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**QUALITY ANALYSIS OF EARLY CHILDHOOD EDUCATION
PROGRAMS IN NEW YORK CITY**

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QUALITY ANALYSIS OF EARLY CHILDHOOD EDUCATION PROGRAMS
IN NEW YORK CITY

A dissertation submitted in partial fulfillment
of the requirements for the degree of

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by

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ABSTRACT

QUALITY ANALYSIS OF EARLY CHILDHOOD EDUCATION PROGRAMS IN NEW YORK CITY

Earlene Warren-Fernandez

This study examined the quality of pre-K educational programs in New York City. I identified how program quality relates to student and teacher variables. The study used NYC Department of Education public ECERS-R data to measure program quality. I examined and analyzed to determine their influence on program quality. The independent variables are the percentage value of student's racial composition, classroom interaction quality, program leadership quality, program type, teacher collaboration, and program community ties.

The study addressed several research questions. Is program quality associated with the racial composition of students in the programs? Is there a difference in program quality among the diverse types of Early Childhood Education programs? Is there a relationship between a program's quality score and leadership quality, teacher collaboration, and level of family and community ties? Which factor best predicts a program's high quality?

I used an ANOVA, simple, and multiple regression analyses to determine the independent variables' relationship to the program's quality, as measured by the program's ECERS-R score. The outcome may support documentation of past and present research and support childhood program improvement and policy reform, at district, state, and national levels. Parents can use it as a guide to find a high-quality childcare program.

DEDICATION

It is with profound gratitude and an overwhelming feeling of love; I dedicate this dissertation to the many inspirational people in my life. To my father Isaiah Warren whose words of encouragement, “you can accomplish whatever you put your mind to” still rings in my ears. To my mother, Monica Bramble Warren, whose belief in me was my main source of inspiration. May both their souls rest in peace. To my siblings Elton, Gemma, Glenda, Earl, AnnMarie and Rosemarie whose love and support gave me the tenacity to endure to the very end. To my loving and caring life-partner and friend, Seymour, who in the beginning before his illness, took up the slack of being the family cook, providing the most delicious meals to fuel my body and soul. To my two children – my God-given gifts, Larz and Latiffah who inspired me to never quit, an example I wish them to follow. My grandchildren broke the boredom and provided entertainment and companionship whenever I took a break from writing. To my professors, mentors, and many friends whose words of support, advice and mentorship were phenomenal. Finally, to God be the Glory, remarkable things he has done in my life.

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CHAPTER 1

High-quality early childhood education lays the foundation for successful learning and sets the stage for lifelong learning beyond the elementary grades (Duncan et al., 2007). Over a century's worth of research shows that high-quality early childhood learning experiences can produce short- and long-term benefits for young children (Yazejian et al., 2017). High-quality Pre-K programs help prepare children for future learning, which can "lead to a more educated population with higher-paying jobs, fewer social problems, such as crime and delinquency, and provides a strong economic return on the dollars invested in Pre-K" (NIEER, 2011, p. 4).

The established connection between high-quality early childhood education (ECE) and future success could serve as an equalizing factor in the United States education system if children from low-income families could access high-quality care during the early developmental stages of their lives (Manning et al., 2017). Today, students living in poverty are, on average, significantly behind their classmates in reading and mathematics throughout elementary and secondary school (Lamy, 2013). Some early longitudinal studies such as the High Scope Perry Preschool Study (Schweinhart et al., 2005), the Carolina Abecedarian Project (Ramsey, 1998) and the Chicago Child-Parent Centers Study (Reynolds et al., 2000) have provided evidence to support the fact that disadvantaged children can benefit from high-quality early childhood education and can go on to change their life trajectory from at-risk to success. The 15-year longitudinal study by Vandell et al. (2010) showed that even after a decade, child-care quality continues to predict cognitive-academic achievement across a broad economic and geographical range of participants from several types of ECE programs. Another recent

study suggested that high-quality centers can affect children's behavioral functions (Hubbard et al., 2010), where low-income children, when exposed to high-quality ECE, see decreased physical aggression incidences.

