though there is still variability by state, as states provide regulation for public education. Pre-kindergarten classrooms prepare children for kindergarten through specific learning goals, curriculum, and structured activities that are most often housed within school districts as an extension down from their kindergarten through 12th grade programming. Some states may provide free or reduced cost of preschool programming for low-income children, and some states (i.e., Florida, Georgia, Massachusetts, New York, Oklahoma, and West Virginia) provide free preschool to all four year old children within the state, also known as universal pre-kindergarten (Epstein & Barnett, 2012; Gormley, Gayer, Phillips, & Dawson, 2005). Pre-kindergarten programs are typically required to be staffed by lead teachers who possess bachelor degrees, unlike most Head Start and daycare programs (Schweinhart, 2003).

Head Start

As previously discussed, Head Start is a federally funded, research evidenced preschool program which provides low-income children, as well as children with disabilities and developmental delays, equal access to a quality education that provides specific standards and evidence-based curriculum (Magnuson et al., 2004). The initiative started as a summer program for preschool children and expanded to programs that provide preschool programming (Kalifeh et al., 2011; Zigler & Styfco, 2003). Head Start provides comprehensive childcare, including health screenings, nutrition, and a quality

childcare program and focuses on the community and families the program serves, incorporating family and community members in their staff and approach to service. Currently, Head Start not only serves children in the preschool years; Early Head Start was started in 1995 and serves families and children from birth to age three. Head Start teachers usually require a minimum of a Child Development Associate (CDA) degree and often include social workers, coordinators, and family service workers (Schweinhart, 2003).

Cognitive, Social, and Behavioral Outcomes of Preschool

Childcare is not just a resource for working families to provide care, many programs are focused on school readiness skills that will prepare the children for kindergarten and beyond. School readiness encompasses many different aspects that are essential to the preparation for kindergarten including social and emotional skills, language and literacy skills, as well as general knowledge, motor skills, and behavioral inhibition. An examination of the existing literature on the cognitive, social, and behavioral outcomes of attending preschool is needed to determine if preschool is truly effective in fostering school readiness skills in preschool aged children.

Welsh and colleagues (2010) examined cognitive and school readiness gains in low-income preschool children who attended Head Start classrooms. The effects of these gains were also examined in relation to the children's math and reading ability in the kindergarten year. Results of the study indicated that children's working memory and attention control significantly predicted literacy and numeracy skills during the preschool year, also making gains in math and reading skills during the kindergarten year.

The NICHD Study of Early Child Care and Youth Development (SECCYD) study was developed to study child development in relation to childcare through two theoretical frameworks: (a) Bronfenbrenner's ecological framework (Bronfenbrenner, 1986) and (b) life course theory (Elder, 1998). Bronfenbrenner's ecological framework considers both proximal (family unit) and distal (policy making) variables that affect child development while the life course theory focuses on the timing of events in children's lives (Bronfenbrenner, 1986; Elder, 1998; NICHD, 2005). The SECCYD began collecting data in 1991 and included 1,364 children and families across the United States from birth and continue to collect data on the children into their adolescence (NICHD, 2005). The comprehensive study aimed to understand the effects of childcare on many aspects of child development (emotional, social, and cognitive), including all types of childcare arrangements which were considered to be non-maternal (i.e., paternal care, relative, and non-relative care which could have been provided in home or center-based childcare; NICHD, 2005). Data were collected through formal assessments, observations, and home and childcare visits (NICHD, 2005). Additional characteristics of the childcare were collected, including the hours spent in childcare, characteristics of those providing childcare and evaluation of the childcare environment. Overall, the study indicated that quality of childcare was important for children's development in school readiness skills, language, and reducing behavior problems, especially when center-based care achieved more quality standards that were met. During the preschool years, however, the amount of time spent in childcare resulted in more reported behavior problems (NICHD, 2005). Despite this evidence, research has continually shown lasting and favorable benefits for

young children to attend high-quality preschool programming, including social, emotional, and behavioral improvements.

A study conducted by Peisner-Feinberg and colleagues (2001) found long-term effects of quality center-based care through second grade were shown in the domains of receptive language, math, cognitive and attention, problem behaviors, and sociability. Peisner-Feinberg and colleagues (2001) conducted a longitudinal study of 733 preschool children, examining the relationship of the quality of their childcare and cognitive and social development in second grade. The study included formal observation methods of the childcare, kindergarten, and second grade classroom, ratings of closeness with the children, quality of the interaction, responsiveness, teaching style, and ratings of the child's behavior and the teacher's relationship with the child was completed by the teachers. Researchers evaluated receptive language using the Picture Vocabulary Test - Revised (PPVT-R; Dunn & Dunn, 1981), and reading and math skills using the Woodcock-Johnson Tests of Achievement-Revised (WJ-R) (Woodcock & Johnson, 1990) each year of the study.

Descriptive analyses of the quality of childcare during the preschool years and through second grade indicated that children were attending childcare centers and schools that were, on average, medium quality centers, meeting the basic needs of the children. Additionally, the teachers throughout the study were sensitive and responsive to the children, as well as used a child-centered approach to teaching. Results of the longitudinal analysis showed that children who attended childcare centers that incorporated high quality teaching practices had higher language and math abilities, though reading ability was not shown to be related to child-care quality measures. Using

similar measures as the study conducted by Peisner-Feinberg and colleagues (2001) to assess the quality of childcare and cognitive and social development, Votruba-Drzal and colleagues (2004) found no relationships between quality of childcare and math and reading skills.

Similarly, Burchinal and colleagues (2010) analyzed data collected on 1129 children from the National Center for Early Development and Learning's (NCEDL) Multi-State study of Pre-Kindergarten and the NCELF-NIEER State-Wide Early Education Programs Study (SWEEP Study) to determine how childcare quality impacts low-income children. The children were enrolled in public prekindergarten classrooms, some of which were also Head Start classrooms. In order to measure classroom quality, researchers used the Classroom Assessment Scoring System (Class; Pianta, La Paro, & Hamre, 2004) that measures both the quality of the interaction with the children and the quality of the instruction and emotional support provided. Children in the study were administered the PPVT-III (Dunn & Dunn, 1997) and the Oral and Written Language Scales (OWLS; Carrow-Woolfolk, 1995) to assess the children's vocabulary and language level. The children from the SWEEP study was also administered the Letter-Word Identification subtest of the Woodcock-Johnson (WJ) Psycho-Educational Battery (Woodcock, McGrew, & Mather, 2001). Math achievement was measured using the Applied Problems for both groups using the WJ. In order to measure social skills and the child's behavioral functioning, teachers completed the Teacher-Child Rating Scale (TCRS) in the fall and spring (Hightower et al., 1986).

Results were consistent with previous studies indicating that higher quality relationships between teachers and students in high quality classrooms predicted better

social skills and fewer reported behavior problems. Additionally, results showed that quality predicted math and reading skills more so than low-quality classrooms. However, overall instructional quality predicted higher vocabulary skills more so than math and reading abilities. Therefore, teachers who were more effective at teaching also provided most gains in pre-academic areas.

Research has indicated both positive and negative effects of attending center-based childcare. There is evidence to suggest that attendance at high-quality preschools have given children cognitive, academic, and social gains which have lasted through elementary school years. There are also studies which have shown that preschool attendance has increased problem behaviors, and others have indicated that problematic behaviors only increase in certain situations as in low-quality interactions with caregivers or teachers. However, the existing literature has illustrated that high-quality programs greatly benefit young children in cognitive, academic, and behavioral domains.

Theoretical Background

Although the basis of preschool education comes from a multitude of theories, Urie Brofenbrenner's ecological model of human development drives the quality of preschool education in relation to its influence on social and emotional development. Urie Brofenbrenner organizes the family system in an ecological model, with proximal and distal levels that affect child development at each level. The "ecology of human development" is organized at the microsystem, the mesosystem, the exosystem, and the macrosystem, with the child at the center of the model, or the microsystem (Brofenbrenner, 1979). Within the microsystem, the child interacts with his or her immediate physical environment and engages in relationships that affects the child's

development. The child also actively participates in the mesosystem, which is developed through the connections between the child's microsystems (Bronfenbrenner, 1979). The preschool setting, for example, lies within the mesosystem connecting the child to another setting, other than the home environment, that is directly affecting his or her development. When the child is actively participating in the preschool setting during the day, the preschool becomes another microsystem in the child's ecology of development.

The next level, the exosystem, does not require the child to be actively engaged in the environment; however, the exosystem affects the child's development through the interactions with the child's relationships or other immediate environments (Bronfenbrenner, 1979). For example the child's mother being fired from her job, which is in the exosystem, changes the family's income and dynamics. This in turn affects the child's development as the child may not get as many of his needs met due to the family earning less income or strained relationships between the child's parents. Policies and politics regarding early childhood education also lie within the exosystem and have a pronounced impact the ecology of development. Policy affects the amount of funding early childhood programs receive, the subsidies low-income families receive for early childhood education, quality standards programs must follow, and many other areas that have an impact on child development within the preschool system.

Bronfenbrenner's ecological model of development is important to the study of the impact of quality preschool programming on child development. The ecological model allows one to move away from within-child learning or within-environment influences on the child's learning, and moves toward understanding the nuances of and the connections of the relationships between the child, the environment, the teacher, and peers within the

complex environment of the early childhood setting. The ecological theory of human development also directly addresses and the extensive history and policies related to childcare that have had a great impact on what modern childcare looks like and the changes in child development and learning that has shaped young children and impacted their success entering into school-age education.

Disruptive Behavior Disorders in Preschool Children

Children identified with symptoms of disruptive behavior disorders are often referred for mental health services because of the impact of their behavior at home and within the school environment (Campbell, 2002; Gadow et al., 2001). It is important to understand the impact of the behaviors exhibited in the classroom by children diagnosed with ADHD and ODD as these behaviors can be very disruptive and interrupt the classroom routine and the teacher's ability to teach and manage all of the children's behaviors within the classroom. In addition, the behaviors often displayed by children diagnosed with a disruptive behavior may prevent them from acquiring social-emotional skills that are vital for school readiness. The two most common disruptive behavior disorders that preschool children experience are Oppositional Defiant Disorder (ODD) and Attention Deficit Hyperactivity Disorder (ADHD; Gadow, Sprafkin, & Nolan, 2001).

Attention Deficit/ Hyperactivity Disorder

ADHD has typically been viewed as a disorder that was only prevalent in elementary-aged children; however, there has been recognition of symptoms of ADHD in preschool children. Prevalence rates in children vary and range from approximately 2% (Lavigne et al., 1996) to 6.8% to 15% in a community-based sample (Lavigne, LeBaillu, Hopkins, Gouze, & Binns, 2009). ADHD is a disorder that is marked by persistent

inattention, hyperactivity, and impulsivity that impairs the child's daily functioning, which is differentiated in the DSM-IV-TR by three main subtypes: a) Inattentive type, b) Hyperactive-Impulsive type, and c) Combined type, where children present as both inattentive and hyperactive-impulsive (American Psychiatric Association, 2000). The Diagnostic and Statistical Manual of Mental Disorders (DSM) targets the criteria for ADHD for children older than 6 years of age (American Psychiatric Association, 2000) and it may at times be difficult to distinguish typical, age-appropriate hyperactivity and inattention and clinical problems in young children (Steinhoff et al., 2006). Specifically, to diagnose ADHD in young children, clinicians must use their own judgment to adapt the criteria of the DSM into preschool appropriate statements that apply, yet keep the gist of the DSM criteria (Steinhoff et al., 2006).

Young children with ADHD do not have the adequate attention and behavioral control that is necessary to function within the classroom appropriately without the aid of behavior or pharmacological intervention. McGoey, Eckert, and VanBrakle (2001) found that children diagnosed with ADHD did not engage in as many socially appropriate behaviors and had fewer social skills as rated by teachers and parents. Symptoms of ADHD severely impact the child's functioning within the classroom because the children have difficulty attending to activities, such as ADHD, and completing classroom routines, such as standing in a line, due to their limited attention span and hyperactive behaviors. Children with ADHD may engage in impulsive behaviors as well, which may also include hitting or biting peers or preschool staff.

Oppositional Defiant Disorder

ODD is a disorder marked by a persistent pattern of negative and oppositional behavior such as refusal to comply with adult directives, blames others for their mistakes, is easily angry, annoyed, and spiteful. Prevalence rates for preschool children range from 8% - 17%, but 2 – 3% across the age span (Rockhill, Collett, McClellan, & Speltz, 2006). Children with symptoms of oppositional and defiant behavior may exhibit refusal to complete tasks or follow directions, throw temper tantrums, and at times angry and aggressive outbursts. However, there has been much debate whether children diagnosed with ODD are displaying problematic behavior or age-appropriate oppositional behavior, as children are often experiencing a period of increasing verbal abilities and self-direction (Keenan & Wakschlag, 2002). Symptoms may seem similar to typical development (i.e., temper tantrums and oppositionality towards activities); however, children with ODD are engaging in these behaviors that are causing significant impairments and distress to the child and adults across each of the child's settings.

