THE IMPACT OF QUALITY INSTRUCTION IN A SCHOOL DISTRICT HEAD START PROGRAM ON KINDERGARTEN STUDENTS' ATTENDANCE RATES AND COGNITIVE AND SOCIAL-EMOTIONAL OUTCOMES

A Dissertation by

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ABSTRACT

The purpose of this study was to observe Head Start classrooms in public schools to examine differences among instructional practices by teaching staff and whether these practices were related to student outcomes in their kindergarten year. The current study differed from and built upon previous classroom observational research in several major ways. First, the kindergarten teachers rated student outcomes in the areas of (a) social/emotional; (b) behavior; (c) attendance and (d) cognitive. Second, authentic Head Start teacher behaviors as measured by the Classroom Assessment Scoring System® (CLASS®) were examined in relation to the child's kindergarten outcomes.

Overall, the results of this study found that children in the Head Start program were not rated significantly different than similar children who were not in Head Start programs. The scores from the classrooms of highly effective teachers in the domain of Emotional Support were found to have significantly higher social/emotional, behavior and cognitive outcomes. The classrooms of highly effective teachers in the Classroom Organization domain were found to have significantly higher student attendance. A between-subjects ANOVA test on students' cognitive outcomes found that there were no significant differences by language or race and no significant interaction among the variables. However, there was a statistical difference ($p = .031$) found for sex. Girls were found to be rated as having higher cognitive outcomes than boys.

Finally, the present study did not find that the Head Start program made a significant difference for kindergarten readiness. This finding is similar to other studies which have found that Head Start does not provide readiness skills necessary for success in kindergarten.

DEDICATION

For my grandchildren…who were all born during this journey…

Penelope Belle

Ellasyn Hannah

Jude Elton

Benjamin Beau

Caraline Kate

Reagan Lee

Ethan Briggs

How I love you each!

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CHAPTER I

INTRODUCTION

One of the critical issues in education is that an achievement gap appears early in a child's life, particularly for children from low socio-economic backgrounds (Dougherty, 2014; Hart & Risley, 1995; Morrisey & Vinopal, 2017; Palardy, 2015; Roos, Wall-Wieler & Lee, 2019). Reasons for the gap are often discussed as being dependent on socioeconomic status and its influence on the learning potential and success of children who exist in situations considered at-risk for effective educational achievement. These children begin their school career with fewer experiences and less language development than their peers, as well as differentials in brain development influenced by a potentially impoverished environment (Brito & Noble, 2014; Ekono, Jiang & Smith, 2016; Hair, Hanson, Wolfe & Pollock, 2015; Jiang, Ekono & Skinner, 2016). Specific early childhood education can be a beneficial intervention for this condition regarding short term cognitive and achievement outcomes (Adesman, Milanaik & Rapoport, 2019; Adesman, Milanaik & Dougherty, 2014; Roos, Wall-Weiler & Lee, 2019). In addition, an appropriately designed intervention can be important for promoting self-regulation and achievement in young children (Schmitt et al, 2015; Washington State Institute for Public Policy, 2014). Interventions and the impact of poverty on education will be addressed in the next sections.

In order to develop beneficial interventions in an efficient timeframe, the consideration of Urie Bronfenbrenner's theories (1974) regarding the interplay of every aspect of a young child's life is critical. Bronfenbrenner stated that all systems surrounding the child influence his/her growth and development. Bronfenbrenner's term, "ecology", refers to the family and school

systems which are of importance early in a child's life. This systematic approach includes multiple facets of the child's life and mirrors the well-established philosophy of Head Start's "whole child/whole family" approach. This whole child approach encompasses the physical and mental health (including nutrition and behavior), social and emotional skills and cognitive development for the child, including any diagnosis or support for disabilities. Whole family support which includes parent coaching, relationship skills, family engagement, adult literacy/education and job training skills is conducted to prepare the family to adequately support and advocate for their child throughout the years in education.

Specific interventions designed to address all areas of a child's school experience can be expected to make a difference in the outcomes for children in poverty environments. School is the first setting that many children experience outside of the family. Achieving early positive outcomes in school is shown to have potential for future educational endeavors and to set the foundation for appropriate social-emotional growth in this situation (Adesman, Milanaik & Rapoport, 2019; Blair & Raver, 2015; Turney & McLanahan, 2015). While the ecological theory that Bronfenbrenner (1974) stated almost a half century ago continues to influence current child and family studies, there has also been a revision of some of his original thought which also matches the concept of early intervention. Bronfenbrenner and Morris (2006) transitioned the focus from the environment to the interactions of "proximal processes (process, person, context and time)". By adding individualized components to the original theory of ecological systems, intervention is a more comprehensive model and corresponds clearly with the philosophy of Head Start. As one of the creators and early proponents of the whole child-whole family programming in Head Start, Bronfenbrenner's work is important to consider in the investigation of factors influencing the success of young learners.

Student success and quality instruction are components of the drive for accountability that is a current focus in education (Dougherty, 2014; Duncan & Sojourner, 2013; Garcia & Weiss, 2017). Accountability measures for teaching staff focus on both social and academic outcomes (Brotherson, Hektner, Hill, & Saxena, 2015; Morrissey & Vinopal, 2018). beginning in the earliest years of instruction (Palardy, 2015; Yoshikawa et al, 2013). When programmatic results are not positive, the drive for accountability highlights the presence of an "achievement gap" even among the youngest learners (Garcia & Weiss, 2017; Hindman, Wasik & Snell, 2016). The gap, characterized by significant disparity between population groups, tends to create a push for more structure, higher expectations for students and narrower parameters for actual instructional practice. Positive outcomes in the areas evaluated, such as those in the CLASS® domains of Emotional Support, Classroom Organization and Instructional Support, reflect not only individual success by students, but also efficient organization and appropriate instruction by teachers.

The focus of this study is on the outcomes in cognitive abilities, social skills, behavior and attendance for children enrolled in a school district Head Start program. An independent school district (ISD) environment has several characteristics inherent in its design that provide support for early learning opportunities, such as degreed and certified teaching staff, high levels of professional development, and competent and readily available services for identified or suspected disabilities. From the Head Start perspective, wrap-around services required by Head Start Program Performance Standards (HSPPS, 2016), including child physical and mental health and family support options, are standard components of the program. These combined factors are a part of the study as it examines the importance of established teacher strengths in a Head Start classroom and their contribution to positive child outcomes in the kindergarten year. The study

also investigated the effects of a pre-school year spent in an ISD Head Start classroom on the attendance percentage for each child during the Head Start and kindergarten. The results of this study may be beneficial in district decision making and could be important advocacy for the Head Start program nationally and in the state of Texas where one quarter of the Head Start programs are involved with independent school districts.

Children in this study are income eligible for the district Head Start program and as such are considered at-risk for successful educational achievement due to their socio-economic status. The next section addresses the impact of poverty on the education of young children and its influence on the achievement gap which has been shown to exist even prior to school attendance.

Impact of Poverty on Education

Poverty and its related effects in the lives of young children have been documented for decades, yet it remains one of the greatest factors influencing the achievement gap in education. Cascio and Schanzenbach (2014) state that only 50% of children in the lowest ranges of poverty actually attend pre-school of any sort, as compared to at least 75% of four-year-old children in high income situations. Data gathered in the early years of the investigation of the influence of poverty continues to be referenced in multiple studies to illustrate the well-documented negative impact in young children's lives (Adesman, Milanaik & Rapoport, 2019; McGlynn, 2014; Roos, Wall-Wieler & Lee, 2019). Poverty, as well as other related causes of the achievement gap, including family stress and nutritional inadequacy, lead to inadequate preparation for academic success. While poverty and its attendant effects remain of interest to researchers and practitioners, educators often suggest that low-income students need quality early childhood services as well as support for families as educational partners.

The achievement gap that exists among students in grades where standardized tests are administered is quite evident. However, the gap occurs much earlier than the earliest standardized assessment in third grade and implications from the lack of academic success can be found among children much younger (Hart & Risley, 1995; Roos, Wall-Wieler & Lee, 2019). Reasons for the disparity are varied but many accounts suggest that, in addition to the influence of low socio-economic status, other related differences such as language or health may also contribute to deficits by the time children enter kindergarten (Duffee, Kuo & Gitterman, 2017; Lee & Pring, 2016; Schanzeback, 2018; Schmeer & Piperata, 2017). Circumstances causing discrepancies can have serious and cascading implications as the child ages. Entering the educational process less than "school ready" can influence later success in many areas of life from early health or cognitive outcomes to adult issues such as employment and crime (Ahmad & Hamm, 2013; Lee & Pring, 2016; Luby, et al, 2013; Center on the Developing Child, 2016). Long-term effects on both cognitive and academic outcomes for children in poverty have been a matter of research for over 25 years and include both transitional and pervasive timeframes. These studies are reported not just in child development or academic publications but also in a variety of journals in the disciplines of medicine (Barnett, 1998; Hair et al, 2015; Luby et al, 2013), psychology (Blair & Raver, 2015; Hoff, 2013), and economy and policy (Heckman, 2011; Garcia & Weiss, 2017; Schanzebach, 2018). The impact of poverty on the lives of young children is not simply educational, but has overall societal implications as well (Duffee, Kuo & Gitterman, 2016; Schanzebach, 2018).

A discussion of poverty in relation to young children must include definitions of the variety of factors that influence a child's life due to the low-income situation. Cognitive or academic outcomes are not the first place that poverty affects a child. Instead, it is more likely to

be lack of stability or resources, continual or severe stress factors or health and related physical issues that cause early deficiencies (Center on the Developing Child, 2016; Roos, Wall-Wieler & Lee, 2019; Schmeer & Piperata, 2017). The timing of these circumstances is important as well as it has been noted that the earlier the challenges occur in a child's life, the greater or more long lasting is their negative impact (Cascio & Schanzenbach, 2014; Center for the Developing Child, 2016; Lipina, 2016; Perry, 2016; Roy & Raver, 2014). Negative impact is critical in these earliest years because of the effect it can have on the developing brain. Science has shown the importance of positive early experiences for appropriate and productive brain growth during this phase of rapid change. Poverty can be the cause of systemic physical change during critical times of progress (Howard & Reeves, 2013; Center for the Developing Child, 2016). The ability of the brain to develop well depends on the experiences it has and includes social as well as physical cultivation (Center for the Developing Child, 2017; Ekono et al, 2016; Luby et al, 2013; Winer & Thompson, 2016). Poverty can conceal many positive and nurturing components from the young brain with long term implications. External stressors such as environmental toxins or lack of proper nutrition can influence minute elements of the brain's structure. This type of action creates lifelong results (Lipina, 2016). The Annie E. Casey Foundation (2019) lists "percentage of children in poverty" as one of its 10 indicators for child well-being in the United States. Their reports show that poverty is one of the strongest predictors as it can be so wide ranging in scope and influence on a child's life (Chaudry & Wimer, 2016; Schanzebach, 2018).

The actual issue of poverty was defined as "families with incomes too small to even meet their basic needs" (NPR, Lyndon Johnson's War on Poverty, January 8, 2004; Johnson Archives, Inaugural Speech) by President Lyndon Johnson as he instituted the War on Poverty Initiative in the mid 1960's. Today, the definition is tied to economic levels determined by the

federal government and adjusts with the membership of the family. A family of four with an income of $25,750 is considered “poor” according to the 2019 Federal Poverty Guidelines (https://aspe.hhs.gov/poverty-guidelines). Rates of child poverty remain markedly stable from the end of the twentieth century to the present time as described in current research from the National Center for Children in Poverty (NCCP). The NCCP 2018 Fact Sheet (2018) states that 21% of children in the United States live at or below the federal poverty standards. In Texas, this number rises to 26% of children who live at 100% of poverty, while 8% of those children live in “deep poverty” with only 50% of poverty level as income (Child Trends Databank, 2019). Numbers of children under 6 living in low income (200% of federal poverty guidelines) situations or in poverty (100% of federal poverty guidelines) circumstances continue to rise in both categories. Socioeconomic status (SES) is correlated to many variables that exist completely outside the child and those influencing the child must be measured by the family’s status. Elements such as social status, level of power, or economic security are entirely family related but still are carried over to the child’s experience and their presence can clarify the transmission of poverty over the generations (American Psychological Association, n.d.; Winer & Thompson, 2016).

Families in circumstances of poverty often have fewer resources, which can be a factor in the child’s educational success. An often-cited study by Guo and Harris (2000) describes the mediating effects of poverty such as physical environment and involvement with other adults which can contribute to the impact of poverty on young children. Their study determined that while poverty may not influence the intellectual development of the child, it does impact the home environment which then influences the stimulation of the child’s cognitive processes. Children who grow up in homes that do not have the ability to provide either physical resources

(books or games) or intellectual resources (conversations, outings or experiences) fall behind early (Dougherty, 2014; Luby et al, 2013). This lack of resources may co-occur with a lack of protective factors (i.e. caring attachments, self-regulation or appropriate language development) which can then intensify the negative situation (Ayoub et al, 2009). Lower levels of stimulation influenced by fewer emotional connections and less defined social skills may lead to less engagement in the learning environment and thus, less positive outcomes in that setting (Holliday, Cimetta, Cutshaw, Yaden & Marx, 2014).

Socioeconomic status has long been considered an important predictor for cognitive achievement and for language in particular (Hindman, Wasik & Snell, 2016; Hoff, 2013; Lee & Pring, 2016). In a seminal study on language development, Hart and Risley (1995) showed that words were a considerable factor in the preparation of the child for the demands of the academic world and that a child from a family situation of poverty could be at a definite disadvantage at school entry. The amount of language and the kind of language heard influence the skill differences in a child's background. Language can mirror the experiences (or lack thereof) that the child has had since birth and this lack may contribute to the deficits in academic achievement (Hindman, Wasik & Snell, 2016; Hoff, 2013). As detrimental as life circumstances caused by low socio-economic status can be for the early development of a young child, there is a specific opportunity that many children in poverty can access: Head Start. As a federally-funded system of whole childcare and education, the Head Start program offers a positive and constructive system to provide language, social-emotional and experiential advantages for children who are at-risk for educational success. This system and its focus on preparing children for successful experiences in school and in life is described in the following section.

Head Start Programs

As a specific intervention for children at-risk, Head Start has had a variety of successes for over 50 years**.** Created as a program that would address the needs of young children who did not have supports for school success naturally present in their lives, the original mission was then, as it remains today, to prepare them for their kindergarten year to be productive and effective. Federal mandate (Head Start Program Performance Standards, Chapter 1302.12 (c)(2)) requires that Head Start serve at least 90% of its population from poverty level income situations, so to classify the program as one focused on low income children is natural. At its inception in 1965, the only criterion for a Head Start classroom teacher was a General Education Development (GED) certificate; the plan was that the program would serve as a path for parents to become more educated, subsequently employed and to then be a stronger support system for their family. Over time, this requirement was strengthened from a Child Development Associate's certificate in 2011 to the 2013 condition for degreed teachers in at least 50% of the classrooms nationwide (*Statutory Degree and Credentialing Requirements for Head Start Teaching Staff*; ACF-IM-HS-08-12). With these higher expectations for credentials came higher expectations for instructional practice and teacher interactions.

Head Start's internal communication tool, the Information Memorandum, published *The Importance of Teacher-Child Relationships*, in 2008 (ACF-IM-HS-08-21) and gave the research background as well as encouragement for programs to begin to focus on and measure the interactions in the classroom. Following this instruction, Head Start as an entity began to discuss the use of the Classroom Assessment Scoring System® (CLASS®) as a professional development tool and to offer certification for administrators and training for staff for its implementation. The three domains of the tool, Emotional Support, Classroom Organization and Instructional Support, are divided into dimensions to further refine the practices designed for

quality interactions. Finally, the CLASS® instrument became a regular component of the federal monitoring review system in 2011 as well as an element in the determination of a program's status as compliant within that system. Currently, the overall CLASS® results must be above the lowest 10% of nationwide scores from all Head Start grantees for a program to retain its funding.

These gradual steps over time to ensure quality teacher preparation and positive classroom interactions have assisted the Head Start program in its efforts to create school ready opportunities for its participants. School readiness as a concept has taken an important and meaningful role in the work of the program, both nationally and in local grantees. In addition, as part of the federal monitoring protocol, compliance and inclusion are examined throughout all program systems. With school readiness on the forefront and with the CLASS® tool used as a professional development guide, the early intervention potential for Head Start remains of interest to researchers.

However, not all results from formal examination have been positive. Even Head Start funded investigations have shown a lack of continued effect as students move through the grades. (Klein, Aikens, West, Lukashanets, & Tarullo, 2013; U.S. Department of Health and Human Services, Administration of Children and Families, 2010). Results and discussions such as these cause questions to be raised over the effectiveness of the program as a long term solution to the achievement gap. However, the purpose of this study, as will be described in the next section, was to focus on the experiences of the four-year old Head Start child and the factors that can support a positive and productive kindergarten year.

Purpose of the study

School readiness has become an important criterion for student success over the past decade in the field of early childhood and, in particular, Head Start. The term itself is identified

by Head Start as "children possessing the skills, knowledge, and attitudes necessary for success in school and for later learning and life." Reinforcing the idea of whole child preparation, Head Start includes physical, cognitive, social, and emotional development as essential ingredients of school readiness (https://eclkc.ohs.acf.hhs.gov/school-readiness). The Head Start program has been placed in the position to prove its effects and to guarantee its results in the long term in both the political/funding arena (Improving Head Start for School Readiness Act (2007), as well as the educational realm. The Office of Head Start (OHS) created tools, *Family and Child Experiences Survey: FACES* and the *Head Start Early Learning Outcomes Framework*, to examine the work of the program and to illustrate that gains for young children were a measurable result from their participation in the program. In addition, OHS has added measures to ensure that program excellence is supported by quality instruction and effective teacher behaviors by the use of the CLASS® (Information Memorandum ACF-IM-HS-08-11) as a part of the federal review system.

Most of the previous research on preschool Head Start programs has focused on the overall effect of the program on student outcomes as compared to other programs or a comparison of students who did not receive any kind of intervention. There have been very few studies that have focused on quality of instruction strictly within Head Start programs. The present study addresses the quality of instruction provided by Head Start teachers as measured first by the CLASS® instrument and again as a measure of success at the end of the kindergarten year.