According to the U.S. Department of Education's 2015 preschool report, "A Matter of Equity," only 41% of children from low-income families attend pre-kindergarten versus 61% of children from higher-income families. The report stated that this inequity results in most low-income children entering elementary school behind their peers in academic and social skills, trapping them "in a cycle of continuous catch-up in their learning." More recent research by Valentino (2018) found a significant quality gap in public Pre-K between poor minority students and their non-poor, non-minority peers, ranging from 0.3–0.7 standard deviation in a range of classroom observation measures. With this need to close the achievement gap, policymakers emphasize and hold early childhood programs accountable for providing high-quality experiences and ensuring equity in access to quality care for children from all backgrounds.

This present study examined the quality of early childhood programs in New York City and their relationship to several students and program variables to provide insight into how prevalent and accessible high-quality public early learning programs are across New York City. Subsequently, the research findings will aid in identifying the areas of program quality that need improvement.

New York City administers the largest public school district in the U.S., enrolling 1,094,138 students (about the population of Montana) for the 2021-2022 school year (NYCDOE Data, 2022). Before 2014, the New York City Department of Education only provided services to students in grades K–12, and ECE was treated as a luxury that low-

income families could not always afford. The city’s Human Resources Administration (HRA) and Administration for Children Services (ACS) did have programs—such as the voucher program—that offered financial assistance to needy families. In January 2014, Mayor Bill de Blasio transformed the city’s education system by guaranteeing free, public pre-kindergarten for all the city’s 4-year-old students (Potter, 2016). Even though it was publicly declared, not all 4-year Olds received a seat at the “Pre-K for All” table. Slots were either limited or parents opted for private childcare for several reasons. To date, the NYC Department of Education (DOE) manages the funded early childhood programs - “Pre-K for All” and “3-K for All, “serving children three and four years of age residing in the city.

The “Pre-K for All” (Pre-K) initiative distributes federal and state funds to various ECE centers and community organizations to allow them to offer pre-kindergarten free of charge to most of the city’s children. Currently, approximately 68,000 children are enrolled in Pre-K programs across the city (2021). In 2017, the “3-K for All” (3K) initiative was implemented to allow 3-year-old students to receive a public ECE (Perry, 2019). The 3K programs currently (2019) enroll approximately 20,000 children (about the seating capacity of Madison Square Garden) in 16 of NYC’s 32 school districts.

Though various state agencies have managed the Pre-K and 3K programs since inception, beginning in the 2019 academic year, the New York City Department of Education (NYCDOE) received the management of the programs (NYCDOE, 2020). These early childhood programs are in various locations such as NYC District Schools (public elementary and charter schools), Pre-K Centers, and community-based

organizations referred to as NYC Early Education Centers (NYCEECs). The school's principal oversees the Pre-K programs in public elementary schools while program directors manage other types of programs. The NYC Pre-K Centers are run by DOE (Department of Education) staff and enroll Pre-K and 3K classes only. They are housed in DOE public school buildings or other non-educational government buildings.

An important criterion for these early childhood programs is high program quality. To monitor quality, the NYCDOE performs a yearly evaluation, which requires observation of two key components: structural quality and process quality. The structural quality aspect covers classroom and playground space issues, child-adult ratio, availability of resources, and adherence to hygiene standards. These features are regulated by Articles 43 and 47 of the NYC Health Code set by the Department of Health and Mental Hygiene.

Specifically, Article 47 regulates all public and private group daycare services for children less than six years of age, and Article 43 provides the written health and safety standards for children ages 3–5 in school-based programs. To ensure that standards are met, consultants make scheduled and unscheduled program inspections and act as watchdogs to safeguard enrolled children's health and safety. If programs violate any aspect of the articles, they are issued violations or, depending on the level of non-compliance, are subject to closure. They are given a period to make corrections or face tribunals or revocation of their permits to operate.

In contrast, the process quality aspect covers the program's ability to support children's social, emotional, and cognitive development. The NYCDOE evaluates the programs' process quality using the Early Childhood Environment Rating Scale-Revised

(ECERS-R) and the Classroom Assessment Scoring System (CLASS) observation tools. The results of these evaluations are recorded in their database and can be publicly accessed in the programs' School Quality Snapshot found on the Department's website. Public data for the sample population for this study will serve as the data source for some of the analyses.