Social-emotional Outcomes for Children with DBD

Children who are identified as having ADHD or ODD often develop social skills deficits as an outcome of their behaviors. Children diagnosed with a disruptive behavior disorder often have difficulty regulating their emotions, exerting self-control over their impulsive behaviors, and maintaining age-appropriate peer, and sometimes child-teacher, relationships. A study conducted by Campbell (1994) examined social competence in young boys who were identified as having significant externalizing problem behaviors (i.e., hyperactivity, inattention, and impulsivity) in preschool. One hundred and five boys were included in the study and were followed two years after their initial participation in

the research study. The SNAP Questionnaire (Pelham & Bender, 1982) and the Child Behavior Checklist (CBCL; Achenbach & Edelbrock, 1983, 1986) were administered to determine the boys' present symptoms of Attention Deficit/Hyperactivity Disorder (ADHD) and Oppositional Defiant Disorder (ODD). The Social Competence scale of the CBCL, from mother and teacher reports, was also used to determine the child's ability to appropriately engage in social and school activities. A modified version of the Health Resources Inventory (Gesten, 1976) was completed by the boys' mother, father, and teachers as well to measure their social competence. The boys also completed self-report scales of their social abilities using the Harter Pictorial Scale of Perceived Competence and Social Acceptance for Young Children, Preschool Version (Harter & Pike, 1983) and the Child Rating Scale (Hightower, Spinell, & Lotyczweski, 1986). Results of the analysis indicated that the children continued to have high levels of externalizing behaviors at a two-year follow-up. Additionally, boys who engaged in higher levels of problem behaviors were also considered to possess fewer social skills and social competence by both their parents and teachers. Boys who were rated as having the most pervasive behavior problems were also rated as being the least socially competent out of all of the boys included in the study.

As research has shown, children who have externalizing behaviors will continue to struggle throughout their education, leading to academic and continued behavioral difficulties through elementary school and beyond. It is important to target these behaviors early and in a structured, high-quality environment to alleviate or possibly eliminate academic and behavioral difficulties to get children with disruptive behavior disorders ready to succeed in school.

Model Support

There is a vast literature base examining the relationship of attendance of center-based childcare to child development. The supporting literature for the relationships within proposed model is explained below.

Quality Measures and Social-Emotional Development

Quality is assessed in a variety of ways and can be as simple as adhering to state standards, utilizing rating scales to assess the environment of the childcare center, or obtaining accreditation status through state or national accreditation organizations. Various instruments have been developed to assess and obtain an objective indicator of quality. Studies that have examined the quality of center-based care often use the Early Childhood Environment Rating Scale- Revised (ECERS-R; Harms, Clifford, & Cryer, 1998), the Classroom Assessment Scoring System (CLASS; Pianta, La Paro, & Hamre, 2008), or related rating scales to compare the quality of programs and to provide a quantitative description of the quality of the program.

The ECERS-R is a 43 item rating scale which uses a 1 to 7 rating of the childcare environment in seven domains, including hygiene practices within the classroom, the physical environment of the center (i.e., furnishing throughout the center, furnishings and set up of the classroom), opportunities for language development, structure of activities and the program, interaction between staff and children, and resources for parents and staff (Harms, Clifford, & Cryer, 1998; Vandell & Pierce, 2003). A rating of 1 is considered to be inadequate quality, a score of 3 is considered to be a minimally adequate environment, a rating of 5 indicates a good environment, and a rating of 7 indicates an excellent environment. There are several indicators, or criteria, with descriptions that

relate to each of the specific domains. For example, under the Space and Furnishing domains, there are eight indicators which evaluate the quality of the physical environment of the room including: space, natural lighting in the room, child-sized furniture, the arrangement of the room, and gross motor space. These indicators are rated either "yes" or "no" depending on if the indicator is observed starting with the most inadequate qualities. Guidelines are given after all the indicators are rated to determine the overall quality of the specific indicator. However, if any indicator receives a rating of "yes" under the inadequate category, that indicator is automatically scored as a 1, or inadequate. Additional data is also taken on some indicators as well (i.e., number of times children and teachers washed hands, or anecdotal examples of child-teacher interactions; Harms, Clifford, & Cryer, 1998).

Indicators of Quality

One factor that is consistent throughout the literature is that quality of center-based care produces beneficial effects for young children overall. Quality can be measured through many different variables, though Epstein and Barnett (2011) identify several key factors in the assessment of center-based quality: staff experience and education, type of curriculum implemented, teacher and child interactions, physical environment of the center, and program structure, even the amount of monthly fees. These variables alone are not sufficient to assess the quality of the care, but taken together can provide a basis for quality.

Teacher Qualification

The extant literature suggests that highly qualified and experienced teachers are needed to implement high quality childcare. Teachers should at least hold a Child

Development Associate (CDA) degree, but ideally should have a Bachelor's degree with experience or specialization in child development or early childhood education (Epstein & Barnett, 2012). Pre-kindergarten programs typically hire lead teachers with a Bachelor's degree; however, many programs do not require teachers or assistants to hold higher than a high school degree.

Burchinal, Cryer, Clifford, and Howes (2002) conducted a study that examined if teachers with higher education and training contributed to higher quality childcare centers. Using data that was collected in the Cost, Quality, and Child Outcomes in Childcare Centers Study (CQO), 224 infant or toddler classrooms, serving children under 30 months of age, and 418 preschool classrooms, serving children 30 months and older not including school-age children, were included in the study. Observations were conducted within the classroom, as well as questionnaires of demographic information completed by all staff working in the classroom. Demographic information included their income, hours worked, years of experience, and training. Training was classified into four categories including: (a) a bachelor's degree in early childhood education or a related degree, (b) an associate's degree or a CDA, (c) some coursework related to early childhood education, or (d) training workshops or no training. Only 30% of the staff included in the sample possessed a bachelor's degree, while another 30% of staff had some coursework relating to early childhood education. Additionally, researchers collected data whether the classroom teachers and staff received continuing education training (i.e., in-service workshops, community workshops, or professional meetings).

Using the Early Childhood Environment Rating Scale (ECERS; Harms & Clifford, 1980), the Infant-Toddler Environment Rating Scale for infant-toddler

classrooms (ITERS; Harms, Cryer, & Clifford, 1990), and the Caregiver Interaction Scale (CIS; Arnett, 1989), Burchinal et al. (2002) established quality of the classroom through the quality of the environment and the interactions between the caregivers and children in the classroom. The Peabody Picture Vocabulary Test - Revised (PPVT-R, Dunn & Dunn, 1981) was used to measure vocabulary as an indicator of child outcomes. Results indicate that the highest education, bachelor's degree, and continued training indicated higher quality classrooms overall, and children in classrooms that had teachers with a bachelor's degree exhibited higher PPVT scores.

Regulation of Center-based Care

The quality of center-based care can also be determined by the center's participation in an accrediting body to a certain extent. For all center-based childcare, state or federal regulations dictate minimal levels of quality that a center must maintain; however, these regulations are not consistent state by state and these regulations provide basic regulations for centers. State regulations for quality may include staff-child ratios, teacher qualifications and education, physical environment of the center including space and equipment (i.e., play equipment, toys, furniture) regulations, safety plans, programming, and child health. State and national level accrediting organizations provide additional structure to maintain quality programs; for example, the National Association for the Education of Young Children. However, centers are not required to join these organizations or follow these standards that exceed the minimum requirements as set forth by the state. It is estimated that only 10% of center-based childcare settings have membership in some accrediting body (Epstein & Barnett, 2012).

Differences in Childcare Programming

Currently, there is not a large body of literature examining the differences in quality between preschool programs, including Head Start, public prekindergarten programs, and for or non-profit programs. Magnuson, Ruhm, and Waldfogel (2007) conducted a study that examined school readiness skills for preschool children, comparing the effects of different types of preschool programming (i.e., public prekindergarten, preschool, Head Start, and other non-paternal care). Though previous research found that prekindergarten programs are typically higher in quality, the study also found the largest effect size of externalizing behavior and self-control in prekindergarten programs, though academic gains were shown in prekindergarten programs (Magnuson et al., 2007).

Teacher-Child Relationships

Relationships are vital in social-emotional skills as well as success in the classroom. Preschool classrooms, in particular, are focused on fostering positive relationships between children and their peers as well as their teachers. Several studies have demonstrated the significance of teacher-child interaction and relationships for a successful preschool classroom experience and positive social-emotional development.

In terms of social development, Peisner-Feinberg and colleagues (2001) found that social and behavioral outcomes were associated with the relationship with the childcare teacher and was not significantly related to classroom practices and quality of the classroom environment. Teacher-child closeness in the preschool years was significantly correlated with attention and problem behaviors and the relationship predicted significantly predicted higher attention levels and lower problem behaviors

through second grade; however, though closeness was correlated with sociability, the relationship between the teacher and child was only a significant predictor in kindergarten. Similarly, Burchinal and colleagues (2010) found that higher quality relationships between teachers and students in high quality classrooms predicted better social skills and fewer reported behavior problems.

Quality Childcare and Social-Emotional Development

The quality of childcare is very important to not only academic outcomes, but behavioral outcomes as well. High quality preschools which provide enriching emotional support as well as quality instruction has shown gains in social skills and lower reported problem behaviors within the classroom (Burchinal, Vandergrift, Pianta, & Mashburn, 2010). Results of the study conducted by Burchinal and colleagues (2010) indicated that poor emotional support in low-quality classrooms predicted behavior problems in children. Results of the benefits of childcare attendance on social and behavioral outcomes are mixed, with many studies finding relationships between the amount of hours spent in center-based care related to poorer social and behavioral outcomes.

Research has indicated that children of low-income families who spend more hours a week in low quality childcare settings are more likely to display significant externalizing behaviors; however, this is not the case for low-income children who are exposed to high quality care (Votruba-Drzal et al., 2004). Votruba-Drzal and colleagues found that children in high quality care settings displayed lower externalizing and internalizing behaviors as well as elevated social-emotional functioning.

Similarly, Keys and colleagues (2013) examined whether quality significantly impacted preschooler's social skills and behavioral outcomes using data from four

different research databases including the NICHD SECCYD, the Early Childhood Longitudinal Study- Birth Cohort (ECLS-B), National Center for Early Development and Learning (NCEDL), and the Early Head Start study (EHS). Results of the study did not show any significant main effects of the relationship between quality, social skills, and behavioral outcomes. The relationship between quality and behavioral outcomes was also examined and found in the NCEDL data, higher quality had a reverse outcome than expected, with more behavioral problems within the classroom. In contrast, the ECLS-B data showed for children with mothers who had lower educational attainment, children exhibited fewer behavioral problems in higher quality preschool settings. The differences in the findings could be due to the ECLS-B participants being more representative of the national population, or due to slight variations in data collection as each were independent datasets. Overall, however, the study conducted by Keys and colleagues (2013) concluded that the quality of the classroom was related to language and math skills for all children, but had differing effects for children of different backgrounds. The quality of the classroom significantly increased language skills of children who had a mother who obtained at least a Bachelor's level degree. In addition, quality was related to increased social skills for children with lower cognitive skills or who had mothers with a high school education or less. The authors also examined whether preschool attendance had a significant impact on problem behaviors. Results indicated that for the NCEDL dataset, children with mothers who obtained a high school degree or less experienced behavior problems within the quality classroom, while the ECLS-B data indicated that similar children had fewer problem behaviors. However, small effect sizes and nonsignificant effects in the meta-analysis concluded that there was little evidence to

support that quality was significantly related to problem behaviors. The study indicated that the results of the study are reflective of gains experienced in only one year of preschool experience and is not reflective of gains experienced with increased exposure to quality childcare programming. Results of this study support the hypothesis of an accumulated benefit for children who already have supports at home, as reflected by gains in social skills seen in children with highly educated mothers. These conclusions add to the differing results of the literature on the effects of preschool programming on social-emotional development.

Much of the current research conducted on the effects of quality preschool programming has focused primarily on children from families living in poverty and minority children. These studies often find mixed results, and do not show many effects past second grade. Literature has shown, however, there are positive gains throughout the preschool years of attending quality center-based childcare including increases in language and literacy skills, math skills, and social-emotional development. Quality childcare allows children to begin kindergarten possessing vital school readiness skills that facilitate them in starting school with the same, or better, abilities as their peers. Though these studies are vital to understanding the impacts of quality preschool or childcare, the effects of center-based childcare is still unknown for some children, including children with disruptive behavior disorders.