The present study also addressed the extent to which quality instruction by experienced and certified teachers in a school district Head Start classroom affects the academic achievement of children as reflected by assessment scores in kindergarten. Because Head Start is a "whole

child" program (CSISD Birth to Five Head Start mission statement), focusing on all aspects of a child's ability to be school ready, differences in attendance and behavior were also examined between children who receive Head Start services and those who, although eligible for the services, remained on the wait list due to lack of space. Kindergarten students with similar demographics but without Head Start experience were compared to those who completed the school district Head Start program.

Research questions

The specific questions addressed for this study centered around evaluation of both teacher and student performance. Each one uses a specific instrument to assess performance and all questions illustrate the effect of quality teacher–student interactions on student performance. In addition, the effectiveness of the Head Start program was evaluated based on kindergarten outcomes. Research questions are:

1. To what extent can more effective and less effective Head Start teachers in an independent school district (ISD) setting be differentiated by Classroom Assessment Scoring System® (CLASS®) scores?

2. Are there significant differences ($p<.05$) on student outcomes between *more effective* and *less effective* Head Start teachers?

3a. Are there significant differences on student outcomes between Head Start and non-Head Start students based on kindergarten assessment scores?

3b. Are there significant differences ($p<.05$) on student outcomes between Head Start and non-Head Start students based on attendance?

3c. Are there significant differences (p<.05) in students' social-emotional outcomes between Head Start and non-Head Start students based on individual teacher surveys after the kindergarten year?

4. Are there significant differences in students' social-emotional outcomes between *more effective* and *less effective* Head Start teachers based on individual kindergarten teacher surveys after the kindergarten year?

5. Are there significant differences (p<.05) in scores on formal screening done at kindergarten entry with the results obtained by teacher report at the end of the kindergarten year?

CHAPTER II

REVIEW OF RESEARCH

This chapter presents a review of research and literature on school success for young children in poverty, specifically addressing school readiness among at risk populations, interventions used with young children and the impact of teacher quality on classroom instructional practices, with a special focus on teacher/child interactions and instructional supports. Articles were accessed chiefly through the library at Texas A&M University with searches initiated using the terms young children, early education, or early childhood. Additional fields included the specific focus topics of school readiness, early intervention and teacher-child interactions with the previously mentioned terms. Parameters for the research selection for this review included studies conducted in the United States, publication in a peer-reviewed journal and publication during or after 2013. Historical information (including some theoretical framework aspects) and studies prior to 2013 are included in the initial paragraphs of each section while the subsequent paragraphs detail commonalities in the specific studies on each topic as well as individualized differences if present. While studies from other countries were available with similar findings, they were not included in this review. The studies are listed alphabetically by author in three tables where the research is summarized to include the purpose, the study sample and methods used, and the overall/significant results.

School Readiness of Young Children in Poverty

As poverty concerns for families have been described to negatively influence the cognitive and social-emotional development of young children, it is important to link this fact to

the issue of school readiness. Although detailed in the field of early education through advocates such as NAEYC and its position statement on school readiness (2009), school readiness came into the national conversation in relation to children in poverty when the 110th Congress passed H.R. 1429, the *Improving Head Start for School Readiness Act of 2007*, also known as the Reauthorization of Head Start Act. School readiness quickly became the nationally expected goal for a 5-year-old child entering kindergarten, yet it is one that is frequently unattained by children in poverty (Winter & Kelley, 2008). Over two decades ago, the National Education Goals Panel (1997) determined five dimensions of school readiness which echo the Head Start Act of 2007 and remain important decades later:

1) physical well-being and motor development;

2) social and emotional development;

3) approaches to learning;

4) language development (including early literacy); and

5) cognition and general knowledge.

These essential indicators of quality learning and care environments are reflected in high level programming and excellent experiences for children. The goals mirror those set by the Office of Head Start (OHS) in the recently updated Early Learning Outcomes Framework (2016) and the revised Program Performance Standards (2016) which focus on the development of the whole child. A position statement which is similar to the expectations in the previously mentioned works is from the National Association for the Education of Young Children (NAEYC). As the premiere organization for early childhood professionals, NAEYC believes in a broad and flexible definition of school readiness that includes all developmental areas and allows for different rates of growth (NAEYC, 2009). In addition, the organization states that it is not

simply child readiness that is of importance, but that the families, schools, and communities which surround the child must be equally well prepared to ensure the child's success (NAEYC, 2009). This multilevel preparation mirrors the Head Start definition of school readiness: "children are ready for school, families are ready to support their children's learning, and schools are ready for children" (http://eclkc.ohs.acf.hhs.gov/hslc/tta-system/health/school-readiness).

The original mission of the Head Start program in the mid-sixties was "social competence" or the basic ability of a child to get along with others in a learning environment and to receive experiences missed due to impoverished home environments. The most current OHS accountability standards now focus on school readiness (OHS, 2016). The stimulation and experiences contributing to readiness for school are often the very factors missing from the lives of low income children—consistent and responsive care, attachment to nurturing adults, frequent positive verbal interactions, books read, and community experiences provided (Center for the Developing Child, 2017). These opportunities support brain development allow for strong communication ability and promote appropriate social and emotional skills. In 2000, the original Head Start Child Outcomes Framework was published which legislatively mandated that each child would know ten letters, especially those in the child's name, at the end of the Head Start experience (http://eclkc.ohs.acf.hhs.gov). The action of establishing a formal accountability feature was the first step toward a more academically focused Head Start program.

Within a short time, this cognitive focus had been compelled into many preschool programs as the push down of kindergarten skills to the four-year-old year began. Table 1 summarizes 17 articles which define and detail specific investigations of the school readiness of young children in poverty. Four of the studies used the Early Childhood Longitudinal Study-Birth Cohort (ECLS-B) to gather data for their investigations, while four others used either

public school pre-kindergarten or Head Start classes. One study used a computer simulation to investigate the factors of school readiness. Five studies had a family/home focus or immigration status as a determinant of readiness support, although specific nationality or ethnicity was not considered. Executive function, specifically working memory, attention shift and inhibitory control, and the associated characteristic of self-regulation were a part of the investigation in five studies. with one research summary article from 2008. The remainder of the articles were written from 2010-2017 and deal with school readiness and the most important features for its success.

Table 1

Research and Literature on School Readiness of Young Children in Poverty

Study	Purpose	Sample/Method	Results
Ahmad & Hamm (2013)	To discuss the need for access to quality preschool experiences, especially for children of color	Position paper	High quality preschool can make a difference in outcomes, especially for children at risk for school success Impacts are particularly strong for Hispanic children To close the achievement gap, supports for early education are essential
Blair & Raver (2015)	To review research and theory indicating that self-regulation and school readiness are the product of integrated developmental processes shaped by the contexts in which development is occurring.	Analysis of self-regulation research	Research on self-regulation highlights ways in which gaps in school readiness and later achievement are linked to poverty and social and economic inequality Fostering self-regulation positively influences school readiness skills
Brotherson et al. (2015)	To gather information on basic demographics of program participants, parent perceptions of the general value and impacts of a transition program related to school readiness	573 participants from Fargo, West Fargo, and Northern Cass Public Schools and SENDCAA Head Start Participants were parents of 4-year-old children	Children whose parents participated in the transition program appear to be better prepared for kindergarten Parents in the transition program showed an increase in time spent reading with their child

Table 1 (continued)

Research and Literature on School Readiness of Young Children in Poverty

Study	Purpose	Sample/Method	Results
Brotherson et al. (2015) continued		Participants included some who participated in a specific program & control group	
Chien et al. (2010)	To evaluate patterns of engagement and the connection to positive child outcomes	2751 children enrolled in public pre-kindergarten Children were classified into four groups: free play; individual instruction; group instruction and scaffolded learning Woodcock-Johnson Applied Problems	Children in free play group made smaller gains in language, literacy and math Individual instruction group made the most gains Poor children in individualized instruction made greater gains than other children Poor children fared worse than non-poor in all other groups
Dilworth-Bart (2012)	To examine the extent to which executive function mediates socioeconomic and home environment quality	49 children, 54-66 months old, and their mothers Home observation and laboratory visit	Executive function mediated associations between SES and math
Fitzpatrick, McKinnon, Blair, & Willoughby (2014)	To examine the extent to which executive functions influence school readiness	226 children, 36-71 months of age Needs-based and private preschools Executive function, general intelligence and cognitive processing assessment	Executive function skills are influenced by SES and influence early academic achievement in literacy, math, and vocabulary.

Table 1 (continued)

Research and Literature on School Readiness of Young Children in Poverty

Study	Purpose	Sample/Method	Results
Gaynor (2015)	To describe a systemic analysis of early childhood factors for school readiness	Computer simulated model that suggests causes to explain correlations in most other research	Without effective interventions, three variables influence school readiness: parental education, immigrant/minority status and single parent/family stability
Gaynor (2015) (continued)	which addresses variance among five-year olds To analyze factors that detail the varying states of school readiness for five-year olds in the US		Conclusion regarding closing the achievement gap is not optimistic: policies to improve schools work not only for the "low-readiness" children, but for all children
Isaac (2012)	To compare the school readiness of children at age 5 between poor and higher income categories	Early Childhood Longitudinal Study-Birth Cohort data	27% gap in readiness between poor and moderate/high income children Of three programs studied (smoking cessation and nurse home visiting) preschool holds the most promise for success in this at-risk population
Keys et al. (2013)	To examine associations between quality classrooms and school readiness at kindergarten entry To determine if the effects of preschool quality on school readiness skills differ by child demographics or characteristics	6,250 three-five year olds Four large multi-site studies: - NICHD - ECLS-B - NCEDL - EHS ECERS-R for childcare quality assessment	Statistically significant associations for center quality and language and math outcomes. ECERS-R and CLASS® Instructional Support scores were significantly related to language outcomes Little evidence that center quality was related to a change in problem behaviors

Table 1 (continued)

Research and Literature on School Readiness of Young Children in Poverty

Study	Purpose	Sample/Method	Results
Keys et al. (2013) continued		CLASS® Instructional support measure used in at least two of the larger studies	Meta-analysis of math outcomes yielded few to no significant findings related to center quality Center quality was a stronger predictor of social skills outcomes for children on mothers with high school degree or less and children who entered with lower cognitive skills Overall: Very small quality main effects for language and math
Koury & Voturba-Drzal (2014)	To examine differences in school readiness skills in children from immigrant families, with emphasis on home and childcare settings	6200 children from ECLS-B with at least one parent born outside the US (all children were born in US) were assessed at 9 months, 2 years and at preschool Reading and math skills evaluated at age 5 were using direct assessments which were created especially for the ECLS-B and based on validated and standardized instruments	Significant heterogeneity in early reading and math scores related to parental country of origin Differences in home and childcare situations are important to gain understanding of the variable achievement based on parent origin Regarding the homes of immigrant families, levels of cognitive stimulation and parenting practices did not necessarily depend on economic levels

Table 1 (continued)

Research and Literature on School Readiness of Young Children in Poverty

Study	Purpose	Sample/Method	Results
Koury & Voturba-Drzal (2014) continued		Home environments were assessed with parent interviews over time	Formal preschool experiences shown to be beneficial for academic skills for all children, regardless of parental origin Important note: As children of immigrant families will comprise most of the workforce, therefore attention to these learners is of importance to the nation.
Landry et al. (2017)	To determine whether home and school interventions (combined) enhance school readiness skills	77 classrooms randomized to either invention (TEEM) or not; 6-8 children/class randomized to have parents receive home intervention (PALS) or not	Teachers who received the TEEM intervention had gains in language and literacy practices as well as sensitivity Few significant findings for child outcomes Children of parents who received PALS intervention showed greater gains in print knowledge, self-regulation and social and language skills in interactions with parents
Nelson et al. (2016)	To develop models for 2-year-olds without developmental delays that predict, at kindergarten entry, poor academic	4900 children in the ECLS-B with 2 year and kinder data available; (children were excluded if they were eligible for early intervention (EI) services)	1350 children demonstrated poor school readiness at the time of kindergarten entry, either due to low academic scores or high problem behaviors

Table 1 (continued)

Research and Literature on School Readiness of Young Children in Poverty

Study	Purpose	Sample/Method	Results
Nelson et al. (2016) continued	performance and high problem behaviors	Risk Prediction Model Selection process used with nine parental, social or economic variables Bayley Short Form–Research Edition (BSF-R), mental and motor scales, adapted from the Bayley Scales of Infant Development–Second Edition	Nearly one-quarter of all 2-year-old children appeared ineligible for EI services but nevertheless demonstrated inadequate school readiness at kindergarten entry. There is a small set of variables that can predict a child's academic and behavioral outcomes which should be used by physicians as a part of a well child check at age 2.
Pears et al. (2014)	To examine the feasibility and impact of an intervention used with families in disadvantaged neighborhoods Three program goals: - feasibility of recruiting families - families would be representative of the district - effectiveness of the intervention for improving	39 families who were representative of the demographics of the school districts Three principles: - developmental timing of the transition intervention - focus on self-regulatory skills - high density learning opportunities	Children who received the intervention showed significantly greater improvements in letter naming, initial sound fluency and concepts of print

Table 1 (continued)

Research and Literature on School Readiness of Young Children in Poverty

Study	Purpose	Sample/Method	Results
Shaul & Schwartz (2013) continued	literacy, social and self-regulatory skills		
Schmitt et al. (2015)	To examine the efficacy of a self-regulation intervention for children at risk	276 children in 14 Head Start classrooms; M age = 51.69 8-week self-regulation intervention Randomized controlled design	Intervention group showed stronger self-regulation levels in the spring Intervention also showed significantly higher math scores for English Language Learners Study provides support for a school readiness intervention in areas of self-regulation and achievement for language learners
Shaul & Schwartz (2013)	To identify the contribution of Executive Function (EF) to specific pre-academic skills To determine if age impacts the effects of executive function on the development of school readiness skills	54 children, aged 5-6, from 4 different kindergartens Wide range of pre-academic skills, cognitive, linguistic and executive function tasks	Executive functions contributed significantly to emergent literacy and math knowledge Role of executive function increases with increase in pre-academic development Strongest influence was orthographic knowledge

Table 1 (continued)

Research and Literature on School Readiness of Young Children in Poverty

Study	Purpose	Sample/Method	Results
Willoughby et al. (2017)	To test executive function as an indicator of potential at risk status in kindergarten	Variety of measures used to test working memory, inhibitory control and attention shifting	EF is a strong contributor to appropriate school readiness and should be a part of early assessment to address discrepancies found in children from lower income levels
Winter & Kelley (2008)	To reflect on 40 years of school readiness research to determine what has been learned to guide current efforts	Research overview	Forty years of research continues to describe the impact of poverty on the school readiness of young children High quality programs with **comprehensive services** lead to positive outcomes for children Programs that provide intensive services and family support can make a difference for children in poverty

Table 1 summarizes 17 articles regarding school success for young learners in poverty circumstances. The studies focus on aspects of school success and the importance of its development in young children, especially those in low income circumstances. Additionally, many of these studies found the significance of executive function which supports self-regulation. Most of the articles were research studies; however, one was a historical review of findings (Winter & Kelley, 2008) and two were research reviews (Blair & Raver, 2015; Ahmad & Hamm, 2013).

Ahmad and Hamm (2013) began their article with a recognition of the new reality that will be in place when today's young children are adults: More than half of the youth in the United States will be people of color by 2043. In addition, they state the importance of investing in the "youngest citizens" (page 1). However, data showed that well over half of these children do not attend preschool when it is known that high-quality programming can gain a minimum of four months and in some cases, closer to a year in the case of highest quality environments. This data is connected to issues of equality, equity and future workforce and, according to a 2013 survey, Americans agree with the severity of the problem and appear ready to take steps to clear the way for these children to succeed.

The research of Blair and Raver (2014) set the stage for school readiness by considering self-regulation as a foundational developmental concept. They approached the topic from a neurobiological lens, pointing out that successful later academic ability comes from a regulated early academic experience. One note of importance, however, is that achieving self-regulation does not lessen the opportunities for academic endeavors. A link between self-regulation concepts and poverty is that poverty itself highly affects executive functioning due to symptoms such as chronic stress and less sensitive parenting strategies. Like Ahmad and Hamm (2013),

Blair and Raver related economic impact to their findings and to the overall influence that self-regulation and well developed executive function skills can have on adult life.

Brotherson et al. (2015) included family-centered involvement, “Gearing Up for Kindergarten”, in their review of school readiness outcomes. From a sample of 573 participants, mostly married Caucasian females, there were few differences between the comparison and research groups. Gearing Up for Kindergarten was an intensive program with components for both children and adult family members. Findings indicated that the overall strong program was as beneficial to low SES families as to those in higher brackets. Reading to children was a strong area of impact and supports the concept of preparing both children and families for early school success.

Patterns of classroom engagement were investigated in a study by Chien et al. (2010) which compared a child-directed model (including free play), a teacher-directed model (including teacher-led discussions and high quality feedback) and a teacher scaffolding model. The authors included several often-cited names: Carollee Howes, Margaret Burchinal, Robert Pianta and Oscar Barbarin. The study used CLASS® and ECERS-R as quality assessments of environment and teacher capacity. The Emerging Academics Snapshot by Ritchie, Howes, Kraft-Sayre and Weister (2001) was the measure for children’s engagement. Overall findings suggested that free play and scaffolding used together are a productive model of engaging and teaching young children; however, poor children fared better than non-poor children in only the individual instruction method.

Dilworth-Bart (2012) conducted a study that included executive function as well as an association with home environment quality. The relatively small sample size of 49 children and their mothers were involved in a lab study for child assessment and a home visit. Findings

provide support for the connection between family economic level and executive function development; however, the author states the important point that, while children in poverty may typically have more challenge with self-regulation and other executive function skills due to the circumstances of their environment, a higher family income does not automatically guarantee executive function skills.

Following closely on the Dilworth-Bart study, Fitzpatrick et al. (2014) used an examination of executive function to determine the cause of the readiness gap between economic levels. Their sample of 226 children in both needs-based and private preschools was assessed on executive function skills using a battery of tests for working memory, inhibitory control and attention shifting, as well as several for general intelligence and speed of cognitive processing. Results indicated that executive function skills were influenced by SES and were influences on early academic achievement in literacy, math and vocabulary.