Not all quality variables are evaluated by the ECERS-R evaluation instrument. To evaluate other factors of quality deemed relevant to quality and not covered by the standardized evaluation instruments, the NYCDOE conducts a yearly School Survey completed by families, teachers, school support staff, and students in the 6–8 grade levels. This survey is aligned to the Department of Education Framework for Great Schools. The resulting data provides the Department and school community with an understanding of how the program's learning environment is perceived. The survey gives response to questions on program leadership quality, teacher collaboration, and the program's community ties. These results are published in the early childhood program's quality report along with all other program quality data.

Purpose of the Study

As described above, research evidence points to the quality of an ECE program as the dominant indicator of long-term educational success (Fantuzzo et al., 2013). However, there is compelling evidence that low-income, minority students often do not have access to these high-quality programs (Valentino, 2018). This current study will use publicly available data to examine and compare the quality of four types of public early childhood programs that serve families across NYC. They are Charter Schools, District Schools programs, DOE Pre-K centers, and NYC Early Education Centers. Among the

NYCEEC are Catholic school programs, Charter School programs, private for and not-for-profit center-based programs, private school programs, and Head Start programs. Some types of programs, such as family daycare and privately-owned child-care programs are not included in this research because they do not have publicly accessible ECERS-R quality evaluations or survey evaluations.

Significance of the Study

Legislative Imperative

Federal, state, and local governments have made the quality of all early childhood education programs a high-priority concern. The nation's attention to early childhood education has peaked since President Obama addressed the issue through the Strong Start for American Children Act (The Act, 2013), which states that high-quality learning opportunities be provided for all children from birth to age five. President Obama provided state and federal funds to create and maintain high-quality ECE programs, especially for children at-risk socio-economically and the special needs population (The Act, 2013). The Act maximizes high-quality learning opportunities for younger children and supports Marshall's (2004) view that a high-quality child-care program sustains optimal learning and development. The Act also builds on the provisions of the Elementary and Secondary Education Act (ESEA) of 1965, the No Child Left Behind Act (NCLB) of 2001, and Every Child Succeeds Act of 2015 to provide opportunities for leveling the playing field for all children to become successful, lifelong learners. The present research will contribute empirical data to aid in making the connection between program type and quality.

Economic Imperative

Based on the 2019 community census, more than 541,924 children (about half the population of Maine) live in New York City. The Annie E Casey Foundation's KIDS COUNT Databook (2016) reported that 60% of these children come from working families, which accounts for about 310,000 children (about half the population of Wyoming). However, the formally regulated child-care system only accommodates about 227,000 of these children, based on the DOHMH (Department of Health and Mental Hygiene). Reports from the National Center for Children in Poverty (2018) showed that one in five children in NYC is likely to live in poverty. Pre-K programs serve approximately 50,000 4-year-olds, and public funds support another 75,000 children (about the seating capacity of the Los Angeles Memorial Coliseum) under five. These children attend public schools and programs run by the DOE, Administration for Children Services (ACS), and Human Resource Administration (HRA). The rest of the children are either in center-based private programs, formal or informal family-type childcare, or are watched by relatives. Given the many children served in these programs and the high percentage from low-income families, ongoing research evidence of program quality's effectiveness on their success is essential for policymakers, educators, parents, and society-at-large.

Social Imperative

Many professionals from various disciplines have documented discussions on the quality of ECE program's social and educational benefits, which support this research. Casper and Theilheimer (2010) stated that high-quality early childhood programs encourage healthy social, emotional, cognitive, and physical development in children. In

earlier research, Boocock (1995) wrote that high-quality ECE promotes cognitive development and prepares children to succeed in school. More recently, Haslip and Gullo (2017) echoed similar scientific findings of what optimal learning conditions are, confirming many more long-lasting traditions in early childhood. Some of these traditions are emphasized by well-known approaches, such as Montessori and Reggio Emilia. Haslip and Gullo (2017) added that studies on changing brain architecture have confirmed that young children benefit from early exposure to rich language and meaningful social experiences. Epstein (2009) noted that children's working memory and attention improve when exposed to warm, nurturing social and emotional experiences, such as those present in high-quality ECE centers. In comparison, the effect is opposite for children of low socioeconomic status exposed to the harm of toxic stress caused by the daily experiences in their lives (Emerson, 2015).