Quality Childcare and Disruptive Behavior Disorders

Attending quality childcare centers, which has shown to increase behavioral and emotional outcomes should also, in theory, provide some benefits for children experiencing behavior disorders. Preschool programs provide daily structure, routines,

and structured peer interactions that are often needed for children with behavior disorders. Future research is greatly needed to provide more information about the benefits for children who experience disruptive behavior disorders. With specific interventions aside, there is little research available on the impact of quality childcare on decreasing the symptomatology of disruptive behavior disorders. Research has been conducted on interventions that can be implemented in the classroom; however, in order to broaden knowledge about the benefits of preschool programming, it is vital to understand the impact of center-based care for all children, even those with disabilities and disorders that may impede their future academic achievement. With research indicating that quality childcare produces gains in emotional, social, and behavioral domain, it seems reasonable to expect that children with disruptive behaviors may also benefit in these areas.

Preschool Expulsion and DBD. Children exhibiting disruptive behaviors become a concern not only because the behaviors interrupt the daily routine of the classroom, but it also puts the child at risk for expulsion or suspension from the preschool setting, which removes the child from educational services that may provide academic benefits for the future. It has been found in one study which surveyed 185 teachers, 39.3% of the teachers have expelled at least one preschool child and 14.7% have suspended at least one preschool child, with a higher percentage of teachers expelling children in profit and nonprofit childcare programs than public, private, or Head Start programs (Gilliam & Shaha, 2006). Results of the study also suggest that the expulsion rate for preschoolers exceeded the state's K-12 expulsion rate by 34 times and exceeded the national rate by 13 times (Gilliam & Shaha, 2006). The study identified that the type of program, the class

size and age-proportion, as well as teacher-related variables including stress and depression was significantly related to preschool expulsion.

Nationally, Gilliam (2005) found that older preschoolers were more likely than younger preschoolers to be expelled from preschool programming. In relation to the type of center, faith-based programs, 18.06% of teachers reported expelling students, while only 6.16 out of 1000 teachers in prekindergarten programs within schools reported expelling students. However, expulsion rates decreased with increasing access to mental health consultation by a professional (Gilliam, 2005). Children who exhibit high levels of disruptive behavior disorders are at risk for suspension and expulsion from their preschool programming, due to their behaviors disrupting the routine, causing added stress to the teacher, and possible unsafe behavior due to the impulsive nature of the disorders (i.e., throwing objects, hitting, kicking, or biting staff or other children). By understanding how preschool affects children with these behaviors, it will help prevent removal from their educational setting.

With specific interventions aside, there is little research available on the impact of quality childcare on decreasing the symptomatology of disruptive behavior disorders (i.e., Attention-Deficit/Hyperactivity Disorder and Oppositional Defiant Disorder). Research has been conducted on interventions that can be implemented in the classroom; however, to broaden knowledge about the benefits of pre-school programming, it is vital to understand the impact of daycare for all children, even those with disabilities and disorders that may impact their future academic achievement. With research indicating that quality childcare produces gains in emotional, social, and behavioral domain, it is not

outside of reason to expect that children with disruptive behaviors may also benefit in these areas.

Proposed Study

The proposed study incorporates the existing literature and knowledge base to examine the effects of childcare programming on the development of social-emotional development. As previously demonstrated, there is extensive literature examining the vast impact of attending center-based childcare on early child development. Most of the literature base focuses on children from disadvantaged backgrounds, limiting the findings to a specific population. However, more children from more affluent families attend center-based childcare than children from lower income families (Child Trends, 2012). In addition, the literature does not include many studies that examine the effects of childcare attendance for children with disabilities.

Specifically, the current study proposes that the quality of the childcare, as well as indicators of quality such as teacher education and experience, will have a substantial effect on the social-emotional development for children who are diagnosed with a disruptive behavior disorder. In addition, there will be differences in quality, as well as the impact on social-emotional development, depending on the type of childcare attended (i.e., Head Start, public prekindergarten preschool, preschool/nursery, etc.). The conceptual model for the study is included in Figure 1.

Chapter III: Methods

Data Source

The following study analyzed data from the Early Childhood Longitudinal Study-Birth Cohort (ECLS-B) database. The ECLS-B is a longitudinal dataset that was sponsored by the National Center of Educational Statistics, Institute of Education Sciences, and the U.S. Department of Education. The participants of the ECLS-B are comprised of approximately 10,700 children born in 2001, which includes a nationally representative sample of the United States population. Data was collected during five waves of the study: when the children were nine months, two years, preschool-age, and during 2006 or 2007 in kindergarten.

The ECLS-B dataset was chosen for this project as it recognizes that school readiness is influenced by a multitude of interactions between child, family, and community factors that precede school entry. These factors include the child's health, socioemotional and intellectual development, family variables, and community influences play an important role in child development and, subsequently, kindergarten readiness. Therefore, data for the ECLS-B was collected from a variety of sources to account for the whole child approach to child development and school readiness.

Sampling Process

A clustered list frame sampling design was used to create the sample of the ECLS-B. Over 14,000 children born in 2001 were contacted for participation in the ECLS-B with registered birth information provided by the National Center for Health Statistics (NCHS). The lists of births were derived from primary sampling units (PSUs) of counties or groups of counties. Children who were born to mothers younger than 15,

deceased, or were adopted after their birth certificate was issued were excluded from the sample. Oversampling of American Indian/Alaskan Native, Chinese, and other Asian/Pacific Islander children as well as children with low birth weight and twins was conducted to ensure a nationally representative sample.

During the first wave of the ECLS-B, direct assessments were conducted with 10,200 of the 10,700 children in the 9-month data collection sample. The second wave included 9,850 participating children and their families, with direct assessments collected on 8,950 of the children who participated in the second wave. The preschool wave consisted of 8,950 parents who participated in the data collection of this wave and 8,750 children participated in direct assessment. During the kindergarten year, 7,705 children participated during the 2006 kindergarten wave of the ECLS-B.

Data Collection

Data for the ECLS-B was collected during five waves of the participating child's life: (a) the 9 month wave, (b) the 2 year wave, (c) the preschool wave, (d) the kindergarten 2006 wave, and (e) the kindergarten 2007 wave. Data was collected through direct child assessments, indirect child assessments, and interviews with parents, including fathers and non-resident fathers for the 9 month and the 2 year wave, caregivers, and teachers. For this project, analyses conducted were collected from data from the preschool and 2006 kindergarten wave. The data that was collected from the preschool wave includes: demographic information of the child and present levels of behavior, center-based childcare provider telephone interviews, direct classroom observations in the center-based childcare center, and kindergarten teacher ratings of social-emotional functioning within the first wave of kindergarten data collection.

During the preschool year data collection, home visits were conducted in which parents were interviewed and direct child assessments were administered. During the home visits, parents were asked to provide information through structured interviews regarding their participating children's developmental milestones, cognitive, physical, and social-emotional development. Parents also provided information regarding family demographics, family structure, available support and resources, parenting practices, childcare arrangements, and additional information regarding the child's experiences in the home, school, and the community. Direct child assessments included measurement of the child's physical characteristics, cognitive development, language and literacy skills, pre-academic skills, evaluation of fine and gross motor skills, and socio-emotional engagement with the child's parents.

Child care phone interviews and child care observations were also collected during the preschool data collection phase with the childcare provider and at the child's daycare or preschool setting. These assessments included information regarding the childcare center, teachers and staff, as well as information regarding the child in the setting. Additionally, observations were conducted to measure the quality of the preschool or daycare classroom, child-teacher ratios, and child-teacher interaction quality.

Participants for Current Study

Of the 10,700 children included in the ECLS-B, the current study analyzed data of 308 preschool children approximately four years of age who participated in the parent interview, caregiver interview, and classroom observation during the Preschool data collection wave. Within the sample, 108 participants were identified by their parents as

having a disruptive behavior disorder, either Attention Deficit/Hyperactivity Disorder and/or Oppositional Defiant Disorder. Information about current diagnosis was reported during parent interviews in which parents were asked if a doctor had ever told them their child had ADHD or ODD. In addition, 178 typically developing peers were chosen at random and included in the as the control. Weighted data indicates that 39,693 children have been diagnosed with ADHD and/or ODD, and 81,906 children without a diagnosis for a total of 121,599 children in total.

Weights

Due to the complex sampling procedures used in the ECLS-B, weights were used in the analysis. Sampling weights in the ECLS-B allow for the generalization of findings from the participants to the population of children. Weights included in the ECLS-B dataset were designed to reduce bias and to adjust for the sampling procedures which were used during participant recruitment. The weights also adjust for non-responses of selected participants and non-responses over time. The present study analyzed parent and teacher data from the kindergarten 2006 phase and the weight, W4R0, accounts for responses in both preschool and kindergarten phases.

Measures

Several direct measures and indirect measures were used for the data collection of the ECLS-B. Specifically for variables relating to childcare quality and child outcomes, interviews of the childcare providers were administered, structured observations were conducted within the preschool classroom, and kindergarten teacher ratings were obtained to determine the social-emotional development of the children in kindergarten.

Parent Interview and Parent Self-Administered Interview

Demographic information about the child and the family was collected during the parent interview and the parent self-administered interview. The mother of the participant typically provided information, however, when the mother was unavailable, the child's father, stepparent, adoptive parent, foster parent, guardian, grandparent, or a relative provided the necessary information. The interview included information regarding the child, the family, the childcare arrangements, and the neighborhood. Questions which may be considered sensitive were administered on a computer which was self-guided by the respondent to ensure privacy when completing the items. Items from the parent interview included in the study are gender, race of the child, diagnosis status, and socioeconomic status of the family

Socioemotional Skills and Behaviors

During the parent interview and the early care and education provider interview, the child's present behavior was measured by the administration of a questionnaire which measures social-emotional development based on the Preschool and Kindergarten Behavior Scales- Second Edition (PKBS-2; Merrell, 2003). The PKBS-2 is a behavior rating scale that is used to rate social skills and problem behaviors of children between the ages of 3 and 6 years of age. A modified and adapted version of the PKBS-2 was created for the use of the ECLS-B and was administered to the child's parents, teachers, and caregivers. The ECLS-B selected sixteen items from the PKBS-2 which had high subtest correlations and measured the constructs of interests including prosocial skills, problem behaviors, and emotional knowledge. Items were also added to the battery from the Social Skills Rating System (SSRS; Gresham & Elliott, 1990). Additional items were

modified or added to measure constructs of interest in the ECLS-B (i.e., approaches to learning and friendship). During the administration of the socioemotional skills and behaviors, respondents were asked to rate the child's behaviors within the last three months on a 5 point scale ranging from very often to never. Reliability ranges from .86 to .92 for the subscales of the PKBS-2 as reported by the authors, though reliability indicators were not reported in the ECLS-B manual as the scale included items from a variety of sources (Merrell, 2003; Snow et al., 2007). As such, an exploratory factor analysis was conducted to determine reliability and validity of the scale.

Early Care and Education Provider (ECEP) Telephone Interview

The ECEP telephone interview is a computer-assisted, structured interview that was administered to the primary childcare provider during the children's preschool year. In order for the childcare provider to be eligible to complete the interview, a preschool parent interview had to first take place and the participating children had to be enrolled in non-parental care for at least one hour per week. During the interview, a computer assisted questionnaire was administered and obtained detailed information about the childcare, such as the type of care provided (center or home-based, for or non-profit, fees, etc.), demographic information about the staff, parental involvement, and the services provided by the center. Also included in the interview is the accreditation status of the program, caregiver experience and education, and use of formal curriculum in the classroom. Caregiver report of social and emotional development, the Socioemotional Skills and Behaviors Questionnaire, was also obtained during the interview.

Child Care Observation (CCO) Instruments

The Child Care Observation (CCO) are direct observations of the childcare setting which includes measures which evaluate both the physical environment of the childcare setting, as well as the interaction between the teacher and child as rated by a trained observer. An ECEP had to be completed in order for a childcare placement to qualify for a Child Care Observation and the director of the center had to agree to the observation. In addition, the participating child had to be enrolled in the childcare for 10 or more hours per week for at least 2.5 hours per day, the care language was provided in English or Spanish, the child did not live in Hawaii or Alaska, and the participating child was not in the American Indian sample.

The full observation was conducted in 3.5 hours which included an observation of staff to children ratio and group size, completion of the Early Childhood Environmental Rating Scale-Revised Edition or the Family Day Care Rating Scale if care was provided in a home-based setting (Harms, Clifford, & Cryer, 1998), completion of the Arnett Caregiver Sensitivity Scale (Arnett, 1989), and an End-of-Visit Rating, which was the evaluator's overall impression of the environment and the interaction between the caregivers and children. A center director questionnaire was also administered which collected information pertaining to the childcare program such as the type of program, demographic information of the children the program served, staff, and the director, as well as the type of parental involvement opportunities the childcare center created. To maintain consistency, the person who consented to the CCO typically completed the ECEP telephone interview and the Arnett Caregiver Sensitivity Scale. If the person was

unable to complete all three, documentation was made as to the reason why, however further observation of the classroom was not completed.