A computer-generated model in the study by Gaynor (2015) guided a systemic analysis designed to clarify differences seen in the school readiness levels of five-year old children as they enter kindergarten. The work in this article was intended to provide causal interactions and to include a more holistic view of the child development field. The thesis of this examination was that these exogenous variables—parent education, immigrant status/minority identity, and family stability—can affect the school readiness of a young child without effective intervention. One interesting aside found in this study is that a poor child with a college-educated mother (2% of all poor children) exhibits the same readiness level as any other child of a college-educated mother.

Isaacs' (2012) study, sponsored by the Brookings Institute, offered the initial information about the 27% difference in poor and moderate and above income children's school readiness.

The study design included the "whole child" aspect, measuring early math and reading skills in addition to health and behavior. The data illustrated that over half (52%) of children in poverty scored low in at least one area and were the lowest group in all areas. Reasons for the impact of low income on children included lack of resources, challenging neighborhood environments, parental qualities and chronic stress. Preschool programs, while an expensive intervention, can change or increase the readiness capability of young children, but poverty remains a distinct factor in early academic success.

Keys et al. (2013) (including several often-cited researchers, Burchinal, Duncan and Howes), addressed the intersection of childcare center quality and school readiness. The associations were not as robust as expected, although statistically significant for language and math. Participation in the study was from four large groups, including Early Childhood Longitudinal Study-Birth Cohort and Head Start. The Classroom Assessment Scoring System® was a part of the instrumentation. Finally, it was determined that center quality was not reliably related to social-emotional outcomes. This meta-analytic study reported on information gathered over the course of 15 years.

Kids In Transition to School (KITS) in the Pears et al. (2014) study was designed to increase literacy, social and self-regulation skills among a small sample of children living in poverty situations. A variety of instruments were used to determine literacy skills, including the Dynamic Sounds of Basic Early Literacy (DIBELS) and Marie Clay's Concepts of Print Test. This study also collected information on children's prior Head Start or other early childhood experiences for use in the analysis. Findings included the feasibility of providing a summer program for children from low-income families and, as mentioned in the NAEYC Position

Statement (2009) and other research studies, the importance of community contribution to this effort is noted.

Schmitt et al. (2015) focused on improving the school readiness of Head Start children through self-regulation, specifically working memory, attentional flexibility and inhibitory control. This study made a special effort to provide testing in Spanish for children with that home language as well as to include information from all parents regarding their own education and the child's previous experiences. The findings in this study again were not as robust as expected but, according to authors, this could be because of the short timeline in place for this investigation. An important outcome was that children in the test sample who were English Language Learners (ELL) showed gains in early math scores. The self-regulation activities used in this study were low-cost and easy to replicate which is important for Head Start programs to consider.

A different approach was taken by the research of Willoughby et al. (2016) as their perspective was on developmental delays in executive functioning. The often-cited researchers on the project have investigated this field for many years and are now presenting a strong quantitative examination of the subject. As research in early childhood recognizes the challenges that poverty places on a young child's regulatory development, it also must consider the effects that are placed on executive function development. The objective of this study was to investigate a process which could identify a group of children with delays between the ages of 3 and 5 and then to determine if the deficiencies affected their academic abilities in kindergarten. The participants (N = 1,121) were enrolled with a home visit at 2 months of age and received multiple follow up visits through age 3. Data from the 3, 4, and 5 year visits, conducted in childcare centers or homes, focused on executive function. A variety of tests were given to measure

working memory, attention shifting and inhibitory control. Statistical analysis showed that 9% of the children with low executive functioning scores did not reach the appropriate outcomes between 3-5 years. The study suggested that monitoring and intervention programs could be beneficial for the differences in school readiness between low-income children and their higher-income peers.

Winter and Kelley (2008), in their overall analysis of school readiness within the last 40 years, began with the statement that one-third of children are reported by kindergarten teachers as not ready for school success. They continued with historical information about school readiness from the last century, following with descriptions of program models over time. While their perspectives are thought-provoking, it is the answers to the question posed in their title that are most important to consider:

- School readiness is a community issue that can be considered an important an investment.
- Emergent programs that come from a relational perspective are most successful.
- Many children in the United States lack access to quality programming.

Major findings from research illustrate the benefits gained by the neurosciences and the details furnished about the development of the young brain. However, the impact of poverty is still a challenge and services must be considered to support children in at-risk circumstances with intensive, high quality programs, wrap-around services that encompass health and family concerns and strategies to identify difficulties and provide interventions to promote school readiness skills.

The articles reviewed in this section, *School Readiness of Young Children in Poverty*, have more similarities than differences. In seven of the articles, school readiness is linked to the

appropriate development of executive function (and the overarching concept of self-regulation) or the challenges that occur when this development is delayed. Four studies used Head Start and/or public school pre-kindergarten participants and all studies either included low-income participants exclusively or compared outcomes of low-income participants to those at middle and high levels. While one study (Ahmad & Hamm, 2013) specifically determined that Hispanic children had strong gains, one other (Khoury & Voturba-Drzal, 2014) focused on immigrant families and the outcomes of their children. Correspondingly, families were included in five studies in several ways: providing information about their children; providing details about their own education or participating in a selected program. The two overviews of research (Ahmad & Hamm, 2013; Winter & Kelley, 2014) each specified the importance of including services and support to low-income families to assist their children with the development and maintenance of school readiness skills.

A variety of instruments was used in the 14 research studies included in this review. Among the most recognized was Woodcock-Johnson. Two well-recognized and respected instruments, the Early Childhood Environmental Rating Scale-Revised (ECERS-R) and the Classroom Assessment Scoring System® (CLASS®), were utilized in studies reported in the *Teacher-Child Relationships as a Factor in School Readiness* section and in several investigations in this section as well.

Among the 14 research studies, participants were selected from Head Start, preschool or program enrollment and the ECLS-B provided the data for others. One of the studies, however, used computer generated information to examine variances in readiness skills among children of a similar age (5 years old). This paper revealed the important point not mentioned in any other research: Policies to improve schools work not only for the “low-readiness” children, but for all

children. Therefore, strategies devised to provide outcome gains for children in poverty also allow gains for children in other socio-economic levels, creating a challenge for the solution to the achievement gap issue.

A variety of methods and analyses were discussed in the 17 studies about the school readiness of young, low-income children, yet the final evaluation in each of them is the same: children in poverty situations often face the beginning of their school careers behind their peers from middle or high income homes. School itself is not the only element that can make a difference in the lives of these children; communities must also participate in the solution. Multiple answers are suggested in these studies:

- Pediatricians should be involved in screening for children's school readiness as clinical tools are available for children as young as 2 years of age (Nelson et al., 2016)
- Fostering self-regulation in young children is the most effective path to appropriate school readiness skills (Blair & Raver, 2015)
- Programs that focus on literacy skills and parental reading to children are effective (Brotherson et al., 2015)
- Focused, brief intervention conducted with low-income families may improve school readiness of their children (Pears et al., 2014)
- Programs to foster school readiness are most effective when they offer comprehensive services to children and their families (Winter & Kelly, 2008)

Finally, these studies agree on the timing of support strategies as they assert that action to meet the problem of an achievement gap cannot wait for standardized tests or higher grade levels; the

approach must come at the beginning of the educational process with three to five years old children if a strong and solid foundation is to be implemented.

Early Intervention Services

While readiness remains a strong focus in the Head Start community, the program itself is often seen as a Tier 1 intervention (Denton, C., n.d.) or one of the earliest steps for young children enrolled in its services. Core instructional strategies and appropriate curriculum are strong first attempts for low income children who have not had the benefit of language, stories and experiences of their middle and higher socioeconomic classmates (Schmitt et al., 2015). To ameliorate the deficits that may exist in a child's experiences, focused early intervention strategies are structured to support children from low income backgrounds. This section discusses the use of strategies and their potential outcomes.

Through initial or Tier 1 intervention efforts, many children from low income households may have their educational trajectory changed by the efforts of committed teachers or appropriate environments (Blair & McKinnon, 2016; Bowne, Magnuson, Schindler, Duncan & Yoshikawa, 2017; Cascio & Schanzenbach, 2014; Hindman, Wasik, & Snell, 2016; Hoff, 2013). Although formalized assessment is documented in the educational record beginning in kindergarten, children who are in state pre-kindergarten programs or federally funded Head Start classrooms are assessed even earlier. Early education classrooms, particularly those with high standards, may be an effective early intervention, especially for at-risk and low-income students (Bowne et al., 2017; Diamond, Justice, Siegler & Snyder, 2013; Dougherty, 2014). These settings have been shown to be beneficial when a quality learning environment for preschool children is established (Blankson et al. 2017; Bowne et al., 2017; Griffith, Arnold, Voegler-Lee & Kupersmidt, 2016). Research studies over the past 40 years have found overwhelming support

for these early education services for young children. Services may be provided in myriad ways, from family childcare homes to childcare centers to environments for more formalized education of preschool age children. Where a child receives this education is not the most important consideration—that the experience is of high quality is the critical issue (Yoshikawa, 2013). Since the childcare or preschool environment is likely the most frequented location for young children outside their home (Laughlin, 2013), attention to the type and consistency of services provided for these children is essential for their optimum development in all areas (McNally & Slutsky, 2018). Quality in every aspect of both structure and process is essential to lay the foundation for success in later grades.

Structure and process are complementary elements in creating an early childhood environment. The framework of developmentally appropriate practice (NAEYC, 2009) integrated into the environment can be related to both structural and process indicators which have long been considered essential for quality early education (McNally & Slutsky, 2018; Scully et al, 2015). Structure involves the specific logistical and physical details of the setting, such as ratios, scheduling, space and equipment. Process in these environments includes the more intangible characteristics of an early childhood experience. Qualities included in the process criterion include teacher sensitivity and involvement with the children and interactions between teacher and child (Hartman**,** Warash, Curtis**,** & Hirst**,** 2016), as well as overall communication style, including sensitivity and responsiveness (Buettner, Jeon, Hur, & Garcia, 2016). Warm, engaged interactions and close relationships between the teacher and child influence children's thinking, as well as their social competence (Yoshikawa et al., 2013). Hamre et al. (2013) discuss positive and negative peer interactions, cognitive and language stimulation and health and safety practices as process attributes. In addition, the children's direct experiences

and their opportunity to interact with both teacher and instructional content are two other aspects of processes at work in the classroom that can influence quality.

Other traits connected to process are the number and types of materials and activities available for children (Hartman, Warash, Curtis, & Hirst, 2016). A selection of well-organized and easily accessible materials is an important indicator and offers children a variety of opportunities to learn (Scully et al, 2015). Similarly, instruction itself is also a process indicator. Included in this measure are teacher behavior, emotional climate, behavior management, engagement and delivery of instruction itself (Hamre et al., 2013). The significance of process qualities in early childhood environments lies not in specific individual definitions but in the way that they are coordinated to create an overall quality experience for children. With over 60% of children in the United States attending a program before formal schooling begins (US Census Bureau, 2013), the factors that create a positive experience for school success are critical to understand.

A careful examination of interactions and environment contributes to quality in any childcare setting and links positively to school readiness, illustrated by social and self-regulatory competence, literacy and numeracy skills and cognitive development. In addition, positive early experiences can contribute to the development of a child's attitudes and feelings about education in general. Positive and supportive experiences during early childhood provide a more optimistic academic trajectory for the educational journey (Garcia & Weiss, 2017).

The longitudinal study of Peisner-Feinberg et al. (2001) details the effects of quality childcare environments for young children and provides some evidence that the effects can last as long as five years (two years of preschool through second grade). Close relationships with teachers in the preschool years resulted in fewer problem behaviors through second grade (the

final year of the study) and increased language, math and social skills were exhibited over time, with the language skills not declining with age. High levels of quality practices were a significant predictor for language ability, math skills and more advanced development for children who experienced these practices in their preschool setting. Benefits resulting from being in a classroom led by high quality teachers are a central focus for creating the best environment for early learning (Broekhuizen et al., 2016; Keys et al., 2013; Auger, Farkas, Duncan, Burchinal & Vandell, 2013). These benefits are especially evident for children at risk.

The federally-funded Head Start program is among the most well-known early education intervention programs and focuses on the whole child to contribute to the protective aspects essential for early school success. This program began as an early intervention over a half century ago and maintains its strong emphasis on providing supportive and inclusive services for children at risk for school success.

Table 2 is a collection of seven articles with specific intervention strategies: research based early education programs (Barnett, 1998); equal opportunity preschool programs (Burger, 2010); public school and Head Start programs (Coley, 2016); comparison of multiple interventions (smoking cessation, preschool and home visiting) on readiness (Isaacs, 2012); effects of full day or part day programs (Reynolds, et al., 2014); dosage by year (Shah, et al., 2017); and age of entry and duration of care which included a dual language component (Yazejian, et al., 2015).

Table 2

Research and Literature on Early Intervention Methods

Study	Purpose	Sample/Method	Results
Barnett (1998)	Examination of long-term effects of early childhood education on cognitive development and academic success of children in poverty, including economic consequences and policy implications	Thirty-eight studies that estimated effects of early childhood education programs (before age 5) on the long-term effects of early childhood education in poverty at least through grade 3 were examined	Research based early education programs can benefit children via cognitive development and academic success.
Burger (2010)	To assess the effects of various preschool programs on cognitive development To determine the extent to which equal opportunities are effective for different backgrounds		Majority of early education/care programs had positive short-term effects and somewhat smaller long-term effects on cognitive development- Children from low income backgrounds made equal or more progress than those from higher income backgrounds
Coley (2016)	To compare and analyze the quality and outcomes of preschool programs in support of school readiness of low income children	Early Childhood Longitudinal Study-Birth Cohort 4250 low income children	Public school and Head Start programs have the most educated and highly trained teachers and the highest quality for process and structural features No difference was noted in behaviors at age 5

Table 2 (continued)

Research and Literature on Early Intervention Methods

Study	Purpose	Sample/Method	Results
Isaacs (2012)	Comparison of three interventions (preschool, smoking cessation and home visiting) on school readiness Comparison of poor and affluent families: Why are poor children less ready for school?	Early Childhood Longitudinal Study-Birth Cohort data for poor (23%) and near poor (25%)	Preschool showed the most direct effect on school readiness, although most opportunities were expensive Other interventions were targets of opportunity to improve school readiness
Reynolds, et al. (2014)	To evaluate the effect of full and part day programming on school readiness, attitudes and parental involvement	Full day (7 hours): 409 Part day (3 hours): 573 School readiness at the end of preschool evaluated with Teaching Strategies Gold® Non-random, matched cohort of low income, ethnic minority children	Full day children had higher scores on social-emotional, language and physical health Literacy and cognition scores were not significant No difference noted in parental involvement
Shah, et al. (2017)	To assess the effect of preschool dosage on academic and executive function outcomes	Publicly funded pre-kindergarten 144 children in year 1 and year 2 Propensity score matching	Year 2 children showed: - Higher receptive vocabulary and math scores - Increased executive function outcomes - Better adjustment to school

Table 2 (continued)

Research and Literature on Early Intervention Methods

Study	Purpose	Sample/Method	Results
Shah, et al. (2017) cont.			- Less likely to be retained or be identified for special education - Extra year benefits continue into elementary school
Yazejian, et al. (2015)	To examine the extent to which age of entry and time in care influences language and social-emotional skills for low income dual language learners (DLL) and English only children	5073 children enrolled in Educare® schools as infants, toddler and preschoolers	Age of entry and duration of care were positive for receptive language outcomes, especially for DLL Early entry DLL scored well but later entry DLL lagged at kindergarten entry

Teacher-Child Interactions as a Factor in School Readiness

While the list of quality indicators for an effective early intervention program has many environmental components, the essential focus is on the relationship and interactions between teachers and children. These positive interactions also influence other beneficial and relevant supports to early learning. Numerous studies (Goble et al., 2016; Hamre et al., 2013; Morris et al., 2013; Schmitt et al., 2015; Weiland, Ulvestada, Sachs, &Yoshikawa, 2013) detail the social–emotional advantages for young children who have warm and supportive bonds with their preschool teachers. Some of these also mention the effect on academic performance (Khoury, Keys & Votruba-Drzal, 2014; Li et al., 2013), but they are not as common as those describing the less tangible or measurable emotional value. Factors of teacher sensitivity, warmth and positive conversation lead to a positive classroom climate and have been noted to be a consistent predictor of child outcomes. The significance of these positive relationships leading to successful school readiness and to clear-cut results for children's progress is especially important when being discussed in the context of at risk populations. Children who may not have the surrounding supports from home and family due to poverty, lack of parent education, neglect or other risk elements benefit from a positive and nurturing presence in the classroom. Its presence may also provide protective factors and create a more optimistic trajectory for the child.

This section reviews 12 articles dealing with the value of positive teacher-child interactions and the benefits that accrue for child outcomes. Each of the studies is a research-oriented examination of elements in classroom interactions. Half of the studies were completed using populations of low-income children, including Head Start and state funded pre-kindergarten classrooms. Others simply described their sample as preschool classrooms. The Classroom Assessment Scoring System® (CLASS®) was used as an instrument to evaluate

teacher-child interactions from the teacher perspective in five articles. Across the articles a variety of instruments was used to determine child outcomes including Peabody Picture Vocabulary Test-3rd Edition (PPVT-III), Pencil Tap Test, Emerging Academics Snapshot, Woodcock-Johnson-III, Student-Teacher Relationship Scale (STRS), Clinical Evaluation of Language Fundamental Preschool-Second Edition (CLEF Preschool-2), Children's Behavior Questionnaire (CBQ) and the Test of Preschool Early Literacy (TOPEL). Two of the studies were somewhat longitudinal in nature as they examined data over two years and three years. Even though play-based environments are considered by many to be the most productive for young children, only two of the studies specifically mentioned play as a strategy or a play-based environment in their project descriptions.