The need for and evidence of providing all children with high-quality childcare has dominated all earlier studies on the effectiveness of high-quality childhood education. The present research will contribute to the ongoing discussion by examining whether all students receive high-quality early education in the New York City Department of Education's early childhood education system. The intention is that the results will positively influence future policies and regulations impacting the accessibility and sustainability of high-quality education for the entire NYC early childhood population. There is also a beneficial component for parents to become informed consumers in knowing what variables are necessary for choosing a high-quality program. Non-DOE child-care providers can reference the study to improve equal accessibility in their enrollment policies and improve program quality elements.

Conceptual and Theoretical Framework

Earlier research in Early Childhood Education (ECE) has cited and defined early childhood program quality as having two complementary components. These two components are structural quality and process quality. Structural quality refers to the administrative and policy aspects and includes appropriate group size, children-to-teacher ratio, teacher qualification, and professional support. Process quality is viewed as the program's ability to provide day-to-day experiences in child-care that enhance children's cognitive, psychomotor, and esthetic skills. Structural quality is a precursor to process quality, where the efficiency of one is dependent on the other. However, process quality is the most elusive of the two.

Process quality is rooted in the foundational social constructivist theory of Russian psychologist Vygotsky. Vygotsky asserted that a child brings into the learning environment a set of disorganized, spontaneous concepts that meet with the adults' organized and logical ones in the child-care environment (1987). Vygotsky theorized that a child's unregulated ability or skill, which he referred to as "proximal," could be developed with proper guidance and practice to achieve proficiency. The range of time between the unregulated skill and proficiency Vygotsky referred to as "the zone." This theory implies that a child's growth and learning during the time a child spends at an early childhood center happens within the zone. This theory is known as the Zone of Proximal Development or ZPD (Zone of Proximal Developmental) (Zone of Proximal Developmental). According to Vygotsky, it is the basis for a child's reasoning, understanding, and intellectual growth. If we accept this theory, all ECCs should perform

at a high-quality level to maximize the intellectual growth and learning ability of all children.

Vygotskian thinking has influenced many modern ECE practices, including classroom environment, interactions between children and adults, teacher quality, and performance: all critical factors in the quality of a program. Vygotsky's influence on early childhood education has made his theory relevant to this research and lends credence to the two indicators of high quality: structure and process.

Research Questions

This study examined the quality of early childhood education as they exist in several child-care settings in the NYCDOE early child-care programs for evidence of high-quality indicators and whether the high-quality programs are accessible to all children regardless of ethnicity. The research answered the following questions:

RQ1: Is program quality associated with the racial composition of students in the program?

RQ2: Is there a difference in program quality among the different types of ECE programs?

RQ3: Is quality associated with the program's leadership quality, teacher collaboration, and level of community ties?

RQ4: What factor strongly predicts high program quality?

Definition of Terms

Applicable to this research and for clarity, the following definitions are applied to the research narrative:

At-Risk: The term is often used to describe students or groups of students considered to have a higher probability of failing academically or dropping out of school (Glossary of Education Reform).

Center-Based Programs: Private, fee-based programs or schools caring for three or more children under the age of six years, operating for more than five hours per week for more than one month a year. A center-based program is sometimes called a child-care center, day nursery, daycare, nursery school, or playschool (The New York Department of Health and Mental Hygiene).

Children with High Needs: Children from birth through kindergarten from low-income families or are otherwise in need of special assistance or support. Children with high needs include children with disabilities or developmental delays, English language learners, residents of “Indian lands,” and children who are migrants, homeless, or in foster care (United States Department of Education).

Early Childhood Educator: Any professional working in Early Learning and Development Programs, including but not limited to center-based and family child care providers, infant and toddler specialists, early intervention specialists and early childhood special educators, home visitors, related service providers, administrators, Head Start teachers, Early Head Start teachers, preschool and other teachers, teacher assistants, family service staff, and health coordinators (U.S. Department of Education, n.d.)

Family Day Care: Private, fee-based programs that provide home-based care for 3–6 children at a time in a caregiver’s residence. This child-care service is allowed to care for one or two school-age children before and after school. The maximum allowable

number of children will depend on the number of infants being cared for (Department of Health and Mental Hygiene).