Early Childhood Environment Rating Scale-Revised Edition. To measure the quality of the preschool environment, researchers conducted observations in the preschool settings and completed the Early Childhood Environment Rating Scale-Revised Edition (Harms, Clifford, & Cryer, 1998). The ECERS-R is a 43 item rating scale which uses a 1 to 7 rating of the child care environment for children between the ages of 2.5 and 5. The childcare setting is rated in seven domains, including Total Quality, Space and Furnishings, Personal Care Routines, Language-Reasoning, Activities, Interaction, Parents and Staff, and Program-Structure. A rating of 1 is considered to be inadequate quality, a score of 3 is considered to be a minimally adequate environment, both of which are considered to provide basic health and safety care to children within the center. A rating of 5 indicates a good environment and a rating of 7 indicates an excellent environment, with good to excellent environments providing both basic health and safety needs as well as enriching interactions and activities within the center.

There are several indicators, or criteria, with descriptions that relate to each of the specific domains. For example, under the Space and Furnishing domains, there are eight indicators which evaluate the quality of the physical environment of the room including: space, natural lighting in the room, child-sized furniture, the arrangement of the room, and gross motor space. These indicators are rated either "yes" or "no" depending on whether the indicator is observed beginning with the most inadequate qualities. Guidelines are given after all the indicators are rated to determine the overall quality of

the specific indicator. However, if any indicator receives a rating of "yes" under the inadequate category, that category is automatically scored as a 1, or inadequate.

Additional data is also taken on some indicators as well (i.e., number of times children and teachers washed hands, or anecdotal examples of child-teacher interactions; Harms, Clifford, & Cryer, 1998).

There were six items from the ECERS-R under the Parents and Staff domain that were removed from the data collection by the ECLS-B, as the information from the items were collected in other measures of the ECLS-B, were not observed in the classroom, or did not apply directly to the child and were not pertinent to the study's goals (Snow et al., 2007). The omitted items were approved by the developers of the ECERS-R. The total scale demonstrates an excellent Cronbach's alpha level of 0.95, with subscale Cronbach's alpha levels ranging from 0.83 to .92.

Arnett Caregiver Sensitivity Scale. The Arnett Caregiver Sensitivity Scale (Arnett, 1989), was administered to measure the quality of the caregiver's interactions with the children. Similar to other longitudinal early childhood datasets and following their changes and recommendations, the ECLS-B slightly modified the Caregiver Interaction Scale and renamed the scale to the Arnett Caregiver Sensitivity Scale. The Arnett is a 4-point scale with 26 items which rates the lead teacher or the primary care provider on the interaction with the children within the childcare setting, with ratings ranging from "Not at all" to "Very much". The Arnett rates the relationship in five main areas including: a) Positive Relationships, or the caregiver affection, b) Punitiveness, or harsh discipline methods, c) Detachment, or the caregiver is uninvolved or removed from the activities, d) Permissiveness, or leniency, and e) Prosocial Interaction, or encouraging

sharing among children. Additionally, a Caregiver Interaction Scale total score was created to provide an overall quality score on the interaction between the staff and the children. Ratings could range from 0 to 78, with higher scores reflecting better quality interactions between the children and the teachers.

Following the recommendations of two longitudinal childcare studies, the ECLS-B reworded the items of the Arnett to provide examples and clarifications for the individual items to improve scoring. The reported Cronbach's alpha for the total Arnett composite score was 0.95 with individual composite Cronbach's alpha levels ranging from 0.80 to 0.95.

Outcome Variable

Socioemotional Skills and Behaviors. The social-emotional questions that were created in the preschool wave of data collection were also administered to parents and teachers during the kindergarten wave of the ECLS-B. During the kindergarten wave of the ECLS-B, the questions were adapted from the Preschool and Kindergarten Behavior Scales- Second Edition (Merrell, 2003) to create the Socioemotional Skills and Behaviors. Additional items were modified or added to measure constructs of interest in the ECLS-B (i.e., approaches to learning and friendship). Reliability indicators were not reported in the ECLS-B manual as the scale included items from a variety of sources. As such, an exploratory factor analysis was conducted to determine reliability of the scale.

Research Questions and Hypotheses

The following questions were proposed and the appropriate analyses are described below. However, due to constraints in the data, modifications were made to both the

questions and the statistical analyses which will be explained in the subsequent chapter.

The original research questions include:

1. How much do children vary in their mean social-emotional development scores in the kindergarten year?

b. Hypothesis 1: Children diagnosed with ADHD and/or ODD will have significantly lower social-emotional development than typically developing peers.

2. Does the type of preschool attended (i.e. Head Start, public prekindergarten, for profit/nonprofit) influence the social-emotional development score in kindergarten?

c. Hypothesis 1: Children who attend public prekindergarten programs will experience the highest social-emotional development.

d. Hypothesis 2: Typically developing children attend higher quality childcare centers than children who are diagnosed with a disruptive behavior disorder.

3. Does the type of preschools differ on measures of quality, including ECERS-R composite scores and other measures of quality (i.e. teacher education, teacher experience, teacher-child interaction as measured by the Arnett, accreditation status)?

e. Hypothesis 1: Public prekindergarten programs will have the highest ECERS-R composite scores, teacher education, and teacher-child interaction scores.

f. Hypothesis 2: Head Start programs will have more programs that are accredited and teachers with the most experience teaching.

g. Hypothesis 3: Indicators of quality (i.e., teacher qualification, teacher experience, and accreditation status) contribute to higher ratings on the ECERS-R.

4. Is social-emotional development for children diagnosed with disruptive behavior disorder influenced by the type of preschool attended and quality score as measured by the ECERS-R and other measures of quality (i.e. teacher education, teacher experience, teacher-child interaction, accreditation status)?

- h. Hypothesis 1: Children who attend high quality preschools will experience greater levels of social-emotional development, as indicated by high prosocial and attention ratings, as well as low problematic behavior ratings.
- i. Hypothesis 2: For children with disruptive behavior disorders, quality preschool programs will contribute to greater gains than for typical children.

Data Analysis

To examine the relationships between preschool quality and social-emotional outcomes, analyses using Hierarchical Linear Modeling (HLM; Raudenbush and Bryk, 2002) were proposed. HLM was an appropriate statistical analysis to use, as the data in the ECLS-B is organized hierarchically and data was collected on the child level as well as the childcare center level. HLM is able to analyze data which would otherwise violate the independence assumption, as required to be met in a regression analysis, and HLM would therefore decrease the chance of Type 1 error (Peugh, 2010). HLM is able to compare outcomes of children across and within many different types of childcare settings, as well as taking into consideration the different indicators of quality to predict social-emotional development of children who attended different childcare settings. For this particular study, a two-level HLM was initially proposed. Level-1 units for this analysis are children nested inside the level-2 units, child care programs. The computer

program HLM 7 (Raudenbush & Bryk, 2011) was projected to conduct this portion of the analysis.

HLM Assumptions

HLM is based on a set of assumptions that must be checked to guard against model misspecification and drawing the wrong inferences about the hypothesis tests. These assumptions are highlighted below (Raudenbush & Bryk, 2002):

1. Errors are normally distributed with a mean of 0 and are independent with equal variance across groups.
2. Any level 1 (child-level) predictors that are excluded from the model are independent of included level 1 predictors, with covariances equal to 0.
3. The residual level 2 effects are bivariate normal with variance and covariance.
4. Any level 2 (child care level) predictors that are excluded from the model are independent of other level 2 predictors.
5. The errors of level 1 and level 2 predictors are independent.
6. Predictors at level 1 are uncorrelated with the random effects at level 2, and predictors at level 2 are uncorrelated with random effects at level 1.

Exploratory Factor Analysis

To begin the analysis, an exploratory factor analysis (EFA) of the social-emotional questionnaire must be conducted. The factor structure of the social-emotional questionnaire was not tested within the ECLS-B dataset and reliability statistics were not obtained. During the preschool and kindergarten phases, both the parent and teachers completed a series of questions relating to the child's social-emotional development which was developed and modified from the PKBS-2 with additional questions added to

measure constructs of interest. Within this questionnaire, kindergarten teachers were also asked additional questions above and beyond that of parents to measure academic concepts.

The EFA began with extracting parent and teacher reports of the social-emotional questionnaire data from the preschool wave for participating children. Questions which were inconsistent across respondents and waves were removed from the analysis. The teachers who did not respond to the questionnaire were also removed from the analysis. In total, 22 questions were included in the EFA of the Social Emotional Skills and Behaviors questionnaire. Ten items in the questionnaire were reverse coded to match positively worded items within the questionnaire; these items are included in Table 1. The codes reflect higher scores as more positive indicators.

Table 1

Reverse Coded Items

Reverse Coded Items	
P3 CD080F	CH IS PHYSICALLY AGGRESSIVE
P3 CD080G	CH SEEMS UNHAPPY
P3 CD080J	CH ANGRY
P3 CD080M	CH ACTS IMPULSIVELY
P3 CD080N	CH WORRIES ABOUT THINGS
P3 CD080O	CH IS OVERLY ACTIVE
P3 CD080S	CH HAS TEMPER TANTRUMS
P3 CD080T	CH HAS DIFFICULTY CONCENTRATING
P3 CD080U	CH ANNOYS OTHER CHILDREN
P3 CD080V	CH DESTROYS OTHERS THINGS

The EFA was conducted using an oblique rotation and maximum likelihood extraction method. Coefficients smaller than .40 were suppressed. The EFA was also conducted with both unweighted and weighted data using the W3R0 weight, the appropriate weight for the preschool data phase. The response rate for the questionnaire

of the unweighted analysis included 8,771 participants and 3,866,996 with weights included.

Hierarchical Linear Model

A hierarchical linear model was proposed to examine the effects of preschool attendance on children's social-emotional development. Children's diagnosis category (i.e., ADHD, ODD, or typical peers) will serve as nesting categories. The analysis begins with the examination of the unconditional model and will continue with an examination of the childcare level variables.

Estimation. As a large amount of data is missing within the dataset, a maximum likelihood estimation will be used. Missing data can lead to a decrease of statistical power and increases the likelihood of bias in the estimates (Peng, Harwell, Liou, & Ehman, 2006). Maximum likelihood estimates means and covariances to develop parameter estimates where the likelihood of data reproduction is maximized without imputing new values of the missing data (Peng et al., 2006).

Unconditional (Null) Model. An unconditional model was first conducted to determine the appropriateness of an HLM analysis for the current study. The unconditional model predicts the variability of the scores on the social-emotional assessment without level 1 or level 2 predictors specified (Raudenbush & Bryk, 2002). An unconditional model, or a one-way ANOVA with random effects predicting overall ratings of social-emotional development and will be the baseline model for the subsequent models. The unconditional model begins with the level 1 and level 2 equations:

$$Y_{ij} = \beta_{0j} + r_{ij}$$

$$\beta_{0j} = \gamma_{00} + u_{0j}$$

In these models, Y_{ij} is the score of the assessment of social-emotional development of child i in group j . β_{0j} is the regression intercept of group j , and r_{ij} is the residual error of level 1 variables. The level 2 equation, γ_{00} indicates the grand mean of the social-emotional assessment and u_{0j} represents the random effect of level 2 variables.

The unconditional model is represented by the level 1 and level 2 combined equation:

$$Y_{ij} = \gamma_{00} + u_{0j} + r_{ij}$$

The mean of the social-emotional questionnaire is represented as γ_{00} , the child care level effect is represented by the notation u_{0j} , and the residual effects of the child level factors within the child care level is represented by r_{ij} . For the outcome variable an intraclass correlation (ICC) is computed, which is the proportion of the total variance that is attributed to differences between childcare programs (Raudenbush & Bryk, 2002). A significant ICC will indicate that there are significant differences of the mean on social-emotional development between childcare programs, indicating that HLM analysis is an appropriate method of analyzing the data. The equation for the ICC is represented as:

$$\tau_{00} / (\tau_{00} + \sigma^2)$$

where τ_{00} represents the between group variance and σ^2 represents the within group variance.

Level 2 Models. To examine whether childcare type attendance (i.e. Head Start, public prekindergarten, or for/nonprofit preschool) influences social-emotional development in the kindergarten year, a childcare level model is examined. In addition, a model in which the quality will also be tested to determine whether quality of the preschool will predict social-emotional development scores in the kindergarten year.

Each model is tested to examine the model fit and to examine the individual contribution of each predictor variable on the outcome variable. The full model, with each level 2 predictor variable included, is examined to determine the overall interactions between type and quality of preschool on social emotional development.