Table 3

Research and Literature on Teacher-Child Relationships as a Factor in School Readiness

Study	Purpose	Sample/Method	Results
Burchinal et al. (2008)	To examine publicly funded pre-kindergarten programs To evaluate specific aspects of classroom quality and children's academic achievement in both pre-k and K	240 randomly selected mature programs in six states Over 700 children were followed for both pre-k and kindergarten Data collection was done with the Classroom Assessment Scoring System® (CLASS®) and the Early Childhood Environmental Rating Scale-Revised (ECERS-R) There was no control group in this study	Pre-k teachers were moderately responsive and sensitive but less successful in engaging children for learning specific skills Sensitive and stimulating teacher-child interactions predicted positive outcomes in language, pre-academics and social skills at the end of kindergarten Positive interactions with PK teacher and instructional quality in PK related to gains in children's skills which were sustained for several months which negated the effect of a summer "drop off" in skills
Cadima et al. (2016)	To examine the quality of classroom climate and dyadic teacher-child relationships as predictors of self-regulation	206 children from socially disadvantaged backgrounds Trained observers conducted classroom quality observations Teachers rated the quality of the dyadic relationships	Close teacher-child relationships predicted improvements in self-regulation skills Higher gains were made by children with the closer relationships with teachers

Table 3 (continued)

Research and Literature on Teacher-Child Relationships as a Factor in School Readiness

Study	Purpose	Sample/Method	Results
Cadima et al. (2016) continued			Children with low self-regulation skills gain the most from high classroom quality
Cadima et al. (2016)	To investigate the interplay between family risk and quality classroom interactions and their impact on self-regulation skills	485 children in classrooms located in socially disadvantaged areas and in non-risk settings Trained observers rated classroom quality using Classroom Assessment Scoring System® (CLASS®) tool Teacher report measured emotional regulation	Classroom quality served as a protective factor for most at-risk children Effects of classroom quality were similar for both groups Importance of high levels of emotional support, better organizational support and high instructional support for development of self-regulation and ultimately academic success
Goble et al. (2016)	To examine the relation between time and quality of teacher-child interactions and children's skill development To extend previous research which assessed relationship between teachers and children	283 preschool children (70% Mexican or Mexican American) Observations by teachers reported on school readiness Multiple measures and reporters used over three-year period of study to collect over 64,000 observations	Children's academic and social skills were positively related to time spent in teacher managed activities Teacher engagement is related to positive outcomes even during child-initiated activities Direct involvement by teachers in child activities is related to positive outcomes

Table 3 (continued)

Research and Literature on Teacher-Child Relationships as a Factor in School Readiness

Study	Purpose	Sample/Method	Results
Goble et al. (2016) continued		Teacher-child interactions were coded as: comforting, conversation, discipline, instruction, instrumental help, no direct interaction and play	Teacher-child interactions vary depending on the lead (child or teacher) in the activity
Goble & Pianta (2017)	To examine the extent to which child outcomes were associated with quality teacher behaviors	325 preschool teachers 1,407 randomly selected children from low income backgrounds Observations were completed by trained assessors using the Classroom Assessment Scoring System® (CLASS®) Adaptation of the Emerging Academics Snapshot used for categorizing classroom activities Several assessment instruments were used for child outcomes, including Peabody Picture Vocabulary Test-III and Woodcock-Johnson III	Time spent in teacher directed activities predicted gains in literacy and language development More effective teacher-child interactions during free play were significantly related to language and literacy gains Time spent in teacher directed activities positively predicted language and literacy outcomes Effective teacher-child interactions within the free choice setting positively related to language and literacy learning
Graves & Howes (2011)	To examine classroom and teacher variables on social-	Education Programs Study (SWEEP) data sources	Pre-k teachers rated males higher in behavioral problems and lower than females in social competence

Table 3 (continued)

Research and Literature on Teacher-Child Relationships as a Factor in School Readiness

Study	Purpose	Sample/Method	Results
Graves & Howes (2011) continued	emotional development in pre-k	National Center for Early Development and Learning (NCEDL) and State-wide Early Observations were completed by trained assessors using the Classroom Assessment Scoring System® (CLASS®) and the Early Childhood Environmental Rating Scale-Revised (ECERS-R); student-teacher relationships were reported using the Student-Teacher Relationship Scale (STRS)	Matched teacher-child dyads did not show the same outcomes Teacher-child ethnic match was significantly related to emotional climate with more positive interactions and less conflict Specific findings relating to African American boys show the need for further research
Hatfield et al. (2016)	To examine the extent to which school readiness skills were associated with high quality thresholds of emotional support exemplified by effective teacher-child interactions	222 teachers and 875 children Multi-site study Observations were completed by trained assessors using the Classroom Assessment Scoring System® (CLASS®)	Quality classroom environments with effective teacher-child interactions contribute to higher levels of school readiness skills
Howes et al. (2013)	To examine how dimensions of quality in a context can predict the quality of the teacher-child relationship	118 low-income, predominately Latino children and their teachers Children were in their first preschool classroom	Secure and positive relationships are more likely in appropriate learning environments and with high-quality feedback provided

Table 3 (continued)

Research and Literature on Teacher-Child Relationships as a Factor in School Readiness

Study	Purpose	Sample/Method	Results
Rudasill & Rimm-Kaufman (2009)	To examine contributions of child temperament and gender on teacher-child relationship quality	Samples from the National Institute for Child Health and Human Development (NICHD) and the Study of Early Child Care and Youth Development (SECCYD) 819 first grade children and their teachers (children were predominantly Caucasian and were not considered to be at risk based on family income)	Closeness and frequency of teacher-child relationships were impacted by shyness, effortful control and gender
Schmitt et al. (2012)	To investigate how the quality of teacher-child relationships were associated with grammar gains for low-income preschoolers	173 low-income children in targeted-enrollment classrooms in 30 childcare environments Information gathered from the Student Teacher Rating Scale (STRS), Clinical Evaluation of Language Fundamental Preschool-Second Edition (CLEF Preschool-2) and Children's Behavior Questionnaire (CBQ)	Encouraging environments and effective behavior management can support resiliency for at risk preschoolers Grammar development is significantly related to high-quality teacher-child relationships Strong behavioral regulation can be a protective factor for low-income preschoolers

Table 3 (continued)

Research and Literature on Teacher-Child Relationships as a Factor in School Readiness

Study	Purpose	Sample/Method	Results
Tompkins et al. (2013)	To examine teacher questions and child answers during a play-based activity, particularly focusing on inferential talk as a language development support	39 preschool teachers and up to 6 children from their classrooms Trained coders on a system designed specifically for this study	Teacher-child interactions during pretend play that focus on inferential questions can build language experiences and these interactions can scaffold children's responses to a higher level
Williford, Maier, Downer, Pianta & Howes (2013)	To examine quality preschool experiences through classroom level interactions and the prediction of gains in school readiness	605 children from low income situations; 309 Head Start and preschool teachers Direct assessment of children's school readiness skills in fall and spring Interactions and environmental quality gauged with Classroom Assessment Scoring System® (CLASS®) Peabody Picture Vocabulary Test - 3rd Edition; Test of Preschool Early Literacy and Pencil Tap test used for child measures	Children with positive engagement made the most gains in classrooms with lower quality of interactions Importance of including teacher and child perspective as interactions are critical pieces for gains in school readiness

Each of the studies summarized in the table dealt with an aspect of teacher-child interactions and their importance for the appropriate development of skills to support school readiness in young children. Additionally, many of these studies found positive interaction with teachers' influence on social-emotional learning and the provision of protective factors in the children's lives.

Burchinal et al. (2008) examined 240 mature public pre-kindergarten programs in six states using the Classroom Assessment Scoring System® (CLASS®) and the Early Childhood Environmental Rating Scale-Revised (ECERS-R) to evaluate both environment and interactions. Over 700 children were followed through pre-kindergarten and kindergarten. Positive outcomes were found at the end of kindergarten in language, pre-academics and social skills, but more importantly, positive interactions between pre-k children and their teachers provided gains, sustained for several months, which served to combat the "summer drop off" in school skills.

Cadima, Verschueren, Leal, and Guedes (2016) investigated classroom climate and teacher-child relationships which acted as predictors for the development of self-regulation skills. Using specifically dyadic relationships, which predicted improvement in self-regulation, the study found that higher gains were in the children with the closest teacher relationships. Another finding was that those children with the lowest self-regulation skills benefited most from a high-quality environment.

A similar study by Cadima (2016) examined children in at-risk and non-risk settings. Quality classroom environments were beneficial for all children but served as a protective factor for those most at risk for school success. High levels of support as measured by the CLASS® instrument, emotional, organization and instructional, were found to be important for the development of self-regulation which then led to academic success.

Goble et al. (2016) extended previous research and explored the relationship between time and quality of interactions. This study was one of two longitudinal examinations in this section with a period of three years. The population in this study was 70% Mexican or Mexican-American and observations were teacher reports. Over 64,000 observations were recorded, and the interactions were designated as comforting, conversation, discipline, instruction, instrumental help, no direct interaction and play. The findings for this study showed that positive outcomes were related to time spent and that direct involvement by teachers was important during teacher-led and child-oriented activities.

Goble and Pianta (2017) examined the association between child outcomes and teacher behaviors using a randomly selected group of 1,407 children. Classroom activities were categorized using the Emerging Academics Snapshot and several assessments were used for child outcomes. CLASS® observations were used to assess the interactions between teachers and children. More effective teacher-child connection during free play related to significant language and literacy outcomes, as did time spent in teacher directed activities.

A study using data from the National Center for Early Development and Learning (NCEDL) and State-wide Early Education Programs Study (SWEEP) also used CLASS ® observations and the Early Childhood Environmental Rating Scale-Revised (ECERS-R). Results in this study showed several particular findings: pre-k teachers rated males with greater behavioral problems and lower social competence than females; information relating to African American boys indicated the need for further research and ethnic match between teacher and child was significantly related to more positive outcomes.

Hatfield, Burchinal, Pianta, and Sideris (2016) used the CLASS® instrument to examine the relationship between school readiness skills and high quality emotional support. The sample

was 222 teachers and 875 children from their classes in this multi-site process. They found that quality environments and effective teacher-child interactions contribute to greater school readiness outcomes.

The Howes, Fuligni, Hong, Huang, and Lara-Cinisomo (2013) study was similar to the previously described Goble et al. (2016) work which has a population of 70% Hispanic children. This study population was predominately Latino as well with children in their first preschool classroom. The question considered was how quality in the classroom setting predicted quality of the teacher-child relationship. The findings determined that secure and positive relationships ar more likely in appropriate learning environments. Most important was the focus on the importance of high-quality feedback provided to the learners.

A slightly older study by Rudasill and Rimm-Kaufman (2009) was the second in this section using data from national samples, the National Institute for Child Health and Human Development (NICHD) and the Study of Early Child Care and Youth Development (SECCYD). The study used a somewhat different population of first grade children who were not considered to be at risk based on family income. The focus on teacher-child relationships also considered gender and temperament as variables. They found that gender and shyness impacted the closeness and frequency of contact in the teacher-child relationship.

Schmitt, Pentimonti, and Justice (2012) investigated how the quality of teacher-child relationships were associated with gains in grammar for low income preschool children. The 173 children in this study were in childcare environments. Information was gathered from the Student Teacher Rating Scale (STRS), Clinical Evaluation of Language Fundamental Preschool-Second Edition (CLEF Preschool-2) and Children's Behavior Questionnaire (CBQ). This study found that grammar development was significantly related to high-quality teacher-child relationships

and that resiliency for the at-risk population was supported by high-quality environments and effective behavior management strategies.

Tompkins, Zucker, Justice, and Binici (2013) examined a more specific model of teacher-child interactions with their work on inferential questions. Socioeconomic status was not listed for the children who took part in the study: up to six children from the classrooms of 39 teachers. Coders were trained for observations done with a system developed for the study. They found that teacher-child interactions focused on inferential questions during pretend play can build language experiences. In addition, children's responses can be scaffolded to a higher level during these play-based interactions.

Williford, Maier, Downer, Pianta, and Howes (2013) also used the CLASS® instrument to examine quality preschool interactions to predict gains in school readiness. The sample population was comprised of 605 children from low-income homes and 309 Head Start and preschool teachers. Instruments used for child assessment included Peabody Picture Vocabulary Test -3rd Edition (PPVT-3), Test of Preschool Early Literacy (TOPEL) and Pencil Tap test. Findings indicated that even in classrooms with lower-quality interactions, children who were positively engaged made the most gains. This study also found that the perspectives of teacher and children were an important part of measuring gains in school readiness.

The 12 studies reviewed for this section on *Teacher-Child Relationships as a Factor in Classroom Quality* have several key points in common. First, each study showed positive relationships between strong teacher-child relationships and interactions as a support for gains in school readiness skills.

Second is their focus on the importance of teacher interaction on the outcomes for children. Each study showed positive relationships between strong teacher-child relationships

and interactions as a support for gains in school readiness skills. All the studies deal with preschool children and at least half include participants that are at-risk due to poverty. Almost half of the studies use the CLASS® instrument to evaluate the relationships within the classroom. Many of the studies are authored by experts in the field with multiple research projects over time. While several studies had a more specific focus (use of inferential questions, impact of gender and temperament, effects on self-regulation), all demonstrated the importance of teacher engagement with children in their classrooms and the imperative of designing high quality classrooms that can support all facets of school readiness. Finally, the most common criteria for this set of articles is their finding of the value of positive, encouraging and supportive interactions when educating and caring for young children. This direct involvement by teaching staff can serve as a protective factor for children in at-risk settings and can positively impact their success in school which is discussed in the next section.

This section reviews 12 articles dealing with the value of positive teacher-child interactions and the benefits that accrue for child outcomes. Each of the studies is a research-oriented examination of elements in classroom interactions. Six of the studies used low income or socially disadvantaged children and one included Head Start classrooms as a part of the population. The six other studies included state funded pre-kindergarten classrooms or simply described their sample as preschool classrooms. The Classroom Assessment Scoring System® (CLASS®) was used as an instrument to evaluate teacher-child interactions from the teacher perspective in five articles. The Peabody Picture Vocabulary Test-3rd Edition (2) was used in more than one study. Other instruments used to determine child outcomes were Pencil Tap Test, Student-Teacher Relationship Test (2), the (CLEF) and the Children's Behavior Questionnaire

(CBQ). Teacher report was also used in two studies. Two studies had a limited longitudinal timeline of two (Burchinal, 2008) and three years (Goble et al., 2016).

Three of the most well-known researchers in quality instruction for young children were involved in five studies. Robert Pianta, a recognized expert in early childhood, is influential in the examination of teacher-student interactions and relationships. His work in the development and use of the Classroom Assessment Scoring System® (CLASS®) is the foundation of many studies focused on positive child outcomes, including three of those listed in this section. A leader in childcare research, Margaret Burchinal is widely recognized as an applied statistician. She led one study and worked with two others. Carolee Howes is a nationally recognized researcher with expertise in preschool education and over 200 publications. Her work is included in three studies as well, one as the lead author.

Each of the studies summarized in the table address an aspect of teacher-child interactions and their importance for the appropriate development of skills to support school readiness in young children. Additionally, many of these studies find positive interaction with teachers to influence social-emotional learning and provide protective factors in the children's lives, thus leading to a more positive outcome in terms of school readiness.

Summary

This chapter reviewed the literature and research on the school readiness of young children in poverty, early intervention strategies and teacher-child relationships as a factor in school readiness. The previous studies have provided a foundation for research on the critical elements to provide the best support strategies for young children who enter their educational trajectory from the most at-risk circumstances. Many of the studies reviewed, however, have primarily relied on the comparison of children from poverty with others from higher

socioeconomic levels. Furthermore, the research, particularly in the area of Head Start comparisons, is limited. Currently, the research consists of studies conducted by the Office of Head Start regarding the effects of the program itself as well as some studies which happen to have Head Start classroom participants along with preschool children from other settings. Studies which focus solely on the potential collaboration with independent school districts or other forms of public education organized in various states are difficult to discover.

Overall, the studies reviewed in this chapter provide strong support for the present study, which builds upon relationship centered, wrap around services for young children at risk for school success due to socioeconomic limitations. This study focuses specifically on Head Start eligible students in a local school district, those who attended the early education services of the Head Start program and those students who were income eligible but did not attend due to the limitations of federal funding, as well as local space restrictions. All students in the study are from the same public school district which has a five year average SES of 35% and the demographic of a predominantly white and Hispanic population. In addition to the score comparisons between student groups, differences in teacher effectiveness are also examined. As a final point, this study attempts to connect preschool Head Start teacher effectiveness with kindergarten scores at school entry and at year's end. This type of comparison, especially one using teacher ranking as part of its measurement, is also not seen often in the literature.

CHAPTER III

METHODS

Setting

The study was conducted in a small city in Texas with a current estimated population of 119,748 citizens (City of College Station 2018 Existing Conditions Report; August, 2019), the school district had over 13,000 students in its 16 schools for the 2016-2017 school year (www.csisd.org). Eight of the nine (89%) elementary schools house one or more Head Start classrooms. The state in which these schools are located designates a campus rating based on the collective achievement from the school's performance on the statewide standardized test of knowledge and skills. Previous state accountability rankings (not used after the 2012-2013 school year) show that 2 of the campuses received the highest rank of "exemplary"; four other campuses received "recognized" and one campus received "acceptable". Similar rankings from the state agency's new system are at the highest level ("Met Standard") for the district (https://tea.texas.gov/2016accountability). Other locally designed structures of Community Based Accountability Assessment continue to show a high level of achievement over time in several areas (www.csisd.org), notably appropriately certified teaching staff and low rates of staff turnover which are both measured at an "exemplary" level. The workshop method of instruction in reading, writing and mathematics is an area with the next highest rating of "recognized" performance.

District ethnicity demographics from 2011 to 2017 , shown in Table 1, indicate similar student percentages over time with the 2016-2017 totals of White 53.3%, Hispanic 21.6%, African American 13.6% and Asian 7.8% (www.csisd.org).

Table 4

District Demographics: 2011-2017

Student Profile Info	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017
Total Enrollment	10,6113	11,022	11,713	12,534	13,026	13,192
White	55.6%	53%	53.4%	53.4%	53.3%	53.8%
Hispanic	20.3%	21.8%	21.5%	21.5%	21.6%	21.0%
African-American	13.2%	13.4%	14.0%	13.9%	13.6%	12.5%
Asian/Pacific Isl	8.4%	8.1%	7.8%	7.9%	7.8%	8.2%
American Indian	0.2%	.02%	0.3%	0.3%	0.3%	0.3%
Two or more races	2.4%	2.9%	3.0%	3.0%	3.4%	3.3%

Percentages of students in challenging situations remain relatively stable as well as seen in Table 2. During the years of the study, economically disadvantaged levels vary from 35.6% in 2012-2013 to 34.5% in 2016-2017 and the students at risk among the total student population range from 26.2% in 2012-2013 to 28.0% in 2016-2017 (www.csisd.org).