Group Family Day Care: Private, fee-based programs provide care for 7–12 children in residence. It may provide care for one or two school-age children before and after school. The maximum allowable number of children will depend on the number of infants in care. In this child-care, a provider must use an assistant when more than six children are present (Department of Health and Mental Hygiene).

Head Start Programs: Federally funded educational programs in the community for eligible (families with incomes below the national poverty level) children ages 3 and 4 and their families (U.S. Department of Health and Human Services). These programs also have an early head start component for infants and toddlers. The program promotes school readiness in various settings, including centers, family child-care, and children’s homes. Parents and other key family members are engaged in positive relationships, focusing on family wellbeing and participation in leadership roles, including having a say in program operations.

NYC Early Education Centers (NYCEEC): Federal and state-funded community-based organizations that hold contracts with the DOE or with the NYC Administration for Children’s Services (ACS) to run Pre-K programs known as Earlylearn programs (Office of Children and Family Services).

Process Quality: Aspects of an early childhood education program evaluated by observing the interactions, activities, materials, learning opportunities, and health and safety routines at an early childhood center. Aggregate indices, such as quality rating and

improvement systems (ECCERS-R), combine measurements across several types of program elements (Pianta et al., 2016).

Public Schools Early Childhood Programs: Federal and state-funded programs for all age-eligible children, regardless of family income (Office of Children and Family Services).

Structural Quality: Aspects of an early childhood program's quality evaluated by observing elements such as the size of each group of children, the adult-child ratio, and the education and training of the teachers and staff at an early childhood center (Pianta et al. 2016).

CHAPTER 2

This chapter provides a detailed theoretical and conceptual framework for this study and summarizes existing research on child-care quality and its relationship to program type, student, teacher, and administrator quality.

Theoretical Framework

Early childhood care and education aim to provide children with effective learning experiences before entering grade school. This care and education should be in a safe environment, with age-appropriate instructional materials and nurturing educators who can successfully provide experiences to enhance children's cognition and behavior for future learning. This effective learning experience is an essential part of activities and should provide opportunities for children to be taken from the known to the unknown intellectually. According to the ZPD theory, high-quality programs, while building on children's existing knowledge, find ways to expand this knowledge through their critical developmental stages. Bodrova and Leong (2005) added to Vygotsky's theory by stating that instruction in a preschool setting should focus on enhancing students' conceptual understanding rather than rote memorization of facts and skills and that preschool should provide children opportunities to mature rather than have them perform intentionally orchestrated behavior. Overall, the quality of an early childhood program depends not only on its ability to provide the above experience but also on the level at which it is done.

Alfalagg (2017) used Vygotsky's theory in his research, stating that an essential learning feature in early childhood programs is to create a Zone of Proximal Development. Vygotsky's theory states that learning awakens various internal

developmental processes, which are further mastered and become operational when a child interacts with people in his environment (both adults and peers) (Casewell & LaBrie, 2017). With these processes internalized, they become part of the child's independent developmental achievement (Vygotsky, 1978). For these reasons, Vygotsky's ZPD theory embodies the conceptual premise on which this research develops. This research takes the view that a high-quality preschool program promotes the expansion of a child's ZPD through an application of the following constructs: amplification of a child's learning and development with both age-appropriate and developmentally appropriate activities; dramatic play as a leading activity; utilization of child-teacher interactions that guide development and an emphasis of underlying competencies designed to prepare a child for future learning (Berk, 2012; Bodrova & Leong, 2005).

Essential to this research and an integral aspect of its theoretical framework are the educator and caregiver properties and behaviors in the classroom. These persons' actions define the quality of a child's ZPD and their ability to maximize children's educational experiences. A high-quality educator creates opportunities, influences, and scaffolds. They bridge the gap between the level of potential development, as determined through problem-solving under their guidance or in collaboration with more capable peers. Vygotsky's writings term it the actual developmental level determined by independent problem solving (1978). Recent research agrees that the professionals who work in early childhood education settings determine young children's experiences (Manning et al., 2017). Early childhood teachers and caregivers are, therefore, essential factors in determining high quality in a classroom.