Level 2 Equations. To predict whether the type and quality of preschool has a differing impact on social-emotional development across diagnosis category, intercepts- and slopes-as-outcomes models are constructed. This will allow for the examination of how type and quality differ and impact children across the differing diagnosis categories. Each hypothesis is tested, examining each composite of the social-emotional assessment as the dependent variable. The model equations are presented below:

$$\beta_{0j} = \gamma_{00} + u_{0j}$$

$$\beta_{0j} = \gamma_{00} + \gamma_{01} (\text{Type})_j + u_{0j}$$

$$\beta_{1j} = \gamma_{10} + \gamma_{11} (\text{Quality})_j + u_{0j}$$

$$\beta_{2j} = \gamma_{2j}$$

Full Model. Finally, a full HLM model is conducted to examine the combined influence of the type and the quality indicators, including teacher education, experience, teacher-child interaction, and accreditation status of the program, in the preschool year on social-emotional development in kindergarten.

Chapter IV: Results

The current chapter outlines the results of the analyses that were described in chapter three. Initially, hierarchical linear modeling was proposed to determine the relationships between childcare quality and social-emotional development of children with a disruptive behavior disorder (DBD). However, due to constraints in the data, multilevel modeling analyses were unable to be conducted. Therefore, results from multiple regression analyses are described in the present chapter. The following analyses were conducted using IBM SPSS Statistics 22 Package, version 22. The table below highlights the original research questions and modifications that were made due to the changes in the analyses.

Table 2

Modifications to Research Questions

Original Question	Modified Question
<p>Question 1: How much do children vary in their mean social-emotional development scores in the kindergarten year?</p> <p>Hypothesis 1: Children diagnosed with ADHD and/or ODD will have significantly lower social-emotional development than typically developing peers.</p>	<p>Question 1: Do children with a disruptive behavior disorder differ in their mean social-emotional development scores from children without a disruptive behavior disorder?</p> <p>Hypothesis 1: Children diagnosed with ADHD and/or ODD will have significantly lower social-emotional development than typically developing peers.</p> <p>Question 1 was reworded to reflect an independent samples t-test to compare the mean differences between children with a disruptive behavior disorder and children without a disorder. This question was initially proposed to be answered through hierarchical linear modeling.</p>

Table 2 Continued

Original Question	Modified Question
<p>Question 2: Does the type of preschool attended (i.e. Head Start, public prekindergarten, for profit/nonprofit) influence the social-emotional development score in kindergarten?</p> <p>Hypothesis 2: Children who attend public prekindergarten programs will experience the highest social-emotional development.</p> <p>Hypothesis 3: Typically developing children attend higher quality childcare centers than children who are diagnosed with a disruptive behavior disorder.</p>	<p>Question 3: Does the type of childcare center attended (i.e. Head Start, public prekindergarten, preschool/nursery, private, childcare, other) influence the social-emotional development score in kindergarten?</p> <p>Hypothesis 4: Children who attend public prekindergarten programs will experience the highest social-emotional development.</p> <p>The proposed Question 2 was renamed and reordered reflect changes in the analyses. Hypothesis 3 removed as it reflected the same idea as Hypothesis 2. In addition, Question 2 only focuses on the effect of type of program on social-emotional development scores, and not indicators of quality. Therefore, analyses of the proposed Question 2 were adapted to reflect a regression analysis to identify if the type of preschool predicted the composite scores on the Socioemotional Skills and Behaviors Questionnaire.</p>
<p>Question 3: Does the type of preschools differ on measures of quality, including ECERS-R composite scores and other measures of quality (i.e. teacher education, teacher experience, teacher-child interaction as measured by the Arnett, accreditation status)?</p> <p>Hypothesis 4: Public prekindergarten programs will have the highest ECERS-R composite scores, teacher education, and teacher-child interaction scores.</p> <p>Hypothesis 5: Head Start programs will have more programs that are accredited and teachers with the most experience teaching.</p> <p>Hypothesis 6: Indicators of quality (i.e., teacher qualification, teacher experience, and accreditation status) contribute to higher ratings on the ECERS-R.</p>	<p>Question 2: Does the type of preschools differ on measures of quality, including ECERS-R composite scores and other measures of quality (i.e. teacher education, teacher experience, teacher-child interaction as measured by the Arnett)?</p> <p>Hypothesis 2: Public prekindergarten programs will have the highest ECERS-R composite scores, teacher education, and teacher-child interaction scores.</p> <p>Hypothesis 3: Head Start programs will have teachers with the most experience teaching.</p> <p>The proposed Question 3 was renamed and reordered as Question 2 in the final analyses. The following question will be answered using a one-way multivariate ANOVA design in which the types of childcare centers will be compared on their differences on the indicators of quality, including ECERS-R, Arnett scores, teacher qualification and experience. Hypothesis 6 of the original proposal was eliminated from the analysis in question 3. In addition, accreditation status was eliminated as a variable in the analysis due to missing data.</p>

Table 2 Continued

Original Question	Modified Question
<p>Question 4: Is social-emotional development for children diagnosed with disruptive behavior disorder influenced by the type of preschool attended and quality score as measured by the ECERS-R and other measures of quality (i.e. teacher education, teacher experience, teacher-child interaction, accreditation status)?</p> <p>Hypothesis 7: Children who attend high quality preschools will experience greater levels of social-emotional development, as indicated by high prosocial and attention ratings, as well as low problematic behavior ratings.</p> <p>Hypothesis 8: For children with disruptive behavior disorders, quality preschool programs will contribute to greater gains than for typical children.</p>	<p>Question 4 was eliminated from the analysis as this indicates a growth analysis. Due to the nature of the data, additional analyses of this type were unable to be conducted</p>

Descriptive Statistics

For the current study, data from the preschool and kindergarten 2006 phases of the ECLS-B were utilized. The criterion for selecting the sample was determined by including children who were diagnosed with Attention Deficit/Hyperactivity Disorder (ADHD) and/or Oppositional Defiant Disorder (ODD), or children with a disruptive behavior disorder, as well as a random equal sample of children who are not diagnosed with a disruptive behavior disorder. In addition, participants who did not receive an observation of their childcare settings were excluded from the analysis. Weights were applied to the data for analysis and the appropriate sampling weights were determined by the guidelines by the ECLS-B. Due to data constraints, missing data was deleted listwise. Other data imputations were considered, however, due to the large amount of missing data listwise deletion was considered to be the most appropriate for the current study.

The final weighted sample for the main analyses consisted of 20,516 participants with 7,980 female participants and 12,536 males included in the final sample. Of the 20,516 participants, 18,894 participants were either diagnosed with ADHD, ODD, or both. Within the sample, only 2,090 females were reported to have a diagnosis of ADHD or ODD whereas 5,978 males were diagnosed with ADHD and ODD. The ethnicity of the participants included in the sample included: White, Non-Hispanic (n = 11,027), Black or African American, Non-Hispanic (n = 7,009), Hispanic (n = 2,165), More than one race, Non-Hispanic (n = 221). Asian and Native American children were excluded from the sample as there were no children diagnosed with ADHD or ODD.

Table 3

Diagnosis Status by Race

Race	Diagnosis Status		Total
	No Diagnosis	Diagnosis	
White	4848	4557	9405
Black	5710	1299	7009
Hispanic	163	2002	2165
More than 1 race	0	211	211
Total	10721	8069	18790

Note. Totals differ from the analysis due to missing data.

Childcare Characteristics and Quality

Assessment procedures of the ECLS-B included interviews with both parent and childcare teacher, when appropriate (i.e., when the child was enrolled in a childcare program). Although the teachers generally completed a measure of social-emotional functioning and completed a questionnaire regarding information about their own

background and the characteristics of the preschool setting, only a subsample of children who participated in the ECLS-B also participated in an observation of their classroom, which included the completion of the Early Childhood Environment Rating Scale-Revised (ECERS-R; Harms, Clifford, & Cryer, 1998) and the Arnett Caregiver Sensitivity Scale (Arnett, 1989).

Childcare Characteristics. Within the sample, five different types of childcare settings were identified including: public prekindergarten (n = 2,826), private preschool (n = 3,474), childcare (n = 1,417), Head Start (n = 9,879), preschool or nursery (n = 2,778), and childcare centers which were coded as ‘other’ (n = 141).

Table 4

Diagnosis Status by Childcare Type

Type	Diagnosis Status		Total
	No Diagnosis	Diagnosis	
Public Prekindergarten	1089	115	1204
Private	3474	0	3474
Childcare	1417	0	1417
Head Start	2112	7767	9879
Preschool/nursery	2658	120	2778
Other	76	66	142
Total	10826	8068	18894

Note. Totals differ from the analysis due to missing data.

Quality. The total scaled score of the ECERS-R was used for the analysis of the overall quality of the childcare setting. The data was recoded to reflect the scale of the ECERS-R, where scores from 0 – 2.99 were recoded as “inadequate” settings (0), scores from 3 – 4.99 were recoded as “minimal” (1), scores from 5 – 6.99 were considered

“good” (2), and scores of 7 were considered “excellent” (3). Of the children in the sample who received an observation of their preschool classroom, 2786 of children attend a childcare center that was rated as inadequate as indicated by the ECERS-R total score, 6,050 attend a childcare center that was rated minimally meeting the needs of the children, and 11,679 attend a good childcare center. There were no childcare centers within the sample that obtained a score of 7, or “excellent”, for a total score. It should be noted that, in order for a childcare center to receive an overall rating of 7, all of the items under the good and excellent quality indicators for each domain must have been observed in the classroom. Though high quality programs were noted within the dataset (e.g., programs which obtained a score of 5 or above), obtaining a score of 7 is difficult to achieve.

Table 5

Childcare Environmental Quality by Childcare Type

Type	ECERS-R Rating			Total
	Inadequate	Minimally	Good	
Public Prekindergarten	0	186	2640	2826
Private	1303	1043	1128	3474
Childcare	1417	0	0	1417
Head Start	0	3562	6318	9880
Preschool/nursery	0	1185	1593	2778
Other	66	76	0	142
Total	2786	6052	11679	20517

Note. Totals differ from the analysis due to missing data.

In addition to the ECERS-R score, the Arnett Caregiver Sensitivity Scale was included as a measure of childcare quality. The interactions between children and

teachers were rated based on the Arnett Caregiver Sensitivity Scale, which is a 26 item measure on a 4-point Likert scale with a total score which could range from 0 to 78. Overall, results indicate generally positive observed teacher interactions with children, with a mean score of 65.77.

Teacher Characteristics. Teachers answered questions about their teaching experience and education in the Early Care and Education Provider (ECEP) Telephone Interview. For the purposes of the study, variables used in the analysis included total years of education and total years worked in a childcare setting. Data was recoded to reflect a range of years worked in which teachers who reported working zero to five years were recoded as ‘novice’ teachers, those who worked between six to ten years were recoded as ‘beginner’ teachers, teachers who worked 11 to 15 years were coded as ‘intermediate’, and those who worked more than 15 years were coded as ‘experienced’. Overall, most teachers were considered under the ‘beginner’ category, having worked in a childcare center between six to ten years. In addition, most of the teachers in the sample reported having a graduate degree. In the current data, teacher education was coded as having less than a high school education (0), high school degree (1), post high school, no degree (2), associates degree (3), bachelors degree (4), and a graduate degree (5).

Preliminary Statistical Analysis

Exploratory Factor Analysis

Prior to conducting the main statistical analyses, an exploratory factor analysis was conducted to analyze the kindergarten teacher’s ratings of social-emotional functioning. The measure was created by the authors of the ECLS-B by combining items from social skills rating scales (PKBS-2; Merrell, 1996; SSRS, Gresham & Elliot, 1990).

Previous evaluation of the scale was not conducted to determine the factor structure of the new scale, therefore an exploratory factor analysis (EFA) was conducted. Although the items that were included on the Socioemotional Skills and Behaviors were derived from existing questionnaires, an EFA was deemed appropriate to investigate the new relationships between the variables (Pohlmann, 2004). The Socioemotional Skills and Behaviors questionnaire was administered to parents, preschool teachers, and kindergarten teachers. The questionnaire included some items that were not consistent across waves or respondents. Initial data cleaning was conducted to ensure that items included in the analysis were those that were consistent across respondents and across study waves. In total, 21 questions were completed by kindergarten teachers. When taking into consideration questions that were consistent across respondents and waves, a total of 14 questions were included in the initial factor analysis. Each question completed was rated on a 5-point Likert scale. Questions that were negatively worded were reverse coded to reflect positive behaviors receiving higher ratings. Questions that did not load onto a factor were excluded from the final analysis, therefore 10 of the 21 questions completed by kindergarten teachers were included in the factor analysis.