Table 5

District Characteristics: 2011-2017

Student Profile Info	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017
Total Enrollment	10,613	11,022	11,713	12,543	13,026	13,192
At-Risk	28.5%	26.2%	29.7%	23.9%	25.7%	28,0%
Economically Disadvantaged	35.6%	36.9%	34.3%	33.8%	35.3%	34.5%
Limited English Proficiency	6.7%	6.8%	7.4%	7.7%	8.1%	8.5%
In Special Education	7.7%	8.1%	8.5%	8.4%	8.4%	8.4%
English as a Second Language	10.0%	9.2%	4.0%	4.3%	4.3%	4.6%

These statistics mirror the community closely as the city where the study was conducted reported a 2013 measure of 39.4% level of poverty, with 22.9% of children living in that circumstance (http://www.city-data.com/poverty/poverty-College-Station-Texas.html). The poverty level dipped to 31% by 2016 (twice the state rate) with 21% of males under 5 living in poverty and 11% of females. Regarding the deep poverty statistics, in 2016 20.6 of the population lived in circumstances supported by less than 50% of the annual poverty rate (three times the state rate), with 13.7% being children under 5.

Also noted in Table 2 are the rates for students in the district who are English Language Learners. While the decline in numbers from 2012-2013 to 2013-2014 is notable, the following years show a stable percentage of 4% to 4.6% from 2013-2014 to 2016-2017.This characteristic is meaningful to the study because almost one third of the children enter the Head Start program each year with a home language other than English as shown on Table 3. These children begin their educational experience with a variety of abilities for communicating in English; however, only those with a home language of Spanish are taught in their home language. With up to 10 different languages in any given program year, services for children and families with limited English proficiency are a challenge. All Head Start teachers have English as a Second Language (ESL) certification which benefits communication efforts for both children and families.

Table 6

Home Languages of Head Start Children

Language	2012-2013	2013-2014	2014-2015	2015-2016
Akan		✓		
Arabic		✓	✓	✓
Bengali		✓		✓
Chinese	✓	✓	✓	
English	✓	✓	✓	✓
Farsi			✓	✓
French	✓	✓		✓
Gujarati	✓	✓	✓	
Hindi			✓	✓
Korean	✓	✓		✓
Malay		✓		
Mandarin	✓	✓	✓	✓
Spanish	✓		✓	✓
Vietnamese	✓			✓
Total Languages	8	10	8	10
Total ESL Children	61	77	83	73
Total Served	208	201	228	220
% ESL	29%	38%	36%	33%

The Head Start program has existed in the local school district setting for over 50 years. The coordination of Head Start and kindergarten staff is one of long standing success with special transition events occurring each spring for the Head Start students to tour a kindergarten

classroom and for parents to meet and speak with kindergarten teachers. Head Start staff also has input on kindergarten teacher/class assignments on most campuses. In addition, the campus administrative and kindergarten staff is appreciative of and recognizes the importance of the Head Start experience in preparing children and families for their entry into the formal educational process.

Participants

There are three eligibility criteria for acceptance into the Head Start program based on district requirements and program mission: income, residency and age. By federal mandate, the Head Start program must serve at least 90% of its population from the defined poverty level or below; therefore, income is the primary eligibility qualifier. Families furnish documentation to demonstrate that they meet the federal poverty levels published annually by the Department of Health and Human Services (https://aspe.hhs.gov/poverty-guidelines). In addition, Head Start applicants must prove residency within boundaries of the school district. This is accomplished with a lease agreement or an electric bill, although other methods of proof can be accepted for families in unusual circumstances, including homelessness. Finally, at the time of this study the program prioritized acceptance for children who are four years old by the school district cutoff date, September 1 of the school year of attendance. While a birth certificate or passport is the most common documentation offered, a family without this paperwork may also vouch personally for their child's age according to the most recent Office of Head Start eligibility program standards. Students in this study were four years old by September 1 and in their first year of kindergarten attendance. However, the specific age in months was not a consideration in the study design and will be addressed in the limitations.

In the event the student's family income is over the specified level, other characteristics, such as a diagnosed disability or high-risk family circumstance, may be considered through the governing body approved CSISD Birth to Five Head Start Eligibility Ranking System. If accepted, these children are classified as "over income" and can make up, at most, 10% of the program's funded enrollment. However, regardless of family income, all children enrolled in the Head Start program receive free meals and are therefore coded "0" in the district records.

The adult participants in this longitudinal study included 53 kindergarten teachers, 20 Head Start teachers and 539 kindergarten students. All kindergarten and Head Start teachers were female. The kindergarten teachers had at least a bachelor's degree with a specialization in Early Childhood-4th grade or Pre-Kindergarten/Kindergarten instruction and have varying years of experience with the most common being 5-10 years (29%) and 21 or more years (22%). This depth of expertise is one of the strengths of a program housed within a school district setting.

The district Head Start teachers have, as a minimum, a bachelor's degree and are certified in early education and English as a Second Language (ESL) strategies. These teachers have a variety of experience working in the local Head Start program and in years of teaching. They work in tandem with a full-time teaching assistant in the classroom and receive support from a specifically assigned Family Services Facilitator (FSF) who serves as a community liaison and family engagement coordinator for two classes/FSF. The experience of Head Start teachers was tabulated using only their experience in Head Start programs as the population of these classrooms is a different and potentially more challenging instructional setting than other early education or lower elementary situations. The experience levels for the Head Start teachers centered in the 1-4 years (60%) and 5-10 years (20%) categories.

Among the participating students there were 284 males (53%) and 255 females (47%). Races of the students were 24% White (*n* = 132), 5% Asian (n = 30) and 33% African American (*n* = 177). Hispanic students made up 32% (*n* = 172). The distribution of race and ethnicity in the Head Start program does not mirror either the city or the school district in which it operates. White and African American percentages are opposite one another in both larger entities with the district and city both showing White as the majority and African American as the third largest group and the district numbers show that African American is the largest group and White is the third largest. Hispanic numbers remain firmly in second place in all three distributions.

Instrumentation

To evaluate the process elements essential to school readiness and later success in an early learning environment, an instrument specific for those elements is required. The Classroom Assessment Scoring System® (CLASS® is a research-based observational tool designed to measure specific interactive elements of the teacher/child instructional relationship () and to measure instructional and environmental quality in preschool classrooms. Three domains--emotional support, classroom organization and instructional support--measure interactions and learning experiences in 10 specific dimensions. The emotional support domain focuses on the development of positive relationships and independence, as well as respect, comfort and enjoyment in the classroom learning process. Classroom organization assesses management and engagement as an indicator for maximum learning. Finally, instructional support evaluates the promotion of higher order thinking, complex language skills and deep understanding stimulated by conversation and attention. Reliability among observers using the CLASS® tool in preschool classrooms is established through a precise method of training and annual re-certification. Teachers receive results following the observations and work with administrative staff to create

individualized professional development plans based on CLASS® scores. The quality indicators revealed by these scores are important to consider for the assessment of a rich and successful early learning environment. A second data-gathering tool, the *Kindergarten Information Report* (KIR), was developed by the researcher to gain information from kindergarten teachers for children who participated in the district Head Start program and Head Start eligible children who did not participate in Head Start but were enrolled in district kindergarten classes. The tool (Attachment A) is a short rating form of 16 questions designed in four areas: social-emotional competence, classroom behavior, school attendance and cognitive outcomes. Each of these components has a scale associated with it that provides a description of the traits or skills that will support a child's ability to manage the requirements of a kindergarten schedule and curriculum. There are four levels for each component with the top two being considered success in this setting. For social/emotional, behavior and attendance, the highest scores are 1 or 2. The cognitive component scores are arranged in the reverse order and the highest scores that indicate success are 3 and 4.

The social/emotional factor describes the ability to self-regulate emotions and to interact positively with adults and other children in an educational setting. A student who can verbalize emotions, establish relationships and cope with new situations and changes in routine without upset or challenge ranks as successful for the purposes of this study. Similarly, the behavior category emphasizes the ability to manage behavior and to maintain control in challenging or unfamiliar settings. The need for an occasional redirection or encouragement to cooperate still maintains the level of success for this component area.

While attendance is not a specific child outcome, the presence of a child in the educational setting is required for learning and the opportunity for success during the

kindergarten year. Therefore, this factor is included in the evaluation for the student. Daily and on time attendance is the highest level in this category. Because occasional absences due to illness or family situations are considered "excused" by the school district, they were acceptable as well for this purpose.

Finally, success in the cognitive component, where the scores are in reverse order from the other three areas, is defined as a child who met all expectations and requirements for kindergarten, with perhaps only an occasional struggle in one area which was resolved positively. Overall, a child who is considered successful in kindergarten manages emotions and relationships well, can conform to behavioral rules and expectations for a group setting, attends school consistently and achieves the level expected for each academic area evaluated. For the KIR rating, the child would receive a 1 or 2 in social/emotional, behavioral and attendance components and a 3 or 4 in the cognitive component.

Previous research has found that teachers' judgments of students' academic achievement are highly accurate and that teacher ratings correlate strongly with standardized test scores (Furnari, Whitaker, Kinzie & DeCoster, 2016; Kowalski, Brown, Pretti-Frontczak, Urchida & Sacks, 2018). Kindergarten teachers were asked to rank the Head Start eligible children--those who participated in the program and those who were waitlisted--in their class with a numerical score of one to four for each area. Scores provided by these teachers are part of the comparison of children based on social-emotional competence, attendance, behavior and academic achievement.

Data accessed from the school district is available on the Public Education Information Management System (PEIMS). PEIMS collects and coordinates all data for children within the state public education system, including details on demographics and academic performance.

PEIMS provides both a validity check on all demographic data gathered from the Head Start record keeping system as well as details about the kindergarten assessment results. The tests used for the kindergarten screening are the Texas Primary Reading Inventory (TPRI) for English speakers and those children who speak languages other than Spanish. If a child has enough knowledge of English to provide answers to the questions asked, then the test can provide helpful information. If the child does not have enough skill in English, then it is impossible to determine whether the responses noted are reading or language deficiencies. The TPRI is a screener only whose primary purpose is identification of students who may need specific reading intervention. However, a result of "still developing" (SD) does not necessarily mean that a child is at risk for reading success. The tool is an information gathering device which focuses on particular areas that may require additional evaluation or observation. For the purposes of this study and as appropriate for the instrument, two areas are evaluated: letter sound and blending onset-rimes and phonemes. The instrument is simple and quick to administer in a one to one setting for kindergarten teacher and student and is accomplished within the first weeks of kindergarten.

The Tejas Lee (TLEE) is the screener used for children with a home language of Spanish. This tool is used in the similar one-to-one method as the TPRI for children who speak Spanish; however, it measures several other categories than the TPRI. For the purposes of this research, two specific scores were examined using the TLEE: letter identification and blending phonemes. An important note is that the two screening instruments are not translations of one another; they are separate screening devices designed specifically for the language that is being tested.

Data Analysis

For this study, descriptive variables obtained from the district reporting system for state required information (demographics including language, ethnicity and gender) were coded and prepared for entry into the analysis system. Other student specific information such as number of years in Head Start and/or kindergarten, scores on the appropriate kindergarten screening instrument and attendance records were also gathered from district and state data bases. Data regarding the experience levels of both Head Start and kindergarten staff was self-reported for most teachers. In the event of a teacher no longer being in the district, personnel records were accessed by the Human Resources office staff and provided to the researcher. These details, along with all other information, was also coded and included in the variable set. Finally, CLASS® scores for Head Start teachers were collected from the program's data management system.

Information for all participants, adult and child, was de-identified and coded for use in the analysis of each child's assessment and screening results. Information used was secondary data as the information was gathered for use and examined in the self-assessment process of the district Head Start program. All secondary data was coded and electronically entered for analysis by an unbiased technician using an Excel spreadsheet initially for ease of comparison and to check completion of all potential descriptors for each participant. Finally, the data was transferred to the Statistical Package for the Social Sciences (SPSS) software for examination, analysis and evaluation.

Table 7 provides a summary of the research questions and the analysis methods designed to evaluate and compare the secondary data gathered primarily from district and program records.

Table 7

Research Questions and Data Analysis

Research Question	Data Sources	Methods	Data Analysis
1. To what extent can *more effective and less effective* Head Start teachers in an independent school district (ISD) setting be differentiated by Classroom Assessment Scoring System (®) scores?	a. 21 Head Start teachers with early childhood certification b. CLASS® scores for each Head Start teacher on two separate observation events per year	ISD Head Start teachers will be separated into two groups of more effective and less effective based on scores received on CLASS® at two times during the school year. Division of scores will be determined by a natural break in the overall scores among each teacher cohort	Descriptive statistics to examine the extent to which the CLASS® scores differentiate between more effective and less effective Head Start teachers.
2. Are there significant differences ($p < .05$) on student outcomes between *more effective and less effective teachers?* (continued)	a. 425 Head Start eligible students who entered kindergarten in the district without attending a Head Start program b. 114 Head Start eligible students who entered kindergarten in the district after attending the district Head Start program c. Results on Kindergarten Information Report	a. List of Head Start eligible students who did not attend district Head Start will be generated from district *Public Education Information Management System* (*PEIMS*) data b. List of Head Start students will be generated from program data management system, ChildPlus c. Soc/emo ratings for students who participated in Head Start will be compared to Head Start eligible students who did not participate in the district Head Start program	a. *t*-test comparing results from the KIR between ISD Head Start and non-Head Start students b. *t*-test comparing ® scores for more effective and less effective Head Start teachers and results from the KIR between ISD Head Start and non-Head Start students

Research Question	Data Sources	Methods	Data Analysis
3a. Are there significant differences ($p<.05$) on student outcomes+ between Head Start and non-Head Start students based on kindergarten assessment scores?	a. 114 Head Start eligible students who entered kindergarten in the district after attending the district Head Start program	a. List of Head Start students who did attend the program is generated by program software system ChildPlus	Separate t-test comparing kindergarten assessment scores for ISD Head Start and non-Head Start students on: a. student outcomes (cognitive)
3b. Are there significant differences ($p<.05$) on student outcomes between Head Start and non-Head Start students based on attendance?	b. 425 Head Start eligible students who entered kindergarten in the district without attending a Head Start program	b. List of Head Start eligible students who did not attend district Head Start will be generated from district *PEIMS* data	b. attendance
3c. Are there significant differences ($p<.05$) in students' social-emotional outcomes between Head Start and non-Head Start students after the kindergarten year? (related area: Behavior**)			c. social-emotional and behavior

Research Question	Data Sources	Methodology	Data Analysis
4. Are there significant differences ($p<.05$) in students' **social-emotional outcomes** between *more effective and less effective* Head Start teachers based on individual Kindergarten teacher surveys after the kindergarten year?	a. 425 Head Start eligible students who entered kindergarten in the district **without** attending a Head Start program	a. List of Head Start students who did attend the program is generated by program software system ChildPlus	a. t-test comparing results from the KIR between ISD Head Start and non-Head Start students
	b. 114 Head Start eligible students who entered kindergarten in the district after attending the district Head Start program	b. t test comparing CLASS™ scores for more effective and less effective Head Start teachers	b. t-test comparing social-emotional outcomes from teacher ranked results on KIR for ISD Head Start students based on more effective and less effective CLASS™ scores for Head Start teachers
	c. Social-emotional ratings for students who participated in Head Start will be compared among more effective and less effective Head Start teachers	c. Results on Kindergarten Information Report (KIR) completed by individual teachers	
5. Are there significant differences ($p<.05$) in scores on formal screening done at kindergarten entry with the results obtained by teacher report at the end of the kindergarten year?	a. 114 Head Start eligible students who entered kindergarten in the district after attending the district Head Start program	a. List of Head Start students who did attend the program is generated by program data management system, ChildPlus	*t*-test comparing scores on formal screening (English and Spanish) at beginning of K year and results on teacher report from KIR at end of K year
	b. Data from K screener will be compared to data from end of year	b. Formal results from kindergarten screeners TPRI and Tejas Lee	
		c. Results on Kindergarten Information Report (KIR)	

CHAPTER IV
RESULTS

The results of this study are presented by the five specific research questions. The first question examines how the effectiveness of the Head Start teacher can be differentiated using the Classroom Assessment Scoring System® (CLASS®). The second question addresses the differences in student outcomes based on the teachers' effectiveness. The next question is broken into three parts to examine students' cognitive outcomes, social-emotional skills and attendance rates between Head Start and non-Head Start students. The fourth question blends the previous elements of Head Start teacher effectiveness and the kindergarten teacher ranking scale at the end of the school year for the area of social-emotional outcomes. Finally, the fifth question explores differences between Head Start and non-Head Start students on the formal assessment at the beginning of kindergarten compared with the kindergarten teacher report at the end of the year. The tests and results for each of these questions are discussed in the following paragraphs.

One focus of this study was examining the effectiveness of Head Start teachers and their ability to provide support and learning opportunities for children during the Head Start year. This question was examined through the Classroom Assessment Scoring System® (CLASS®) instrument and is detailed in the next section.

Another basic question for this research was to investigate "Is there a significant difference on outcomes which influence school readiness between Head Start children and those non-participants who were eligible for Head Start?". Teachers rated individual students on four factors that contribute to positive early school skills for young learners: (a) attendance, (b) behavior, (c) social-emotional skills and (d) cognitive function. The outcome data was also

examined to determine if there were any significant differences by ethnicity, gender and language. The results are examined in the following sections.

Results for Teacher Effectiveness

This section describes the results on the skills and practices that describe an effective early childhood teacher. The instrument used to determine these characteristics, the Classroom Assessment Scoring System® (CLASS®) is designed to measure teacher/child interactions throughout the school day and in a variety of situations ranging from meals to large and small group experiences to center-based activities. Since the sample was found to be too small to conduct a discriminant function analysis, I used descriptive analysis to determine more-effective and less-effective teachers. The determination was based on a relative difference in the scores that allowed the data to be categorized into two separate groups. Table 9 shows the CLASS® scores for teachers with a different natural break for the three domains of the instrument. Notably, the differences in the individual scores that create the break in each domain increase from Emotional Support (0.08) to Classroom Organization (0.11) to Instructional Support (1.0) in the inverse way that national scores decrease; in other words, it becomes increasingly difficult to attain high level scores in the domains in the order that they are presented and the differences in teacher scores become more separate. The divisions on the table separate the teachers into more effective and less effective based on classroom observations conducted by trained and certified CLASS® observers who are familiar with both the ISD Head Start program and the teachers and environments observed.