An early childhood educator's job is very demanding. So is that of the administrators. Most early childhood programs experience high turnover and low attrition with administrators and teachers alike. Administrators' and teachers' attitudes and quality are key factors in providing a conducive environment for nurturing and learning. Dissatisfied teachers and administrators often become disengaged from their work, causing a chain reaction affecting quality experiences, resulting in negative interactions between adults and children in the program (Thomason & La Paro, 2013). Negative attitudes undermine the effective implementation of the ZPD, which predicates positive child-teacher interactions. One characteristic that should be included in an early childhood educator's quality is one's genuine love for and satisfaction in duty performance.

With New York City administering the most significant public school district in the U.S., using an evaluation instrument for assessing its many early childhood program's quality should include indicators that measure elements in the ZPD for children. The ECERS-R instrument used by NYCDOE to measure program quality is such an instrument. It includes a series of observations of classroom activities, which include "both play/learning times and routines, meals, toileting, and preparation for naptime" (ECCERS-R, 2005). The evaluation instrument also provides for an additional 20–30 minutes of teacher questions to score indicators that were not observed during the observation (Cryer et al., 2003).

Conceptual Framework

Early childhood program quality divides into structural quality and process quality (Vandell & Wolfe, 2000). These two quality dimensions work in harmony and

must be present at elevated levels to maintain high program quality. The structural aspects of quality refer to group size, child-to-teacher ratio, and teacher qualifications (Howes et al., 2008; Thomason & La Paro, 2013). These are the mandated and regulatory aspects of an early childhood program, and they vary from state to state. For example, some states require a group teacher to have at least a bachelor's degree in early childhood education. Others require certification in early childhood education or elementary education. However, like Florida, others require a group teacher to have a Child Development Associate (CDA) certification, a two-year program, and certification in child-care education.

In support of the structural quality variable, all early childhood programs in the U.S. receive governmental agency directives and have regulatory standards of governance for legally operating. These regulations provide structural standards and primarily focus on protecting children from harm rather than developmental growth and early learning. In NYC, according to Article 47 of the Daycare Health code, the DOHMH requires a group teacher to be licensed in early childhood education or elementary education. There is one exception where an unlicensed education teacher can perform the duties of a group teacher but must have a written plan to become licensed within a given period. Another licensed teacher or the director of the program must supervise the unlicensed teacher.

The process quality dimension of an early childhood program is the child's day-to-day experiences in the classroom. It includes the social, emotional, physical, and instructional aspects of the child's activities and incorporates the more dynamic aspects of early childhood education. It is the human interactions occurring in the classroom

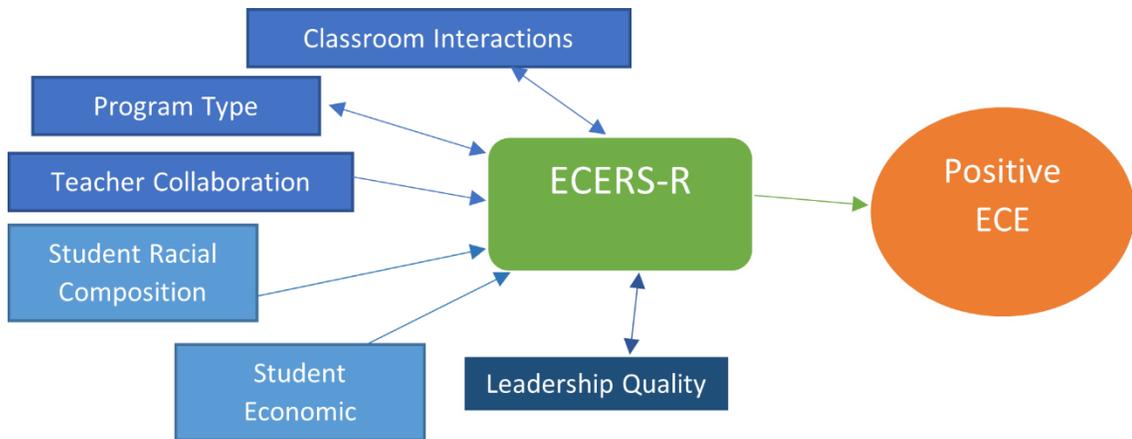
between teacher and child, among the children, and between the child and the classroom environment (Cassidy et al., 2005; Pianta et al., 2008; Vandell & Wolfe, 2000). As stated, these interactions are the proximal determinants of child development (Howes et al., 2008; Pianta et al., 2008; Thomason & La Paro, 2013) and the quality of these interactions can be measured by an observer, with the use of the ECERS-R, or the CLASS evaluation instruments. Process quality is embodied in the conceptual framework for this study and represents the framework of Vygotsky's ZPD theory, discussed in detail several paragraphs above. Recently, some states, including New York have added teacher professional development requirements to measure and maintain high quality.