Table 6

Socioemotional Skills and Behaviors Questions

Prosocial Skills (Factor 1)	Problematic Behaviors (Factor 2)	School Readiness (Factor)
Child Comforts Others	Child is Physically Aggressive	Child Pays Attention Well
Child Stands up for Others Rights	Child has Temper Tantrums	Child Keeps Working Until Finished
Child Tries to Understand Others	Child Annoys Other Children	Child Shows Eagerness to Learn Child Works/Plays Independently

A maximum likelihood estimation with an oblique rotation was used to extract the factors from the 10 of 14 questionnaire item. An oblique rotation was used to allow factors that are correlated (Preacher & MacCallum, 2003). The sample was narrowed to include children who were reported to have a disruptive behavior disorder, as well as a control sample. In addition, missing data was eliminated in the exploratory factor analysis through listwise deletion. The EFA analysis included 3,712 respondents in a weighted sample. Factors with eigenvalues above 1.0 were retained (Preacher & MacCallum, 2003). Results were similar to the constructs proposed by the authors of the ECLS-B, indicating that the questionnaire would measure three constructs of prosocial skills, problem behaviors, and school readiness skills (Snow et al., 2009). The Kaiser-Meyer-Olkin measure of sampling adequacy was 0.83, indicating an adequate sample for the analysis. The Bartlett's test of sphericity also indicated that the EFA was appropriate ($\chi^2(45) = 15.087.46, p < .00$). Overall, the three factors that were obtained from the EFA explained 68.72% of the total variance, with the first factor (Prosocial Skills) explaining 40.75% of the variance, and the other factors explaining 16.26% and 11.70% respectively. To be able to compare each respondent's answers in later analyses, each response was saved as regression scores with a mean of 0 and a standard deviation equal to the squared multiple correlation between estimated and true factor values (DiStefani, Zhu, & Mindrila, 2009).

Each scale of the measure revealed excellent internal consistency with the factor 1 (Prosocial Behaviors) resulting in a Cronbach's alpha of 0.89, factor 2 (Problematic Behaviors) had a Cronbach's alpha of 0.81, and factor 3 (School Readiness) resulting in a Cronbach's alpha of 0.87.

Table 7

Communalities for the Exploratory Factor Analysis

Communalities		
	Initial	Extraction
Works/Plays Independently	.390	.508
Keeps Working Until Finished	.436	.594
Shows Eagerness to Learn	.330	.395
Is Physically Aggressive	.482	.744
Annoys Other Children	.491	.599
Pays Attention Well	.247	.299
Stands up for Others Rights	.540	.602
Comforts Others	.682	.799
Tries to Understand Others	.670	.795
Has Temper Tantrums	.282	.341

Extraction Method: Maximum Likelihood.

Table 8

Obliquely Rotated Factor Loadings for 10 Survey Items

Factors	1	2	3
Tries to Understand Others	.908		
Stands up for Others Rights	.719		
Comforts Others	.882		
Has Temper Tantrums		.577	
Is Physically Aggressive		.890	
Annoys Other Children		.676	
Keeps Working Until Finished			.769
Pays Attention Well			.530
Works/Plays Independently			.711
Shows Eagerness to Learn			.561
Eigenvalues	4.075	1.626	1.171
Percentage of total variance	40.754	16.259	11.707
Number of test measures	3	3	4
Alpha level	0.89	0.81	0.87

*Loadings => .40

Main Analyses

Research Question 1

Do children with a disruptive behavior disorder differ in their mean social-emotional development scores from children without a disruptive behavior disorder?

Hypothesis 1. Children diagnosed with ADHD and/or ODD will have significantly lower social-emotional development than typically developing peers.

Results for Question 1

An independent samples t-test was conducted to examine the differences in the mean scores on the Socioemotional Skills and Behaviors Questionnaire completed in the kindergarten year between children who were diagnosed with a disruptive behavior disorder (DBD) and children who were not. An independent samples t-test is used when comparing two groups on a continuous dependent variable, therefore this analysis is considered to be an appropriate analysis of comparing the group means on School Readiness, Problematic Behaviors, and Prosocial Skills. Missing data was deleted listwise from the sample. A total of 9,934 children were included in the analysis with 3,527 children reported to have a DBD and 6,407 children without a DBD. T-test analyses were conducted on all three factors (School Readiness, Problematic Behaviors, and Prosocial Skills). An examination of the test of homogeneity of variances indicated that the assumption was violated for all three factors when examining the weighted data ($p = .00$). However, when sampling weights are applied to the data, the test of homogeneity is rejected and inflates the Chi-square. For unweighted data, the tests of homogeneity of variances indicated that the assumption has been met (Prosocial Skills $p = .39$, Problematic Behaviors $p = .66$, and School Readiness $p = .53$).

On the prosocial skill and school readiness skill constructs, higher scores were reverse coded to reflect poorer developed prosocial skills. As the diagnosis variable was coded so that a higher value reflects a diagnosis of a DBD, a higher mean on these constructs reflect poorer developed skills. The problematic behaviors construct reflects higher scores indicating poor problematic behaviors, with higher values indicating more problematic behaviors in children diagnosed with a DBD. On all variables, children without a diagnosis obtained a mean regression score higher than children without a DBD. Children with a DBD diagnosis ($M = -.11$, $SD = 1.00$) were rated as having higher school readiness skills by their kindergarten teachers than children without a DBD ($M = .14$, $SD = .77$), $t(34282.07) = 13.59$, $p < .00$. The 95% confidence interval for the average rating on the School Readiness scale ranged between .22 and .30. On the Problematic Behaviors scale, children with a DBD diagnosis ($M = .23$, $SD = .69$) were also rated higher than children without a DBD ($M = .27$, $SD = .61$), $t(6490.52) = 2.32$, $p < .05$ with a 95% confidence interval for the average rating on the Problematic Behaviors scale ranged between .00 and .06. On the Prosocial Skills scale, children with a DBD diagnosis ($M = .02$, $SD = 1.27$) were rated higher than children without a DBD ($M = .20$, $SD = .72$), $t(25296.01) = 7.90$, $p < .00$. The 95% confidence interval for the average rating on the Prosocial Skills scale ranged between .14 and .23. The weighted data indicated results contrary to the hypothesis. An analysis of unweighted data indicated no significant differences between children diagnosed with a DBD and those who were not on the three constructs (Prosocial $t(12.20) = -0.42$, $p = 0.69$; Problematic Behaviors $t(11.88) = -0.92$, $p = 0.38$; School Readiness $t(11.06) = 0.73$, $p = 0.48$).

Research Question 2

Does the type of childcare centers attended differ on measures of quality, including ECERS-R composite scores and other measures of quality (i.e. teacher education, teacher experience, and teacher-child interaction as measured by the Arnett)?

Hypothesis 2. Public prekindergarten programs will have the highest ECERS-R composite scores, teacher education, and teacher-child interaction scores.

Hypothesis 3. Head Start programs will have teachers with the most experience teaching.

Results for Question 2.

A one-way multivariate analysis of variance (MANOVA) was conducted to examine whether there are significant differences between the type of childcare centers children attend on indicators of quality, including differences on ECERS-R scores, Arnett, teacher experience and education. It should be noted that these programs are not equally represented in the sample. A Bonferroni correction was used with each ANOVA tested at the 0.0021 level, as 24 comparisons were made (i.e., six types of childcare centers being compared on four indicators of quality). Significant differences were found across all four variables (ECERS-R, Arnett Score, teacher education level, and teacher experience), Wilks $\Lambda = .26$, $F(20, 68011.66) = 1723.01$, $p < .00$. The η^2 based on the Wilks Λ was strong at .28. The ANOVA revealed significant differences found when examining the ECERS-R scores of childcare programs, $F(5, 20509) = 3686.63$, $p < .00$, $\eta^2 = .47$. The ANOVA also revealed significant differences found when examining the Arnett scores of childcare programs, $F(5, 20509) = 844.33$, $p < .00$, $\eta^2 = .17$, the education level of childcare teachers, $F(5, 20509) = 2921.93$, $p < .00$, $\eta^2 = .42$, and the

total years childcare teachers worked, $F(5, 20509) = 1503.70, p < .00, \eta^2 = .27$. Overall, results show significant differences across all study variables of quality. The table below presents the means and standard deviations of all quality variables for each type of childcare center.

Table 9

Descriptive Statistics of Quality Variables

	N	ECERS-R	Arnett	Education Level	Years Worked
		<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)
Public Prekindergarten	2827	1.93 (0.25)	70.37 (5.67)	5.63 (0.48)	1.70 (0.68)
Private	3473	0.95 (0.84)	63.36 (9.31)	3.09 (1.85)	1.27 (0.55)
Childcare	1417	0.00 (0.00)	55.00 (0.00)	4.00 (0.00)	1.00 (0.00)
Head Start	9879	1.64 (0.48)	65.79 (9.81)	4.41 (0.98)	2.62 (1.36)
Preschool/ Nursery	2777	1.57 (0.49)	69.54 (3.44)	5.87 (0.49)	1.61 (0.49)
Other	142	0.54 (0.50)	65.82 (4.50)	3.46 (0.50)	1.46 (0.50)
Total	20515	1.44 (0.72)	65.77 (9.00)	4.52 (1.38)	2.00 (1.19)

The above table indicates that public prekindergarten programs were the closest to approach “good” ratings, recoded as 2, on ECERS-R. On average, the Head Start and preschool/nursery centers met basic needs of children in their centers, or were below meeting their needs as indicated by their ECERS-R scores. However, all of the program types had generally positive interactions with children with mean Arnett scores ranging

from 63.36 to 70.37. Public prekindergarten and preschool/nursery program teachers typically possessed a bachelors, whereas teachers from Head Start programs obtained Associates degrees. Teachers in private programs and ‘other’ programs reported obtaining experience with a post high school education, without an advanced degree. Teachers in Head Start programs report more years of experience with generally six to ten years of experience and Private preschool teachers reporting the least amount of experience. Childcare centers were rated the lowest quality in the sample, however there were only four centers which participated in an observation of a classroom to obtain an ECERS-R score. In the weighted sample, all 1,417 childcare centers fell within the “inadequate” range on the ECER-R, however, unweighted one of three programs were rated as inadequate while the other three programs were rated as minimal quality. The weighted sample of childcare centers also received a lower than average score on the Arnett. However, teachers within these programs achieved at least an Associate’s degree with four years of experience working in a childcare center. Overall, the weighted results supported the hypothesis that, with the exception of teacher experience, prekindergarten programs in public school systems did have higher quality than other programs. Additionally, the second hypothesis was supported in which Head Start teachers had more years of experience teaching.

Research Question 3

Does the type of childcare attended (i.e. Head Start, public prekindergarten, childcare, other) influence the social-emotional development score in kindergarten?

Hypothesis 4. Children who attend public prekindergarten programs will experience the highest social-emotional development.

Results of Question 3

Results of Question 3 were obtained by a multiple regression analysis with a weighted sample size of 9,935 childcare centers. To begin, the model first examined whether the type of preschool attended affected social-emotional development by examining childcare center's significance within a multiple regression model. Five childcare center types were included in the model, including public prekindergarten, private preschool, Head Start, preschool/nursery programs, and 'other'. Next, childcare quality indicators (i.e., ECERS-R, Arnett, and teacher experience and education level) were added into the model. Finally child diagnosis status was added. Childcare centers were used as the reference group within the model.

Multiple regression analyses were conducted on the three domains of social-emotional development (e.g., School Readiness, Problematic Behaviors, and Prosocial Behaviors) to determine which variables (type of childcare center, quality indicators, or diagnosis) predictors of each of the three domains were. For the first model predicting the relationship of childcare programming to prosocial skills. Regression results indicate an overall model which significantly predicts prosocial behavior, $R^2 = 0.61$, $R^2_{adj} = 0.61$, $F(11, 9923) = 1415.95$, $p < .000$. The model accounted for 61% of the variance in prosocial skills. A summary of regression coefficients is presented in Table 10 and Table 11.

Table 10

Model Summary for Predicting Prosocial Skills

Step	<i>R</i>	<i>R</i> ²	<i>R</i> ² _{adj}	ΔR^2	<i>F</i> _{Chg}	<i>p</i>	df1	df2
1. Type	.118	.014	.013	.014	27.850	<.000	5	9928
2. Quality	.778	.605	.605	.592	2974.730	<.000	5	9923
3. Diagnosis	.782	.611	.610	.006	140.299	<.000	1	9922

Note. Childcare centers used as the reference group.

Table 11

Coefficients for Final Model for Predicting Prosocial Skills

	B	β	<i>t</i>	<i>p</i>	Bivariate <i>r</i>	Partial
Public	.650	.039	5.304	.000	.047	.053
Private	1.152	.420	31.172	.000	.035	.299
Head Start	.513	.267	8.218	.000	.051	.082
Preschool/ Nursery	-.225	-.090	-3.587	.000	-.054	-.036
Other	1.299	.118	13.538	.000	-.076	.135
ECERS- Inadequate	-2.968	-1.379	-40.143	.000	.003	-.374
ECERS- Minimal	-1.509	-.657	-47.371	.000	.050	-.429
Arnett	-.203	-1.631	-116.960	.000	-.339	-.761
Education Level	.453	.771	45.995	.000	.061	.419
Years Worked	-.164	-.208	-11.542	.000	-.026	-.115
Diagnosis	-.346	-.173	-11.845	.000	-.092	-.118

Table 11 shows the regression coefficient for the model predicting prosocial skills. Of note, classrooms that were rated as ‘good’ on the ECERS-R did not

significantly contribute to the model and was removed from the model. When examining which variables contribute to higher ratings on prosocial skills, the quality of teacher-child interactions (i.e., Arnett Score) is strongly associated with prosocial skills and is the most related to prosocial skills. The current hypothesis was not supported in the current analysis. Children who attended public prekindergarten were not rated as having the highest prosocial skills compared to children enrolled in childcare settings. In fact, children enrolled in a public prekindergarten, private preschool, Head Start, and centers described as ‘other’ contributed lower scores on prosocial skills. The model indicated that children with a DBD were rated higher on the measure of prosocial skills than children without a DBD.