To assess this difference in the effectiveness of the teachers, scores from the total CLASS® observations were averaged and are listed in Table 8. The scores in each of the domains—Emotional Support, Classroom Organization and Instructional Support--range from

the low level of 1-2, to mid-level of 3-5 to high level of 6-7. The Emotional Support domain incorporates positive support for students including perspective and respect. Results show the majority of the Head Start teachers observed received a score in or near the high range (6-7), which is typical across the nation among Head Start staff (https://eclkc.ohs.acf.hhs.gov/sites/default/files/pdf/national-class-2017-data). The domain of Classroom Organization which includes management of child behavior and the instructional environment indicate somewhat lower scores that the Emotional Support domain although the division point remains in the high range, but at the low end (6.00). Finally, the Instructional Support scores are the lowest of the three domains which, again, is similar to national scores for Head Start classrooms. This domain, which encompasses support for student learning opportunities, including language and concept development, has a division point in the high end of the mid-range at 4.67.

Means for the 2017 national Head Start scores (selected because of the dates of the study) are also included on Table 8. The score division between more effective and less effective teachers for the ISD Head Start teachers in this study is higher than the means on the CLASS® scores for Head Start teachers across the nation. This high level of staff performance is important to consider as the value of intentional and quality teaching for young children who may be at-risk for academic success is at the forefront of the effort being made to close the achievement gap. The first research question is answered by these results which show the division of effectiveness possible through the use of the CLASS® instrument. Information from these distinctions were used in the following analyses of student outcomes and teacher effectiveness.

Table 8

Teacher Scores on CLASS® Observations

Teacher Code	Emotional Support	Teacher Code	Classroom Organization	Teacher Code	Instructional Support
2	6.25	7	6.17	4	5.67
4	6.25	4	6.00	7	4.89
9	6.25	9	6.00	10	4.87
11	6.25	10	6.00	12	4.67
12	6.25	11	6.00	Division Difference (1.0)	
Division Difference (0.08)		12	6.00	11	3.67
7	6.17	Division Difference (0.11)		9	3.43
10	6.08	2	5.89	2	2.89
8	5.75	8	5.67	8	2.67
16	5.75	16	5.44	16	2.11
Break	**6.25**		**6.00**		**4.67**
National Mean (2017)	6.07		5.83		3.00

Key: CLASS® observation scores: Low range: 1-2; Mid-range: 3-5; High range: 6-7

Results on Student Outcomes and Teacher Effectiveness

The second question addresses the differences in student outcomes based on the teachers' effectiveness. The source for the teacher information used in this evaluation is from the CLASS® scores conducted twice each year. Scores were averaged for the year and are listed on Table 9. Specifically, scores on this table show that for Emotional Support, the majority of the

Head Start teachers observed received a score in or near the high range. This is typical of the scores of Head Start teachers across the nation as Emotional Support remains the domain with the highest overall mean score.

The results indicate that there are significant differences between the two groups of teachers on social/emotional, behavior, attendance, and cognitive outcomes. Students of more effective Head Start teachers, as determined from their Emotional Support scores on CLASS®, were found to have more positive scores on ($p < 0.05$) in social/emotional, behavior and cognitive outcomes on the KIR.

Table 9

Student Scores Based on More Effective-Less Effective Teachers: Emotional Support

KIR Score	More Effective N = 55		Less Effective N = 30		F	*p*
	M	SD	M	SD		
Social/Emotional	1.455	.088	1.933	1.202	4.320	.041*
Behavior	1.473	.086	2.100	1.094	8.521	.005**
Attendance	1.546	.741	1.867	.899	3.130	.081
Cognitive	3.527	.979	2.700	1.119	12.529	.001**

Key: Scores for Social/Emotional, Behavior and Attendance range from 1 (highest) to 4 (lowest); scores for Cognitive range from 4 (highest) to 1 (lowest) *$p < .05$; **$p < .01$

Table 10 shows significance in social/emotional at the .05 level and significance in behavior and cognitive at the .01 level which indicates that highly effective teachers in the emotional support domain are more likely to have students with better social/emotional and behavior skills and more positive cognitive skills than less effective teachers in this domain.

Table 10

Student Scores Based on More Effective-Less Effective Teachers: Classroom Organization

KIR Score	More Effective N = 60		Less Effective N = 25		F	*p*
	M	SD	M	SD		
Social/Emotional	1.567	1.048	1.760	1.011	.613	.436
Behavior	1.650	. 954	1.840	1.068	.653	.422
Attendance	1.517	.701	1.960	.935	5.763	.**019***
Cognitive	3.383	1.075	2.960	1.098	2.701	.104

Key: Scores for Social/Emotional, Behavior and Attendance range from 1 (highest) to 4 (lowest); scores for Cognitive range from 4 (highest) to 1 (lowest) *$p < .05$

Results on Table 11 show significance in attendance at the .05 level which indicates that highly effective teachers in the classroom organization domain are more likely to have students with a higher rate of attendance than less effective teachers in this domain. Students of more effective teachers in the Classroom Organization domain did not score better than students of less effective teachers in that domain in the areas of social/emotional, behavior or cognitive.

Table 11

Student Scores Based on More Effective-Less Effective Teachers: Instructional Support

KIR Score	More Effective N = 32		Less Effective N = 53		F	*p*
	M	SD	M	SD		
Social/Emotional	1.562	1.076	1.660	1.018	.177	.675
Behavior	1.688	.998	1.736	.984	.048	.828
Attendance	1.531	.671	1.717	.863	1.083	.301
Cognitive	3.375	1.099	3.188	1.092	.577	.450

Key: Scores for Social/Emotional, Behavior and Attendance range from 1 (highest) to 4 (lowest); scores for Cognitive range from 4 (highest) to 1 (lowest)

Table 11 shows there is no significance shown in the domain of Instructional Support for more effective teachers in social/emotional, behavior, cognitive or attendance. An overview of the more effective teachers' impact shows that highly effective teachers from the Emotional Support domain and the Classroom Organization domain have higher scores on the end of year kindergarten assessments. Translated to practice, these teachers have close teacher-child relationships and maintain an orderly and efficient learning environment, thus providing opportunities for children to gain skills that can carry forward to their successful kindergarten year.

Teacher Effectiveness and Kindergarten Social/Emotional Outcomes

The ability to control and monitor emotions and movements of their body is a major challenge for young learners. In order to provide support to the children in the classroom, a priority must be given to learning, practicing and developing behavior strategies and social/emotional strengths. The significance in the scores for social/emotional and behavior in Table 9 is notable because a main goal for young learners' classrooms is to foster the skills necessary for self-regulation as well as regulation of their emotions within a group context. The social/emotional skill set should contribute to the development of appropriate coping strategies which, in turn, influence a child's behavior within the group. While the results in Table 10 show significance in both social/emotional and behavior, the significance of the cognitive scores indicates the importance of an emotionally safe environment on actual learning opportunities in an early education setting.

Results for Attendance Outcomes

Another area for consideration is the result which approaches significance (Emotional Support) and shows significance (Classroom Organization) for children whose teachers scored as most effective: Attendance. Attendance in an independent school district is taken daily at a prescribed time in the morning. Data is input into a campus-based system by the classroom teacher and then aggregated by the campus attendance clerk. The clerk is responsible for input into a state attendance system which is governed by an attendance accounting handbook. The importance of timely and accurate data is due to its connection to state funding that contributes to the district based on an "average daily attendance" amount for each child present. Attendance on the KIR is measured from the highest score of 1 which indicates consistent daily, on-time attendance to a 4 which indicates that the child has missed at least 25% of class days due to non-attendance or tardiness. (A significant number of late arrivals are pooled together to add to the days of non-attendance.) Results for this category show that the children of the most effective teachers were actually closer to the ideal score of 1 for attendance than those in less effective teachers' classrooms. The results reveal that that the attendance scores of students are significantly ($p < .05$) better in the classrooms of teachers who scored as more effective in the Classroom Organization domain. Students of more effective teachers in the Classroom Organization domain did not score better than students of less effective teachers in that domain in the areas of social/emotional, behavior and cognitive.

The third research question asked: Does the average kindergarten student who participated in the ISD Head Start program attend school more often that the average kindergarten student who was eligible for the services but did *not* participate in the program? and is addressed in this section. It is assumed the non-participating students were not enrolled in

Head Start in any location as most of this group remained on the wait list for the ISD Head Start program during their four-year old year.

Table 12
Head Start Compared to Non-Head Start: Attendance

Sample	N	Mean	SD	SE Mean
Head Start	114	1.675	.849	.078
Non-Head Start	425	1.894	1.150	.055

$t = 2.262$; $p = .0987$
Key: Scores range from 1 (highest) to 4 (lowest)

The sample groups used in this analysis were kindergarten students who participated in the ISD Head Start program and the students who, although eligible for the Head Start program by income, did not participate in the program due to lack of space in the federally capped (196 slots) enrollment. The results reveal that there were no significant differences between the two groups on student attendance.

Results for Head Start vs Non-Head Start Outcomes: Cognitive

The KIR scoring system for Cognitive Outcomes uses "4" as the highest measure of accomplishment for a student's result. This is in direct opposition to the three other areas of assessment for the end of year kindergarten instrument which employ a "4" as the lowest resulting score. In examining the data from the assessment, it is noted that the cognitive mean is slightly over "3" which indicates a score described as either "3: child occasionally struggled in at least one academic/physical area" or "4: child successfully met all expectations and requirements for positive cognitive outcomes".

Table 13

Head Start Compared to Non-Head Start: Cognitive Outcomes

Sample	N	Mean	StDev	SE Mean
Head Start	114	3.1667	1.1154	0.1045
Non-Head Start	425	3.0447	1.1274	0.0547

$t = 1.0348$; $p = .3022$

Key: Cognitive outcomes are ranked from 4 (highest) to 1 (lowest).

No significant differences were found between Head Start and non-Head Start students. Head Start students, however, did show a slightly higher mean (+0.122) than the non-Head Start students.

As a simple explanation of gender differences in Cognitive Outcomes, a simple crosstabulation was conducted and is shown in Table 14. More males (53%) than females (47%) participated in the study. More males scored 1 (lowest) to 3 than females; more females scored 4 (highest) than males. The total number of males scoring 0 (no score reported) to 3 is 151 or 53% while the number of males scoring 4 (highest) is 133 or 46%.

Conversely, females with scores of 0 to 3 is 108 (42%) and females with a score of 4 is 145 (57%). Females scores in each of the 0-3 categories were smaller than the males with the score of 4 being higher indicating that females scored higher than males overall on the cognitive outcomes evaluation by kindergarten teachers at the end of the year.

Table 14

Gender*KIR-Cognitive Outcomes Crosstabulation

		KIR-Cognitive Outcomes					
		.0	1.0	2.0	3.0	4.0	Total
Gender	1	12	**37**	**47**	**55**	133	284
	2	11	20	34	43	**145**	253
Total		23	57	81	98	278	537

Bold indicates larger number of participants.

Table 15 shows the results from the ANOVA conducted to test for interaction among the variables of race, sex and language (lang2).

Table 15

ANOVA: Tests of Between-Subjects Effects for Cognitive Outcomes

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	36.338[a]	15	2.423	1.664	.054
Intercept	817.848	1	817.848	561.835	.000
Race	2.285	3	.762	.523	.666
Sex	6.815	1	6.815	4.682	**.031***
lang2	2.146	1	2.146	1.474	.225
Race * Sex	6.076	3	2.025	1.391	.245
Race * lang2	6.215	3	2.072	1.423	.235
Sex * lang2	3.676	1	3.676	2.526	.113
Race * Sex * lang2	3.590	3	1.197	.822	.482
Error	758.405	521	1.456		
Total	5727.250				
Corrected Total	794.743				

R Squared = .046 (Adjusted R Squared = .018)

*$p < .05$

There is no significant difference by language (lang2) or race and no significant interaction among the three variables. However, there is statistical significance (.031) shown with sex at the $p < .05$ level.

Although there were few significant differences, I also reported the cognitive outcomes means of specific groups. A trend of slightly higher means continued for all subgroups in the Head Start program is displayed in Table 16 below (except for first language English students).

Table 16

Cognitive Outcomes for Specific Student Groups

	Head Start		Non-Head Start	
Group	Mean	SD	Mean	SD
Overall: N: 539	**3.167**	1.115	3.045	1.127
N (HS): 114				
N (Non-HS): 425				
Males				
N (HS): 64	**3.343**	.895	3.049	1.065
N (Non-HS): 222				
Females				
N (HS): 46	**3.565**	.719	3.335	.982
N (Non-HS): 182				
White				
N (HS): 26	**3.444**	.157	3.323	.102
N (Non-HS): 102				
African American				
N (HS): 37	**3.216**	.886	2.934	1.074
N (Non-HS): 122				
Hispanic				
N (HS): 38	**3.421**	.889	3.221	.097
N (Non-HS): 122				
Other				
N (HS): 8	**4.000**	.000	3.380	.188
N (Non-HS): 21				

Key: Cognitive scores are ranked from 4 (highest) to 1 (lowest); **Bold** indicates higher mean

Table 16 shows a higher mean for every Head Start student group over the non-Head Start students. Although not statistically significant, the higher means suggest that Head Start students were rated higher on the teacher reported Kindergarten Information Report (KIR) than the non-Head Start students. Other items of note are regarding race. The scores for African American Head Start students show a mean that is slightly higher than the overall student rating scores, but still the lowest of the four ethnicities posted. However, the *p* value ($p <. 05$) approaches statistical significance at 0.0561. Hispanic students showed the third highest mean rating for cognitive outcomes, following Asian and White students. The cognitive scores for Asian students show a rare perfect rating for the Head Start students with a mean of 4.000.

There are also specific comparisons by sex. Data for female students of all ethnicities and languages was examined with a comparison of Head Start and non-Head Start students. The cognitive outcomes mean for Head Start females is higher than the mean for overall Head Start students and is significant at the $p < 0.05$ level. The mean for Head Start females is higher than either Head Start or non-Head Start males, as well as non-Head Start females. Apart from the "Other" category (which is .05% of the total group), the mean is the higher than all other groups. The cognitive outcomes mean for Head Start males is higher than the mean for overall Head Start students and it is significant at the $p < 0.05$ level.

To summarize the findings for the Cognitive rating results, the overall scores for Head Start and non-Head Start students were not significant at any level. However, when scores were disaggregated to examine specific race and gender groups, there were some slight differences found.

Results for Comparison of Screener to End of Year Assessment

The final research question examined the relationship of the initial kindergarten screening instrument which measures letter knowledge and phoneme blending ability in both English and Spanish speaking five year olds and the end of year results from teacher scored cognitive outcomes evaluation. This investigation used an independent samples t-test to find whether the children at-risk at the beginning of their kindergarten experience remained at-risk after one year in a district kindergarten classroom. The results are illustrated in Table 17.

Table 17

Beginning of Year Screener Compared to End of Year Teacher Report of Outcomes: Cognitive

					95% Confidence Interval of the Difference	
	t	*df*	Sig. (2-tailed)	Mean Difference	Lower	Upper
KIR-O	57.677	536	.000	3.031	2.92	3.13
Score 1	46.395	303	.000	1.553	1.49	1.62
Score 2	50.443	300	.000	1.694	1.63	1.76

Score 1: Letter Knowledge
Score 2: Blending Phonemes

The t-test was used to determine comparison between the initial screener used for children entering kindergarten and the end of year outcomes measure completed by the kindergarten teachers for each child. The results show that there were significantly higher scores at the end of the year.

Kindergarten Teacher Experience as an Influence on Outcomes

One additional question for this study concerned the teaching experience of the kindergarten teachers and this experience as a factor in student outcomes for children at-risk for

school success. The initial step was to evaluate the years of experience of the approximately 40 kindergarten teachers in the district (eight campuses with an average of five kindergarten classes each). This service time inquiry was accomplished via personal emails and, absent an email response, records were requested through the ISD Human Resources department. Table 19 shows the variety of experience levels and the return rates of observation/evaluation forms for the children in their classes during the study years. There was no trend established with the years of experience or return rate data. The proportion of reports returned did not seem to have a single common characteristic, except that the 2013-2014 set which was sent very late (after the new school year began) understandably had a very low rate of return (23%).

Table 18

Kindergarten Teacher Experience and Return Rates

	Experience Levels					
Program Year (Return Rate)	1-4 years	5-10 years	11-15 years	16-20 years	21 + years	Mean Years of Experience
2012-2013 (25 = 63%)	6 24%	6 24%	2 8%	5 20%	6 24%	13
2013-2014 (9 = 23%)	3 33%	0 0%	1 10%	1 10%	4 44%	17
2014-2015 (22) (22 = 55%)	4 18%	9 41%	3 14%	3 14%	3 14%	13
2015-2016 (20) (20 = 50%)	1 5%	9 45%	5 25%	0 0%	5 25%	13

Experience levels of the kindergarten teachers in this independent school district varied from one year to over 25 years. It is important to note that the teachers represented were the ones who chose to return the information requested in the timeframe that allowed its use. From a

district wide pool of approximately 40 teachers (n=40 was used for percentage calculations), the average return rate was 47.75%.

The number of teachers who submitted their evaluations also varied from year to year with the first year (2012-2013) having the highest number returned (25). The second year (2013-2014) was the lowest return rate with only 9 teachers represented. The third (2014-2015) and fourth (2015-2016) years were similar to one another and to the first year with slightly lower rates of 22 and 20. Of the teacher evaluations returned, years one and three showed the closest comparative results for teacher experience. Year one had three categories with the same percentages which were the highest for the year. Year three also had three categories with the same percentages, but these were the lowest for the year. Regarding the overall experience levels of kindergarten teachers, Year 2 had zero teachers in the six-ten year category while year four had zero teachers in the 16-20 year category. The experience mean for each year is shown in a separate column on Table 19 and is the same for the first, third and fourth years. The mean for year two is higher due to the deep experience levels of teachers who returned reports that year. Four of the nine teachers represented had an experience level of over 20 years.

There were four teachers—three in year one and one which repeats in years three and four—who did not have accessible experience records. Because these teachers returned data on their children, their data was included in the overall pool, although they were not included in the experience compilations. One interesting element in the experience documentation is the four current kindergarten teachers who have been Head Start teachers and the four current Head Start teachers who have been kindergarten teachers. Only one teacher intersects both positions during the years of this study.

Following the assessment of teacher experience and return rate, an independent samples t-test was conducted to compare students' cognitive outcomes for the kindergarten teacher experience levels of 0-10 years and 11 years plus years. Table 19 shows the results of this analysis. The secondary information provided by the early education program was input into the SPSS analysis program which determined that there was no significance shown in this test. There was not a significant difference in the scores for the lower level of teacher experience (M=2.929, SD=1.2263) versus the more experienced teachers (M=3.024; SD=1.2484); *t*=-.836).

Table 19

Kindergarten Teacher Experience and Cognitive Student Outcomes

	Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
KIR Outcomes	*F*	Sig.	*t*	*df*	Sig. (2-tailed)	Mean Difference	Std. Error Diff	Lower	Upper
Equal variances assumed	.174	.676	-.836	478	.404	-.0946	.1132	-.3172	.1279
Equal variances not assumed			-.837	472.521	.403	-.0946	.1131	-.3169	.1276

Summary

The results of various inquiries presented by the research questions have been detailed in this chapter. Examination of the impact of teacher experience, the comparison of Head Start and non-Head Start attendance among a similar population of income eligible students and specific

investigation of social/emotional, attendance and gender differences in the outcomes at the end of the kindergarten year on teacher-rated assessments were focused on during this study. The results were surprising in that there was not an obviously significant difference in the ratings for Head Start students. The following chapter will provide a summary examination of the results and will describe further the limitations, implications and further research suggestions.

CHAPTER V

SUMMARY, IMPLICATIONS, AND CONCLUSION

This chapter summarizes the results and discusses implications and conclusions derived from the current study, presented in four sections. Section one discusses the overall and significant results in terms of kindergarten outcomes for Head Start participants and non-participants, teacher effectiveness based on the results of the Classroom Assessment Scoring System® observations and kindergarten teacher experience and any noted impacts on final assessments. Section two compares the results from this study to prior research, with particular attention paid to studies including Head Start or other low-income participants. Section three presents implications for practice based on the results of the current study. Implications for classroom processes as well as professional development and coaching support will be addressed. Section four discusses study limitations and comments on the potential research opportunities which could be built on and expanded from this study.

Summary of Results

Data for examination was gathered previously by the ISD's early education department and therefore was secondary for consideration within the context of this study. There were three main sources of this secondary data: (a) a rating instrument sent to district kindergarten teachers which requested numeric responses on four areas (attendance, behavior, social-emotional and cognitive); (b) screening data gathered by the child's teacher and compiled during the first weeks of kindergarten and (c) Classroom Assessment Scoring System® (CLASS®) data gathered in the course of the year from regularly scheduled observations of Head Start teachers. The three data sources were organized in one spreadsheet to be analyzed across a variety of demographic

variables as well as connections between Head Start teachers, kindergarten teachers and children in their classes over a period of four school years (2012-2013 to 2015-2016). The purpose of this study was to examine the connection of teachers' quality of instruction (based on more/less effectiveness) with the initial kindergarten screening and final scores on assessments of children at risk for academic success due to low socioeconomic situations and to ascertain the potential differences in assessment results between Head Start and non-Head Start children.

Summary of Teacher Effectiveness

Among the first steps in the study was a determination of the staff regarding their effectiveness as gauged by the CLASS® instrument. Teachers were observed by CLASS® certified administrators and the aggregated results were examined for division to separate the teachers into more effective and less effective categories in an objective way. Results from this process separated the teachers into more effective and less effective in the three domains of the CLASS® protocol. The two groups were used as variables through the examination of student outcomes in the four areas of the Kindergarten Information Report (KIR) which was completed by the kindergarten teachers for Head Start eligible students, participants and non-participants. The results of these investigations will be discussed by CLASS® domain.

Teachers who were more effective in the Emotional Support domain had more positive outcomes. As determined from their Emotional Support scores on CLASS®, this group was found to have more positive scores ($p < 0.05$) in social/emotional, behavior and cognitive outcomes on the KIR. Teachers who have an understanding of social/emotional skills as the foundation for all learning create a "positive climate" as stated by CLASS®. This climate, which includes positive relationships, teacher sensitivity and regard for student perspective, sets the stage for appropriate learning experiences. Highly-effective teachers in the Emotional Support

domain are more likely to have students who were rated as having more positive social/emotional and behavior skills and a higher cognitive score than less effective teachers in this domain.

The second domain of CLASS® examined was Classroom Organization. This group of more effective teachers are more likely to have students with a higher rate of attendance. The details required in the indicators of the CLASS® instrument such as productivity and a variety of instructional learning formats create a classroom which is energetic and easy to navigate. Whole group, small group and individualized settings are engaging learning opportunities that are structured for both creative and interactive experiences as well as more formal teacher directed activities. Teachers who are more effective in this area understand pacing, anticipatory set and use of a variety of engaging and meaningful strategies. Assembling a classroom to be an inviting, challenging and safe environment ensures children that there are going to be exciting learning opportunities when they come to school. This important component of the child's involvement in decision making can help boost attendance.

The attendance process in an ISD classroom entails a report by the teacher based on her observation of the children present in the classroom, the electronic submission of that report to the campus office and then the final input of the data into the state accounting system by the campus attendance clerk. The results of attendance can be attributed to the intentional relationships that are built with families before the first day of school. Home visits which include a book to begin or add to a family's home library, required parent orientation meetings at the campus to familiarize families with details and requirements for being on campus, open invitations to participate in the activities of the classroom, the program and the campus contribute to a sense of partnership with families. Additionally, a Family Advocate is assigned to

each family. This person is assigned to check on any absence that is not previously explained by the parent by 9:00 on the day of the absence. (Illnesses and appointments are excused absences. Oversleeping is not.) Follow-up conversations, problem-solving and support in the form of transportation assistance, morning routine support and reminders of parental expectations for compliance with campus policy reinforce the need for consistent and in-time attendance for all children. Families who trust a teacher with their child and a child who feels connected and engaged by the learning environment create a strong pattern of consistent and on-time participation in the program

Finally, there was no significant differences for the domain of Instructional Support for more effective teachers in social/emotional, behavior, attendance or cognitive. This domain is the most demanding in which to achieve a high score. The skills required, which are high level and can be difficult to perform, include cognitive development built around open-ended questions and thinking prompts, quality feedback and language modeling. Each of these have a number of indicators and skills associated with them which can be challenging for the best teacher. Instructional Support is an area that requires preparation, forethought and reflection on the part of the teacher to be able to exhibit a true teaching opportunity which can lead to positive outcomes for young learners. Instructional Support is the domain that is the lowest nationally and one that requires coaching, practice and time to develop a more effective teacher who can score in the high range on a CLASS® observation.

The three domains of the CLASS® instrument provide a complex representation of quality interactions, management and instruction in an early learning environment. The scores of more effective and less effective teachers provide a scale which can assist with professional development, personal coaching and peer mentoring opportunities. The more effective teachers

in the Emotional Support domain develop and sustain the kind of relationships with the children in their classes that provide support in areas that lead to school readiness: social/emotional, behavior and cognitive. The more effective teachers in the Classroom Organization domain create and manage an environment that is engaging, inviting and safe which encourages consistent attendance. The lack of positive outcomes even for more effective teachers in the Instructional Support domain illustrates the difficulty in accomplishing the skills that the indicators measure. In addition, it provides a specific route for professional development and other learning and practice opportunities for teachers.

Examining scores regarding teacher experience shows that the two teachers who are effective in all CLASS® domains are relatively new teachers with less than five years of experience. The two teachers who are ineffective in all CLASS® domains have mixed experience, one having less than five years and one having 5-10 years. This situation creates a quandary for the concept of teacher experience making a difference in practice. It could be supposed that the energy and enthusiasm of a new teacher, combined with high quality professional development could have contributed to the effectiveness. Conversely, however, the lowest scoring teacher was also a new teacher with 1 to 5 years of experience. One difference between the more effective and less effective teachers is their background and previous work experiences. The more effective teachers both came from situations which included children in high risk situations and low income families. The less effective teachers had a more mixed background, having worked in programs with high income families and in more affluent settings. While good practice is good practice regardless of the venue, the circumstances of the classroom which include both child behavior and their previous experiences could impact a teacher's ability to supervise the class in a manner that allowed efficient instruction and positive management. In

this framework, the teachers with more experience in a similar setting to a Head Start classroom could have an advantage for management and control of the instructional environment.

Another similarity between the two less effective teachers is their campus assignment. Both were at the same campus, including being in the same classroom in different years as one teacher replaced the other when that teacher left the classroom to move into a different role in another district. The classroom itself is minimal in square footage and has only one small window that is not available for use by children. The room layout is configured in an inconvenient way to allow for sufficient space for learning center set up and has little wall space for display or activities. The campus itself is home to the Elementary Adaptive Behavior Unit for the district which takes a great deal of the time and attention of the administrative team. While the principal is congenial toward young learners, her time and energy are often directed to other situations and students. This combination of factors could influence the atmosphere and attitudes for the Head Start staff at this campus.

The classrooms of the more effective teachers, while not at the same school, are on campuses which are similarly configured. They both have a pod set up where a bathroom and storage area separate two early learning classrooms so there is proximity for both support and management if required. Additionally, the more effective teachers have the opportunity to share ideas and challenges with another teacher, as opposed to the two less effective teachers who were the only early childhood staff on their campus.

In examining the campus placements of the more effective and less effective teachers, one campus stands out as having the highest number (5) of more effective teachers over the years of the study. The principal of this campus has an early childhood degree, is a former pre-kindergarten teacher and is a strong early literacy advocate. The professional development at the

campus tends to focus on strategies that, while directed as supports for standardized testing, can also be advantageous with young children. In addition, the Parent-Teacher organization at the campus provides monetary and other supports to the Head Start class which allows them to participate completely in the campus activities and events.

In summary, having consistent administrative presence, an environment that is conducive to appropriate management and instruction and the presence of early childhood partners nearby can allow for the most positive development of new teachers into effective early educators which, in turn, provides the best learning opportunities for children.

Summary of Head Start vs Non-Head Start Participation

The population eligible for enrollment and participation in Head Start is, by federal mandate, low income and may come to school with myriad other issues and concerns. However, the possibility of enrolling in the program and receiving the services offered can have an impact on successful school experiences. There were no significant differences found between Head Start participants and non-Head Start participants. Head Start students, however, did show a slightly higher mean (+0.122) than the non-Head Start students. This trend of slightly higher means continued for all subgroups as illustrated in Table 19 except for first language English students.

One of the explanations for this finding is that Head Start children often enter the program with very little background knowledge and vocabulary development. Being at the lower level of achievement upon entry allows for gains immediately upon exposure to new information and language opportunities. In addition, children from low-income families may come with little exposure to social/emotional skills and more defined school rules such as turn taking and conversation strategies. Again, with exposure, modeling and practice opportunities, these skills

can be learned. Finally, as a whole-family program, parents are provided information and strategies for home use that can reinforce the skills taught in the classroom. While this combination of factors may not be adequate to result in statistically significant outcomes results, they are sufficient to indicate some slight growth based on the Head Start experiences which transfers into the slightly higher means when compared to children from similar settings who did not have the same opportunities.

The qualifying factor for Head Start is poverty-level income. While a family may live at the national guideline (i.e. $24,000 for a family of four), it is well known that many families who come under the poverty guideline exist at only half that amount in what is called by the Annie B. Casey Foundation, "deep poverty" (Kids Count, 2019). Many children come to Head Start much more than one school year behind. In addition to poverty, this deficit may be caused by language, challenging experiences such as food or housing insecurity, lack of academic exposure, special needs or childhood trauma experiences. While a child in a quality learning environment may make a year of progress, if the child is more than a year behind, the child remains behind. This achievement gap is hard to overcome and it is challenging to close. The finding that Head Start children in the present study had higher means in some instances than their non-Head Start peers is encouraging. Considering the data and deciphering a way to use the more effective teachers and their strategies and abilities to coach and mentor the less effective group would be the most productive use of the information from this study.

Another area where the Head Start participants scored slightly more positive than the non-participant group was attendance. This could be due to the strong relationships that Head Start seeks to form with families, supporting their needs and verifying that the Head Start classroom is the best place that their young child can be during his preschool years. Head Start in the

community of the present study tends to be a generational program with Head Start "alumni" bringing their own children to enroll and grandparents remaining loyal to both personnel and the program itself. While this is not the ideal situation of encouraging and assisting a family to move up from poverty, in the local situation generational rather than transitional poverty is more the norm. Creating an open opportunity for participation and considering as many family characteristics and strengths as possible, the staff in both classrooms and administrative offices strive to find the most secure and flexible way for a family to feel comfortable about their child's participation in the program. An example of this family-centric service is the assignment of classrooms. While Head Start is not bound to district attendance boundaries in this ISD, there is still the convenience of bus transportation if a child is enrolled in his attendance zone. When this is not possible due to openings in other locations, staff works with the family to find the best alternative in order for the child to have consistent and on-time attendance. When there are extenuating circumstances, such as parent employment at a different campus or a caregiver who lives near a different campus, efforts are made to allow the child to attend at the more convenient location. This variety of circumstances creates a culture of belonging where being at school is important and considered a positive opportunity for a child.

Summary of Teacher Experience and Results of Student Kindergarten Outcomes

A class of 18 Head Start children, all of whom are at risk and may come from challenging backgrounds, is an atypical situation than discussed in many standard teacher preparation programs. Creating an environment for appropriate early learning within a school district is also a distinctive situation and may not be addressed within the context of traditional professional development on an elementary campus. Combining these two circumstances suggests a teacher in a Head Start setting could need out of the ordinary (by district standards) support and

individualized coaching and training could be beneficial to improve the quality of instruction. The CLASS® tool was intended to provide specifically designed opportunities for teachers based on classroom observations. Therefore, the Head Start teachers' ability to deliver high quality instruction is a variable used to determine a connection to child outcomes. In a similar query, the experience level of kindergarten teachers could also be a challenging situation. One teacher, regardless of experience, is assigned to a classroom of up to 22 children without a full-time teaching assistant, with children from a variety of backgrounds, including those living at poverty level and therefore eligible for Head Start. With the more prominent expectation for high level literacy and math outcomes in kindergarten, teacher experience becomes an important variable to be considered.

Within this study, an examination was made specifically of the impact of kindergarten teachers' experience level (as measured in years of teaching) on students' cognitive outcomes. The independent samples t-test conducted did not show significance for teaching experience on cognitive outcomes.

Overall Summary of Results

A variety of outcomes and practices were examined in the course of this study. Discussions and tables in this and previous chapters show details of these examinations and how they affect children in the ISD Head Start program, as well as the comparison with other studies within the past 10 years.

It was possible to determine more effective and less effective teachers through the use of the CLASS® instrument. This tool provided three distinct domains to be considered as teacher strengths: Emotional Support, Classroom Organization and Instructional Support. Each of these domains had their own circumstances, with two of the three showing some positive results. More

effective teachers in the Emotional Support domain had students with more positive scores on social/emotional at the .05 level and on behavior and cognition at the .005 level. Additionally, outcomes for attendance, while not significant, were higher than in less effective teachers' classes. More effective teachers in the Classroom Organization domain had students with more positive outcomes for attendance at the .05 level. The Instructional Support domain did not show positive results in the four categories of the KIR.

Beyond the use of the CLASS® instrument, it was noted that students who attended Head Start had slightly higher means for all scores, although they were not statistically significantly different from non-Head Start students. Head Start, while not presenting with the overwhelmingly positive responses that a program might anticipate, still has the ability to make a difference for young children at-risk by working with its strengths and concentrating on the variables that are proven to be possible, especially those in the Emotional Support realm where the most positive results were reported.

Implications for Literature

Two characteristics of the current study were mirrored in the research review: Head Start or public Pre-Kindergarten populations and the use of the CLASS® instrument as a tool to evaluate teacher interactions. Students in Head Start, pre-kindergarten or preschool classes for low income children were noted in studies conducted by Burchinal et al. (2008); Cadima et al. (2016); Schmitt et al. (2015); Tompkins et al. (2013) and Williford et al. (2013). In examining the outcomes for similar age and income level children, comparable results could be expected; however, the studies from the literature showed stronger outcomes and more specific positive results. As has been stated previously, the results for most of the questions in this study did not have the positive gains anticipated. The findings indicating that participation in the Head Start

program does not have a positive impact on child outcomes in all situations and all populations has been seen in other studies over the past three decades (Currie, 1998; Garces, Thomas, & Currie, 2002). Some studies tend to find that there are differences in results for a variety of reasons. Zhai, Waldfogel, and Brooks-Gunn (2013) determined that the region of the United States made a difference in the outcomes, with the South have more improvement than other regions. McCoy, Morris, Connors, Gomez, and Yoshikawa (2016) determined that results were dependent upon family characteristics and that there were differences in the effects based on urban and rural programs. Bauer (2014) reports that if children were to spend their preschool year in home based care, then Head Start would make a difference, but otherwise it would not. Bloom and Weiland (2015) found that the variance in Head Start centers and programs made outcomes difficult to generalize. Cooper and Lauer (2015) show that effects tend to range from significant to little to none. A more recent study mentions that perhaps the final outcome cannot be clearly defined as it may not be fully understood as yet (Bittler, Hoynes, & Domina, 2017). These varying results are similar to the findings from the present study in that they maintain that there is not a completely positive response to Head Start as a meaningful early childhood intervention.