Next, a regression analysis was conducted to determine the relationship between the classroom, teacher, and child variables for ratings of problematic behaviors. Regression results indicate an overall model which significantly predicts problematic behavior, $R^2 = 0.69$, $R^2_{adj} = 0.69$, $F(11, 9923) = 2078.17$, $p < .000$. The model accounted for 70% of the variance in problematic behaviors. The regression coefficients are presented in Table 12 and Table 13.

Table 12

Model Summary for Predicting Problematic Behaviors

Step	<i>R</i>	R^2	R^2_{adj}	ΔR^2	F_{Chg}	<i>p</i>	df1	df2
4. Type	.449	.202	.202	.202	502.345	<.000	5	9928
5. Quality	.818	.669	.668	.467	2795.654	<.000	5	9923
6. Diagnosis	.835	.697	.697	.029	940.046	<.000	1	9922

Note. Childcare centers used as the reference group.

Table 13

Coefficients for Final Model for Predicting Problematic Behavior

	B	β	<i>t</i>	<i>p</i>	Bivariate <i>r</i>	Partial
Public	-1.399	-.126	-19.465	.000	-.058	-.192
Private	-.913	-.501	-42.121	.000	-.287	-.389
Head Start	-1.311	-1.026	-35.839	.000	-.095	-.339
Preschool/ Nursery	-.740	-.442	-20.094	.000	.054	-.198
Other	-.385	-.052	-6.841	.000	-.003	-.069
ECERS- Inadequate	-2.184	-1.527	-50.376	.000	.080	-.451
ECERS- Minimal	-.384	-.252	-20.568	.000	-.016	-.202
Arnett	-.126	-1.528	-124.236	.000	-.355	-.780
Education Level	.132	.337	22.787	.000	.135	.223
Years Worked	-.125	-.239	-15.025	.000	-.044	-.149
Diagnosis	.525	.394	30.660	.000	-.024	.294

Results of the regression analysis indicated when compared to childcare programs, children in all other programs were rated with lower problematic behaviors. The hypothesis was again not supported in that children in private programs were more strongly related to lower problematic behaviors. In terms of quality indicators, centers with ‘good’ ratings on the ECERS-R were removed from the model. Other indicators of quality such as teacher experience and interaction quality were related to lower problem behaviors. In addition, children with a DBD were rated with having more problematic behavior than children who were not diagnosed with a DBD.

Finally, a regression analysis was conducted to determine the relationship between the independent variables and school readiness. Regression results indicate an overall model which significantly predicts problematic behavior, $R^2 = 0.49$, $R^2_{adj} = 0.49$,

$F(11, 9923) = 855.46, p < .000$. The model accounted for 49% of the variance in school readiness skills. The regression coefficients are presented in Table 14 and 15.

Table 14

Model Summary for Predicting School Readiness

Step	<i>R</i>	<i>R</i> ²	<i>R</i> ² _{adj}	ΔR^2	<i>F</i> _{Chg}	<i>p</i>	df1	df2
7. Type	.334	.111	.111	.111	249.125	<.000	5	9928
8. Quality	.698	.487	.486	.375	1449.617	<.000	5	9923
9. Diagnosis	.698	.487	.486	.000	4.432	<.05	1	9922

Note. Childcare centers used as the reference group.

Table 15

Coefficients for Final Model for Predicting School Readiness

	<i>B</i>	β	<i>t</i>	<i>p</i>	Bivariate <i>r</i>	Partial
Public	.438	.029	3.446	.001	-.044	.035
Private	-.239	-.097	-6.250	.000	.169	-.063
Head Start	.965	.556	14.914	.000	-.245	.148
Preschool/ Nursery	1.718	.756	26.388	.000	.244	.256
Other	-.179	-.018	-1.797	.072	.034	-.018
ECERS- Inadequate	2.742	1.411	35.748	.000	.074	.338
ECERS- Minimal	.906	.437	27.411	.000	-.044	.265
Arnett	.144	1.280	79.897	.000	.224	.626
Education Level Years Worked	-.378	-.712	-36.986	.000	-.099	-.348
Diagnosis	.064	.035	2.105	.035	-.146	.021

Results of the current analysis did not support the hypothesis that children who attended public prekindergarten programs had better social-emotional development. In fact, results indicated that children who attended private programs were rated as having

better school readiness skills compared to children in childcare programs. However, for other indicators of quality, results suggested that teacher experience and education were related to school readiness skills. Consistent with other findings, children with DBD experienced lower school readiness skills than children without a DBD.

Chapter V: Discussion

Childcare quality and its effect on children's social-emotional development had been extensively explored in the literature. However, the current literature does not adequately explore how childcare quality may affect children with disabilities. The delays associated with disabilities in early childhood may have implications on the development of school readiness skills, thus highlighting the importance of targeting not only academic but also social-emotional development prior to school entry. The current chapter details the study's results and provides a discussion in relation to the current literature regarding childcare quality on social-emotional development of young children. In addition, limitations of the study and future directions are also presented in this chapter.

The longitudinal, nationally representative Early Childhood Longitudinal Study-Birth Cohort (ECLS-B) dataset was used for the current study to determine the impact of quality preschool on children's social emotional development. The ECLS-B gathered a vast amount of information on children and their development, including direct and indirect observation measures, as well as information regarding their home, school, and community life. The current study investigated how variables related to quality childcare (i.e., teacher experience, teacher-child relationships, environmental quality, type) influenced children's social-emotional development, especially children who have been diagnosed with a disruptive behavior disorder (DBD). The existing literature base has illustrated the importance of preschool attendance, especially for children who are at-risk for school failure. Research has focused on children who are from disadvantaged backgrounds and typically developing children, but not as much research is available

examining the effects of childcare for children who are at-risk for school failure due to a disability.

Summary of Results

The study utilized data from a nationally representative, longitudinal dataset which collected a multitude of data to understand child development from birth to kindergarten in various different aspects including the home, school, and community environments. The focus of the present study utilized an ecological framework, particularly the early childhood environment, to explore how the environment may influence the development of a child development with a disruptive behavior disorder.

Preliminary Analysis

First an exploratory factor analysis was conducted using the Socioemotional Skills and Behaviors questionnaire that was administered to parents and caregivers. This questionnaire was created by the authors of the ECLS-B by combining questions from the Preschool and Kindergarten Behavior Scales- Second Edition (PKBS-2; Merrell, 2003) and the Social Skills Rating Scale (SSRS; Gresham & Elliot, 1990). A factor analysis was not previously conducted on the measure and it was recommended by the authors of the ECLS-B to do so in later analyses. Results of the factor analysis indicated that the questionnaire resulted in a three factor structure, measuring Prosocial Behavior, Problematic Behavior, and School Readiness skills. The two factors of Problematic and Prosocial Behaviors are similar to the two constructs that are measured by the PKBS-2 , and the final factor is similar to what the authors of the ECLS-B manual hypothesized by adding items to capture ‘approaches to learning’ from the SSRS (Snow et al., 2010). Although no research has been published to date specifically examining the factor

structure of the ECLS-B, one study conducted by Rispoli and colleagues (2013) analyzed the Socioemotional Skills and Behavior questionnaire to determine the factor structure for the specific research study. The study used the parent completed questionnaire in the kindergarten wave to conduct a confirmatory factor analysis (CFA). Though the CFA included slightly different questions in each factor, the CFA retained a similar factor structure with three factors including social competence, externalizing behaviors, and approaches to learning (Rispoli et al., 2013). This also confirms that the factor structure of the current study closely aligns with the intended factor structure as the ECLS-B used items from the PKBS-2, SSRS, and additional items measuring ‘approaches to learning’ to develop the Socioemotional Skills and Behaviors Questionnaires within the ECLS-B.

Research Question 1

The first research question referenced whether children with disruptive behavior disorders significantly differed from similar-aged peers in ratings of social-emotional disorders when rated by teachers in kindergarten. Children with disruptive behavior disorders typically display behaviors that put them at risk for more delayed social-emotional development than typical peers (i.e., inattention, behavioral and emotional dysregulation, non-compliance). Therefore, it would be expected on ratings of social-emotional development, children with a DBD would continue to be rated lower on indicators of social-emotional development in kindergarten when compared to typical peers. Results of the first question posed did not support the hypothesis that children with a DBD were rated lower in the areas of social-emotional development. This could have possibly been due to the way in which the data was measured. Data from large-scale datasets are recommended to be analyzed through sampling weights to address sampling

differences inherent in the data collection of the ECLS-B (Hahs-Vaughn, 2005). Without sampling weights applied to the data, the small sample size did not reflect a meaningful difference across all three measures of social-emotional development. With sampling weights applied to the data, the mean differences between the groups were significantly different, however this could have been due to the increase of individuals included in the analysis due to the sampling weights. Results with the weighted data signified that children with a DBD were rated as having more favorable social-emotional development, though this finding is contrary to the current literature.

Theoretically, it would be expected that children with a DBD in preschool would continue to show lower social-emotional skills than typical peers in kindergarten and beyond. In fact, children who display behaviors typically associated with a disruptive behavior disorder (i.e., inattention, hyperactivity, aggression, difficulty following rules) have poorer social-emotional development entering into kindergarten and, while these behaviors improve through kindergarten and beyond, they do not reach to a level comparable to typical peers (West, Denton, Reaney, 2000). It is hypothesized that the contradictory results were due to the limited sample size. The desired population of children with a disruptive behavior disorder included in the present study was not able to be captured due to constraints on the data which may have had an impact on the results. With a limited sample size of children with a DBD, the nature of the behavioral difficulties observed in children with disruptive behavior disorders may not have been fully reflected within the data. In addition, as the weighted sample increased the population within the study, this amplified the mean differences between the groups to a significant level when the groups may not have been significantly different in their

social-emotional development as rated by kindergarten teachers. Because of the weighted sample size increasing differences between groups, the results should be interpreted with caution.

Research Question 2

To determine if quality childcare programs would have an effect on social-emotional development of children with a DBD, analyses of childcare programs was conducted to determine if meaningful differences existed between childcare programs and indicators of quality within these programs. Existing literature has identified that quality programs are vital in promoting not only future academic success, but also social-emotional development for children (Burchinal et al., 2010; NICHD, 2005; Peisner-Feinberg et al., 2001). However, these advantages were found in some studies to be dependent on the quality of childcare programs (Burchinal et al., 2011; Magnuson et al., 2007). Therefore, analyses were conducted to determine if there were differences between childcare centers (i.e., public prekindergarten, private preschools, childcare programs, Head Start, preschool/nursery programs, and unidentified programs or ‘other’) in overall quality as measured by the ECERS-R, the Arnett, teacher experience, and teacher education. Significant differences were found across all indicators of quality when childcare centers were compared. An examination of mean scores indicated that public prekindergarten received the highest ratings on the ECERS-R, an indicator of the center’s environmental quality, and had the highest rating of teacher-child interactions as rated by the Arnett. In consideration to teacher-related variables of quality, public prekindergarten and preschool/nursery teachers had the highest education with an average of a bachelors degree. Head Start programs possessed the teachers with the highest level

of experience with teachers having an average of six to ten years of experience with the mean education level equivalent to a bachelors degree.

The findings supported the hypothesis that public prekindergarten programs would exhibit the highest quality programs when considering all indicators of quality. Public prekindergarten programs were rated highest on the ECERS-R scores and the Arnett scores, but had equally experienced teachers in the area of teacher education to teachers in preschool/nursery programs. Hypothesis 3 was also supported with teachers having the most experience teaching in Head Start programs.

Though the previous analyses indicated that public prekindergarten and Head Start programs may possess the most indicators of quality, private programs predicted fewer problematic behaviors and better school readiness. Results were contrary to the hypothesis that public prekindergarten programs would predict higher social-emotional development. When considering the level of quality of private programs, these programs on average were rated as approaching 'minimal' environmental quality as rated by the ECERS-R and had the least experienced teachers of all the childcare programs. However, one must examine the different populations attending each of these programs.