The studies mentioned previously in Chapter II show more positive results. While each of the studies included either Head Start or Pre-K children in their sample, shared results were not often seen. Burchinal et al. (2008) showed positive interactions and instructional quality provided gains which were sustained enough to counteract “summer slump” in skills. Cadima et al. (2016) found close teacher-child relationships predicted self-regulation improvements and higher gains, while Chien et al. (2010) described that while poor children made the most gains with individualized instruction, they fared worse overall than non-poor groups. Schmitt et al. (2015)

found that self-regulation levels rose in the spring as did school readiness skills for English Language Learners. Tompkins et al. (2013) investigated interactions during pretend play and found that they provided a scaffolding opportunity for children's responses. Children with positive engagement were able to make gains which could overcome lower interaction quality in the classroom according to Williford et al. (2013). Regarding these studies and their comparison to the present study, Burchinal et al. (2008) used a "mature" program as the study population. The program in the current study has been in existence since 1965, with the director in place for over twenty years, thus making it a mature program as well. The results of Cadima et al. (2016) regarding the connection of close teacher-child relationships to higher gains and self-regulation improvements mirror the results from the present study's Emotional Support results. The current study did not see instructional gains (Burchinal et al., 2008) and did not have a comparison to non-poor students (Chien et al., 2010). Further, English Language Learners were not a specific group in this study (Schmitt et al., 2015) and opportunities for investigation during specific activities such as pretend play were not included (Tomkins et al., 2013). Finally, engagement was not a specific area of inquiry as in the Williford et al. (2013) study.

Studies that included the use of the CLASS® tool are Burchinal et al. (2008), Graves and Howes (2011), Hatfield et al. (2017), Keys et al. (2013) and Williford et al. (2013). Details about these studies show how the instrument was used in varying ways to achieve their results. In Burchinal et al. (2008), CLASS® was used with the Early Childhood Environmental Rating Scale (ECERS); however, there was no control group as with the current study. The use of ECERS, which focuses on the environment of the classroom including interactions, adds structural evaluation to the quality investigation. The current study used only the flow of work from Classroom Organization and teacher/child interactions to determine their influence on

student outcomes. Though the current study found some positive connection between the beginning of year screener and the end of year outcomes which might suggest an ongoing effect of a quality Head Start experience, the actual examination of the loss of skills and knowledge over the summer was not addressed. Graves and Howes (2011) also used the CLASS® tool with the Early Childhood Environmental Rating Scale (ECERS). Their findings showed the need for further research on African American boys. The current study showed lower means for both males and African American children which could imitate the work of Graves and Howe (2011). The findings of Hatfield et al. (2016) showed how quality environments and effective interactions create higher levels of readiness. This idea reflects the present study's result that Classroom Organization scores which show the connection to attendance as students must be present in order to receive the benefit of the quality education. Keys et al. (2013) offered a logistical similarity in that their study included multiple sites as did this one with classrooms on eight elementary campuses. Also, the study included three year olds. This program serves three and four year olds in its classrooms, although only four year olds were considered since the purpose was to link kindergarten scores with a quality Head Start year. Williford et al. (2013) added the Peabody Picture Vocabulary Test prompts to their evaluative process. The current study, while using language as an important component of interactions, did not include a vocabulary measure in its evaluation of quality environments and practice.

In other similarities to the findings in the current study, those of the Hatfield et al. (2016) study show that quality environments and effective interactions are seen as supports for positive outcomes that lead to school readiness. Results in this current study state that children in the classrooms of more effective teachers in the Emotional Support and Classroom Organization domains had higher scores at the end of the kindergarten year in all areas of the KIR. Keys et al.

(2013) investigated multiple sites which is similar to the eight campuses investigated in the current study. A difference exists in that the children in that study were three years old, where the population in the present study was only four year olds. Other differences exist in several areas. Although they were a part of present study, there was not a specific focus on African American boys. This study used only the outcomes measurement designed for teacher evaluation instead of other more formal assessments, such as the ECERS or PPVT. Burchinal et al. (2008) did not have a control group, where this study used a similar population, easily available from the waiting list for the Head Start program in this district, as the control group. The main commonality among the two groups was their income level and eligibility for the Head Start program. The most obvious difference between this study and most of the others in the literature review is size. The current study has a total population of 539 four-year old students, with 425 non-Head Start and 114 Head Start. Four of the programs in the literature had over 2700 children; five had between 626 and 914; six had between 118 and 276 and three were 54 or under. As discussed earlier, sample size can impact the integrity of the results so is a logical comparison.

Implications for Research

Although research regarding the early education experiences of young, at-risk learners has been reported for over two decades (Winter & Kelley, 2008), the more recent inclusion of social-emotional learning does not have the same lengthy history. More recent findings (Blair & Raver, 2015; Cadima et al., 2016; Gobel, 2016; Schmitt et al., 2015) suggest social-emotional lessons, experiences and coaching for early education classrooms can facilitate positive outcomes that influence academic success. Accomplishing a study with a focus on social/emotional learning in ISD Head Start classrooms, where children at-risk for kindergarten

success are the major population, could provide data to determine best practice in these particular circumstances, provide professional development guidance and connect family learning opportunities to curriculum used for social/emotional learning to foster a strong home-school bond.

Although family connection and engagement were not included in this study, several studies reviewed in the research (Brotherson et al, 2015; Landry et al., 2017) examined the benefit of supporting families to increase positive outcomes for their children. While a variety of processes were used, a structured and comprehensive family engagement plan was not seen across the investigations in the previous work. A meaningful (and required) component of the Head Start philosophy is the "whole family" approach, along with the targeted work of building relationships with parents who are regarded as the child's first teacher. The state of Texas has adopted a similar requirement as a component of their recently funded high-quality pre-kindergarten programming. Using a family centered curriculum which is research based and designed for use with low-income parents would be a beneficial action to provide support to Head Start programs in particular and other early learning programs in general. A study of the topics and strategies most effective with the parents involved could streamline planning and preparation by staff members as well as ensure meaning and connection for the families who participate.

Another area of research not noted in the current study is the opportunity to include family elements such as composition and number of children in the home, housing and food security status and protective/risk factors in the family's life. An understanding of the child's home situation as an influence on his/her ability resonates with the original theoretical basis by Bronfenbrenner (1974) and Bronfenbrenner and Morris (2006) used for this study. Their work

laid the groundwork for blending critical considerations of family life with the important preparation for successful learning. Following this theory and exploring the connections teachers could forge with families would be another valuable support to positive early learning outcomes.

Finally, the investigation of programs for young children did not follow a specific perspective on early education. While there are a number of accepted curricula, well researched interventions and plausible choices of education philosophy included in the literature review (Pears et al., 2014; Schmitt et al., 2015), few of the studies set a standard for best practice. Future studies should examine the type of programming and philosophy used to determine a curricular connection with positive learners' outcomes.

Implications for Policy and Practice

This section first discusses implications for practice as related to the findings from the current study and follow with policy implications. The Classroom Assessment Scoring System® (CLASS®) is the instrument used to determine the effectiveness of Head Start teachers in their school district classrooms. Prior to its use as an evaluative tool by the Office of Head Start, CLASS® was originally designed as a professional development system and has a strong history of providing strategies and tools for early childhood teachers. Based on the regularly scheduled observations for this program, it was possible to determine more effective and less effective teachers. Though the results of the CLASS® observations in this study were higher than the national averages, there is still opportunity for growth within the program based on the scores, especially in the domain of Instructional Support. The creation of a carefully structured training plan with specific events based on data from observations and follow up with accountability measures to determine fidelity of implementation could have a positive effect on teachers' ability to improve practice and enhance the outcomes for children. A continued focus on mentoring

experiences and a well-designed schedule to allow peer to peer observation and support could carry the benefit of highly effective teachers through to those teachers who could gain from the experience and capacity of others.

The present study was designed to determine the benefits of high-quality interactions during the Head Start year on a child's positive outcomes at the end of kindergarten. In order to follow the theoretical framework of the study (Bronfenbrenner, 1998) and to create the environment and relationships to make the Head Start year productive for children at-risk, all factors influencing the child's life must be considered. Because Head Start classrooms are designed for children at-risk from many factors, including poverty, another beneficial focus would be the effect of trauma on young learners and especially on brain development. One strand of an annual professional development calendar could include these topics along with particular strategies found useful with children in challenging situations. Trauma-informed care and education has become a much more frequent component of available training options. Combining it with other data driven topics could ensure the CLASS® framework would efficiently support teachers of Head Start children and provide strategies to increase quality interactions as well.

Families and their role in their child's educational trajectory were mentioned in a number of the studies included in the literature review (Brotherson et al, 2015; Landry, 2017; Pears et al, 2014). The support families bring to early learners is an area school districts and Head Start programs could use to the advantage of their students. The current study showed some significance regarding daily attendance which is largely the purview of the parent and as such, must be supported with staff connection and interest. The home-school network can be an important step in creating positive cognitive, behavioral and social/emotional outcomes as well.

Again, to restate the value of the Bronfenbrenner (1998) theory and later work (Bronfenbrenner & Morris, 2006), all elements of a child's world work together for his success. The concept of building a relationship with the parent to safeguard this connection and to build capacity for parents to support their child's educational outcomes is essential. Providing skill building events, resources and community connections could work together to create strong family engagement opportunities to ultimately increase positive outcomes for students.

As district leadership and policy makers seek to create a strong academic foundation through the provision of early education classes, a firm understanding of appropriate practice and the importance of realistically examining the population of at-risk learners is critical. It is important to continually survey the specific subgroups in order to meet the individualized needs of learners and to ensure funding and resources are in place to meet the variety of situations that exist in kindergarten classrooms where the at-risk student is a smaller part of the general population. Several items stand out as being essential for quality environments for young learners. Ensuring adequate space for learning activities, appropriate materials and storage and creating the best placement in schedules for lunch, outdoor time, library and other special events at the campus are critical for managing an efficient program.

Study Limitations

This section includes details for an investigation based on secondary data and teacher-rating based information and examines limitations specific to this study. The first limitation is the small size of the populations in the study, especially the numbers of Head Start and kindergarten teachers. Small sample sizes decrease statistical power and can cause errors. Because the outcomes were not as obviously slanted toward Head Start as expected, this is an opportunity to improve a follow-up study. Finding other programs, especially those that are

larger and more varied in their composition, can offer more strength to the findings and create a more impressive set of results.

A second limitation is the rating form provided via e-mail to kindergarten teachers to complete for their Head Start eligible students. The rating form was completed on a volunteer basis among the kindergarten staff in the school district. This delivery process meant there was not a consistent way to predict the number of responses and, absent a district requirement, the response numbers varied with every year. The end of the school year is a difficult time for kindergarten teachers to consider one additional task; therefore, the response rate ranged from 23% to 65% over the four years of this longitudinal study. Additionally, although the teachers received detailed written directions for the completion of the rating form, their interpretation was not confirmed for consistency and individual understanding of the process. In other words, there are some questions about the validity and reliability of this instrument. Future studies should try to use more established instruments that have been found to be reliable and valid.

Regarding the age of the children in this study, the four-year old descriptor was the only one considered. In the early childhood years, however, it is evident that month by month progression can show a range of growth in skills and abilities. Therefore, using the child's exact age from 48 to 59 months might have been an important factor to contribute to the findings. This limitation could have impacted the results of the teacher report as well as the screener information at the beginning of the kindergarten year. A further study using specific age in months would be beneficial to refine the results of an evaluation of Head Start as a valuable intervention for children at risk for school success.

An additional age related consideration could be the Head Start experience of children who entered the program at age three and had two years of services provided for their education

and family support. When considering age as a variable or contributor to kindergarten success, the additional 9 months in a classroom situation could have a bearing on child outcomes. In the same way, children who are "red shirted" or held out of kindergarten due to a late birthday or perceived immaturity might also bring more or different strengths to their kindergarten experience. Investigating age in more depth than the present study could yield other data regarding the influence of age on outcomes.

Realistically, it should be noted that every child may not receive a high score in every component area. Children, especially in the early years, grow and develop in different areas at different times. The KIR is divided into the four areas that, when combined, describe a child ready for school. However, it should also be mentioned that children can move forward in their educational path while still developing in an area. A future study might investigate the minimum qualities that indicate school readiness or, perhaps, examine the various ways that a child might compensate for a less developed skill with a more developed one.

The inability of the study to consider the previous educational experiences of the young participants is also a potential limitation. Although students were qualified as low income by their free/reduced lunch eligibility, the children might have attended a childcare center, pre-kindergarten or Head Start in another location. In addition, all Head Start children receive a free lunch designation, regardless of their income. Due to the permitted 10% over-income category (typically for children with disabilities or other extenuating life circumstances), a child could come from a home where the presence of books or other resources might impact school readiness. Any of these previous learning opportunities could impact initial kindergarten scores. Another limitation linked to previous experience could be services rendered by a therapeutic agency prior to the age for school attendance. This study did not consider children with special

needs as a separate group and there was not a convenient way to determine children who could have been associated with another organization that provided an edge for their assessment scores.

An additional limitation is the lack of knowledge regarding children's family situations and potential mental health issues. As the goal of the Head Start program is to create a more level playing field, specific challenges present in a child's home life could potentially affect a child's early education success. Factors in the child's background and family circumstance were not considered as variables in this study, although they could affect scores of initial and ongoing assessments during the year as well as daily attendance.

Finally, enrollment in either Head Start or kindergarten was not measured in actual days spent in the class but simply presence on the district recordkeeping system. There was not a method used in this study to determine how long the child had been in enrolled in the district kindergarten or Head Start program. Time spent in a quality environment with strong teacher-child interactions was not an included variable; enrollment itself was the only criteria. As such, the child's outcomes could have been negatively influenced by lesser time in the classroom than his peers.

As described above, the limitations in this study included the data gathering process, possibility of other influential experience, the inclusion of family or home situations and the consideration of time in the classrooms. The results could be improved with a different study design but need not cause this protocol to be ignored. The current study was able to collect data not previously considered in the field as Head Start programs co-located within school districts are not a common situation nationally. Unlike the national average, Texas has approximately 20% of its Head Start programs in school districts so results of the current study can be communicated to other ISD programs in the state. Additionally, providing initial data for the

school district was considered a positive step in facilitating the provision of increased early education services and the required supports, especially professional development. The results were requested by the Board of Trustees to determine the cost effectiveness of early education in the district.

Conclusion

The purpose of this study was to systematically examine the benefit of high-quality teacher-child interactions as a support for school readiness for children at-risk. In order to gauge the value of these interactions, an analysis was conducted using the Classroom Assessment Scoring System® (CLASS®) to determine teacher effectiveness. The findings for this study are in four main areas. First, teachers with the highest emotional support scores had students who received high scores in three of the four areas of the KIR: social/emotional; behavior; cognitive. This was evidence of significance in each of these areas. High scores in the Classroom Organization resulted in significance in the fourth area of the KIR: attendance. Second, while there were no significant differences found on the Head Start compared to non-Head Start KIR scores, the mean scores for Head Start students were slightly higher on cognitive outcomes in all student groups except English Language Learners. Third, the Instructional Support scores showed the least number of effective teachers and the greatest discrepancy between more effective-less effective teacher scores. There was no significance in any of the KIR components with Instructional Support scores. Finally, we did not find that Head Start students were more prepared for kindergarten than non-Head Start students in this study. This mirrors other studies which have found that Head Start does not provide the foundation for school readiness that is necessary for children to be successful in kindergarten.

There is still a need, however, for strong, empirical research to be conducted to further examine the effectiveness of quality interactions for children in special populations such as

special needs and bilingual. Inclusion opportunities in well-designed early education programs typically integrate children of all abilities into their classrooms. Additionally, many children who come to Head Start have never been seen by adults outside their family so the Head Start classroom is often a diagnostic laboratory for some children who attend. Investigation of methods to ensure the accommodations and supports for children with special needs can blend with the quality interactions important to the success of all children to positively impact their outcomes is an important adjunct to the programming for neurotypical children. Bilingual services include languages beyond Spanish which is the typical bilingual consideration in Texas. However, the program in which this study was conducted often hosts 12-18 languages in a given year as illustrated in Table 6. Provision of services for these children is rarely in their home language therefore, the quality interactions seen in an English-speaking teacher-child dyad are not possible. Investigation of the impact of this situation on a child's outcomes during the Head Start year as well as later kindergarten success would be informative to the field.

Another area in which to continue research is the investigation of the impact of training and support for families of at-risk children. The theoretical framework for this study used the concepts of Urie Bronfenbrenner regarding the interrelated nature of all the systems surrounding the child and their influences on positive growth and development. Following that important perspective, building a strong and supportive school-home connection for all children in challenging situations and the ability of a school system to provide strategies and materials to their families can be the first step in a collaborative and successful partnership for the success of each child.

Finally, the persistent focus on providing appropriate and meaningful professional development opportunities to support early education staff with the most efficient strategies and

tools to continue their high-quality interactions is essential. Opportunities for built-in peer to peer modeling and observation of the growth of less effective teachers under these circumstances can strengthen any program able to provide these opportunities.

Combining research in these important areas along with continued programmatic observations can have the kind of impact to affect the achievement gap which exists even in the earliest years. District and program administrators, teachers, other staff and families could provide a supportive and beneficial foundation for young children. Finding the most effective way to share resources, coordinate services and communicate best practices and strengths-based learning opportunities can not only build advocacy but also create the connections to work positively for the growth and development of children and their readiness for a successful school experience. Working together as a system and seeking the partnership of families can ultimately create the difference required to bridge the gap to success for young learners.

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Attachment A: Kindergarten Information Report

Teacher: Campus:

Kindergarten Information Report: 20xx-20xx Students

One ✓in each area for each child						
Social-Emotional						
Child was successful in kindergarten						
Child occasionally struggled with new situations, new people or changes in routine.						
Child often struggled with new situations, changes in routine or with new people.						
Child had frequent melt downs, loss of control for a variety of reasons or no reason.						
Behavior						
Child managed his own behavior ; was able to maintain control, even in challenging or unfamiliar situations.						
Child occasionally needed redirection or encouragement to cooperate with others.						
Child needed a great deal of support to get along positively in the classroom.						
Child required adult support, behavior plan and/or other tools to assist with behavior on a daily basis.						

Please continue on next page.

One ✓ in each area for each child						
Attendance						
Child was present daily and regularly on time to the classroom.						
Child occasionally had absences which were due to illness or family situation.						
Child frequently missed days at school and/or was frequently tardy without an acceptable reason such as a medical appointment.						
Child missed at least 25% of the class days either due to absence or tardiness.						
Outcomes						
Child was not able to achieve at an acceptable level for kindergarten during the regular school year.						
Child struggled often with one or more academic/physical areas over time.						
Child occasionally struggled in at least one academic/physical area.						
Child successfully met all expectations and requirements for positive cognitive outcomes.						