Though not directly studied within the current research, each childcare center may have a vastly different population enrolled in its program for a variety of different reasons. Head Start programs, for example, are free preschool programs reserved for children whose family is at or below the poverty level. Children from these families are often at-risk for emotional, behavioral, and academic difficulties that may impede social-emotional functioning due to familial and environmental factors (i.e., socio-economic status, home and community environment). Similarly, public prekindergarten programs

are often only offered to children who are already found eligible for special education services or are at-risk for school failure due to families' financial status, or may run on a "lottery" system as there are not as many options available for all preschool-aged children. Public prekindergarten programs are typically offered as a service through special education service or sometimes offered as state-funded universal preschool. For programs that are offered to all children, these programs may also come at a monthly cost to families as well. Private programs, child care, and nursery programs all operate under state mandated conditions with varying degrees of quality, accreditation, as well as fee structure. However, private school prekindergarten programs are often considered to be the most expensive, with the lowest teacher-child ratio. By their nature and services provided, some childcare programs may serve more children with behavioral difficulties. Private school prekindergarten programs may not have these services or have fewer children enrolled who have behavioral needs.

The findings of Question 2 were closely aligned to the previous literature. Public prekindergarten and Head Start programs were hypothesized to have higher standards of quality due to the structure and regulations that these programs often are required to follow. For example, as public prekindergarten programs are often subsumed under the public school system, teachers are required to obtain a minimum standard of education, usually a bachelors degree, which also requires continuous education to retain a teaching license within most states. Similarly, Head Start programs also have mandated quality standards and regulations that are imposed across all Head Start programs to maintain a certain level of quality in the programs nationwide.

Programs with highly qualified teachers play important roles in children's social-emotional and academic functioning. Children who are most at-risk for school failure due to academic and social-emotional delays potentially have access to specific programs with experienced staff (i.e., higher education and years of experience) as in the case of public prekindergarten and Head Start programs. While quality environment, highly qualified staff, and positive adult-child interactions are important, it is equally important that staff is educated on the development, challenges, and effective interventions of children with DBD as well as knowledge of effective classroom management are also vitally important and was not captured within the current data. Research has indicated that classrooms are generally rated through observational measures as able to meet the needs of children through good classroom environment and appear to have good classroom management, most classrooms are not considered to be as high on emotional support and organized to meet the needs of young children (LoCasale-Crouch et al., 2007). As children with DBD can be challenging, having teachers who are emotionally supportive with strong classroom management skills may be more important than possessing a certain degree or certain years of experience.

Research Question 3

Analyses were then conducted to determine if the combined effects of childcare type, quality, and child's diagnostic status could significantly predict social-emotional skills in kindergarten. The model significantly accounted for most of the variance in social-emotional skills for prosocial and problem behaviors. When considering what factor (i.e., which indicator of quality, type of childcare, or diagnosis) is most related to social-emotional skills, teacher-child interactions was most related to prosocial skills and

fewer problem behaviors in kindergarten. In terms of school readiness skills, teacher experience and education were most related to school readiness skills. These relationships have been shown within the literature as well. Several studies have indicated the importance of teacher-child relationships in increasing social-emotional skills (Burchinal et al., 2010; Peisner-Feinberg et al., 2001) while teacher qualifications including years of experience, credentials, and education levels have shown to increase reading and math skills (Early et al., 2006).

To determine whether quality childcare programs have a differential affect for children with a disruptive behavior disorder, additional analyses would have to be conducted. However, it is still important to note that children enrolled in quality programs predict higher social-emotional functioning. Teacher-child interaction quality, in particular, was one indicator that significantly predicted prosocial development and has also been shown in the literature to be an important variable in relation to prosocial skills. Teacher-child interactions are useful in modeling appropriate social skills, demonstrating appropriate conflict resolution and coping strategies, and providing positive interactions that are known to decrease problem behaviors in the classroom. For children with disruptive behavior disorders, positive teacher-child interactions are often recommended for prevention and intervention strategies to use in the classroom to create.

Limitations

One major limitation of the current study was the limitations of the dataset. Due to the constraints on the data due to the data collection within the ECLS-B (i.e., not all participants participated in a classroom observation), one of the original and most pertinent research question was eliminated from the analysis. The current study aimed to

understand whether the social-emotional development of children diagnosed with a DBD was influenced by the type of childcare attended and indicators of quality. In addition, to determine whether children with a DBD improved in social-emotional development from prekindergarten to kindergarten, a growth analysis would be the most appropriate analysis to conduct to answer these research questions. However, few children within the dataset were identified as being diagnosed with a DBD, and even fewer of these children participated in a classroom observation which provided data regarding the quality of their childcare settings. This led to a small sample size in which the statistical analyses most appropriate to investigate the research question was unable to be conducted. While other methods of data analysis may have been more appropriate and was initially proposed (i.e., hierarchical linear modeling), multiple regression was conducted to address the concerns of the data. While the original research aimed to determine whether quality preschool improved social-emotional development for children with disruptive behavior disorders, this was unable to be determined due to restrictions on the data and the data collection of the ECLS-B.

Another limitation of the current study was the inconsistency of the sample size. The dataset included a large amount of missing data, especially within the vital variables for the current study. Each analysis contained a different sample size due to listwise deletion, though it was determined listwise deletion was the most appropriate way to handle missing data.

Although the factor structure closely aligned with what was expected, the data collection method of the ECLS-B should also be explained. Though it was recommended that the PKBS-2 should be used in the design of the study to assess the social-emotional

development of the children (Sussman, Salinger, & Kirschstein, 2003), items were added to the questionnaire to reflect constructs that the authors wished to address. In addition, each item was not consistently administered across respondents and waves of the study. For the purpose of the current project, only questions which were consistent across study phases and respondents (parents and teachers) were included in the analysis. In addition, the factor analysis only included the teacher responses in the preschool wave of the study. The results of the EFA concluded a factor structure similar to what was proposed by the authors, with three factors gleaned from the data measuring prosocial skills, problematic behaviors, and school readiness skills.

Recommendations for Future Research

Due to significant constraints on the data, many of the analyses were unable to be conducted that would have been able to better determine whether children with a disruptive behavior disorder improved in social-emotional development. To better explore whether quality programs provide additional benefits for children with a DBD, future research with improved research designs should examine whether this hypothesis would be supported.

Many of the key variables that were unable to be explored within the current research were the role of child and family-level variables, such as race, socioeconomic status, cognitive ability, and geographic location. These variables have been shown to have a significant impact on a child's success behaviorally and academically in preschool and also have implications for future academic success.

Implications for Practice

The results of the study show the importance of fostering social-emotional development of young children and implications of early development on school entry. Regardless of whether children are diagnosed with a DBD, quality childcare programs with high quality teachers are vital in teaching children skills to increase school readiness. Children with behavioral difficulties, specifically with disruptive behavior disorders, often enter into school unprepared to succeed for many different reasons. Children with an underlying disorder may be further impacted by delayed social-emotional school readiness.

School psychologists are involved in identifying young children who are considered “at risk” for a disability through the Child Find process, a federally mandated process dictated through IDEIA (2004). Though school systems’ Child Find processes are different, each school district has a system in place to identify children at need in some capacity. However, more communication may be needed between childcare programs which may not be directly related to the school system, but still provide services by way of taking care of young children in the community. Because of the vastly different childcare programs within the United States, it is also important for school professionals to have a consultative role when needed with childcare programs to be able to provide professional development and ensure quality service to children and their families when needed.

In terms of children’s behavior, classroom behavior plays a significant role in discipline and educational placement decisions, even at the prekindergarten and kindergarten years. School personnel as well as school psychologists must have a

working knowledge of the unique challenges children with DBDs face in the classroom in relation to discipline and educational placement. Research conducted by Gilliam and Shahar (2006) indicated high rates of preschool expulsions, with much higher national rates of expulsion than kindergarten through 12th grade expulsion rates. Preschool age children typically do not have protections from expulsions, and programs can expel children from their centers for a variety of reasons unlike a school-age public school system. Children with a DBD are at a particular risk for expulsion due to their disruptive behaviors observed in the classroom. Without the proper knowledge of and support through intervention for their behaviors in the classroom by the teachers and staff of the center, children with a DBD may face expulsion. Expulsion does not, however, teach children with DBD ways of developing emotional and behavioral regulation which are skills that children need to be successful in the classroom.

Another issue that schools and school psychologists must consider is the educational placement of children with DBDs, particularly in relation to the issue with kindergarten retention. Children who enter kindergarten with social-emotional delays are often considered for retention as parents and school professionals hope difficult behaviors are a function of “immaturity”, and expect another year of experience in kindergarten would help in gaining self-regulatory skills. There are many factors to consider in relation to the appropriateness of retention in kindergarten, such as children who are very young for grade coupled with delays in pre-academic concepts and social-emotional development. For children diagnosed with a DBD, retention may not be the most appropriate option to address behavioral difficulties within the classroom. This is due to deficits in social-emotional development may still continue despite the additional year of

experience in kindergarten as the nature of their difficulty is due to a disability affecting emotional and behavioral regulation. Therefore, the most appropriate intervention to address the students' needs, based on the literature, may be highly qualified, highly educated teachers who develop strong relationships with the students who also incorporate strong classroom management techniques and integrate behavior intervention strategies.

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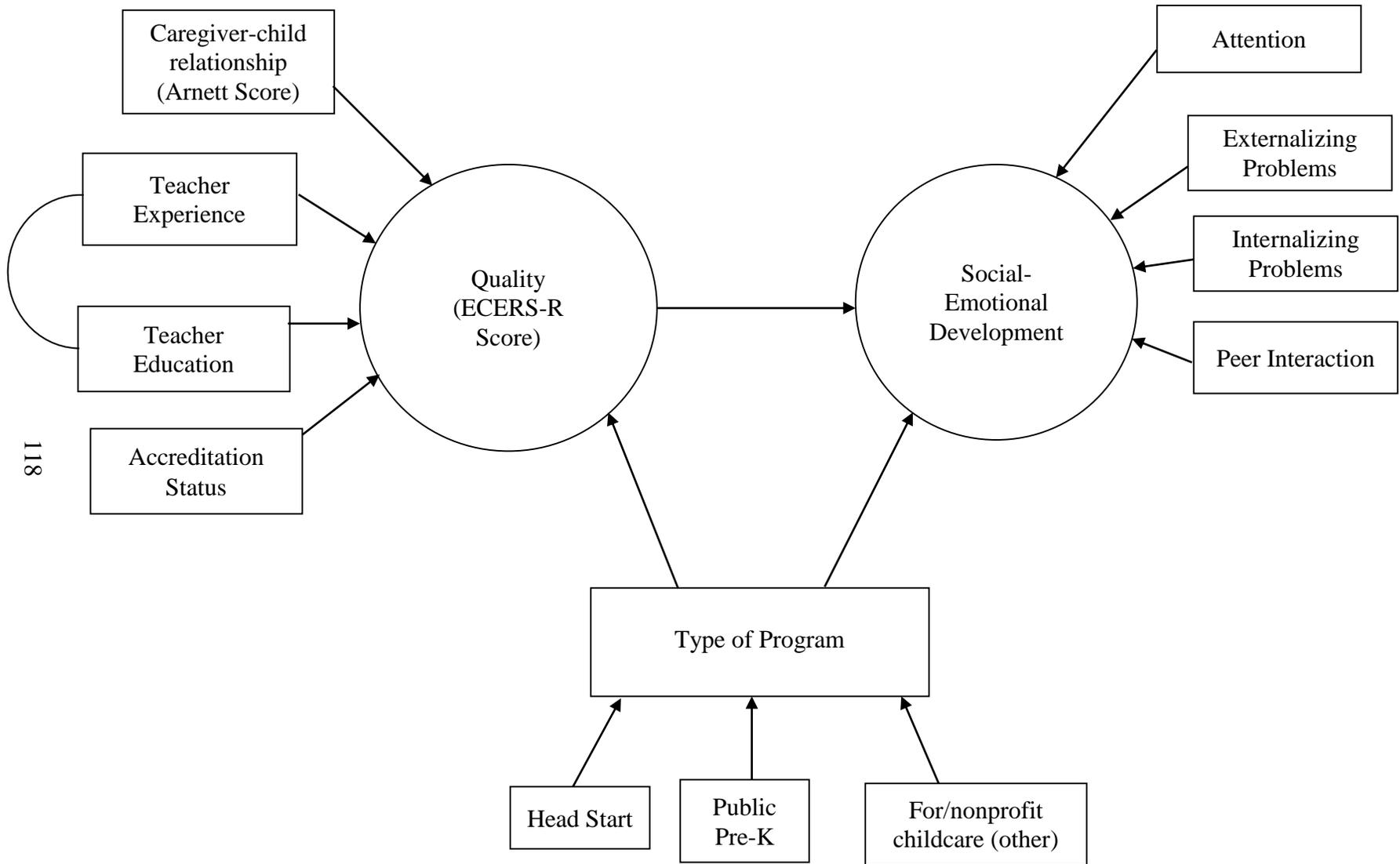


Figure 1. Proposed Conceptual Model