This study explores the combined structural and process quality of ECE programs in New York City, as measured by the program's ECERS-R scores, comprising 470 items for various student and teacher elements. The ECERS-R quality evaluation instrument widely used in research and quality evaluation of early childhood programs is appropriate for this research. The subscales consist of a mixture of process and structural quality, focusing on environmental (structural) quality at the lower end of the score distribution and process quality at the upper end (Gordon et al., 2013).

Figure 1 shows the variables pertinent to this research (program-type, teacher collaboration, student racial composition, classroom interactions, and program leadership quality) concerning the quality of programs, as represented by the programs' ECERS-R quality scores. This framework conceptualizes ECERS-R scores as a function of program type, which is a loose proxy for teaching credentials. In so many teacher credentials reflecting their ability to produce process quality for students, it would positively affect ECERS-R scores.

Figure 1

Factors Related to Program Quality



The research also conceptualizes a relationship between program quality and student demographics. Figure 1 shows that bi-directional arrows between the student racial composition factors and the quality variables indicate that the relationship direction is unclear. For example, student composition related to program quality through a lack of high-quality centers in the student’s local area, the lack of affordable, high-quality centers available to the student, or lack of admission of diverse races into high-quality factors, to name a few. The policymakers and early childhood interest groups assume that there is equality of access for all four-year-Olds and that all programs are operating at or approaching high quality. This study looks to evaluate that assumption by directly exploring the relationship between student demographics and program quality.

Review of Literature

Participation and Educational Outcomes

High Scope/Perry Pre-school Study. The widely publicized Perry Pre-school Project was conducted in an urban, low-income area of Ypsilanti, Michigan, where the population was African American. Data on the study covers forty years of a longitudinal

study that began in 1962. Data was collected annually for ages 3–11 and then again at ages 14, 15, 19, 27, and 40. The study reported only a 6% rate of missing data. After each data collection, the data was analyzed, and the findings were documented. For the study, a randomized group of 123 three-year-old children. Fifty-eight of the children were assigned to an intervention program in a center-based half-day program five days per week, while 68 were placed in the non-intervention group. The intervention also included 90 minutes (about one and a half hours) of home visits per week, and the children received high-quality educational instruction (The High Scope Program) with highly trained teachers. All 123 of the children were followed throughout their school careers into adulthood. The results of the study showed the program's long-term effects. The group of children in the intervention group showed higher academic achievement during their elementary and secondary years. At the start of the intervention, the children had an average I.Q. level of 90 but showed no significant long-term difference between groups. Some of the significant long-term benefits of the intervention were in areas that plagued low-income children. At age 27, the group showed less incidents of school drop-out, teenage pregnancy, welfare participation, drug usage, and criminal arrests than their peers in the controlled group. The employment rate was higher and there were fewer incidents of poor mental health for the students in the intervention group. The study proved that the long-term effects of high-quality early childhood education for at-risk children improve their development socially and intellectually and promote school success, financial stability, and moral citizenship way into adulthood (Schweinhart et al., 1993, 2005) and therefore supports this research.

The Abecedarian Project. The Abecedarian project, another longitudinal study, is worthy of inclusion in this literature review even though the study was conducted over four decades ago. It is often referenced in present discussions and research on the benefits of high-quality early education and its findings are included in current child-care improvement efforts. The research was conducted by the Frank Porter Graham Child Development Institute in 1972, involving 111 low-income African American children from Chapel Hill, North Carolina. The children were randomly divided into two groups, where one group was placed in a center-based child-care program receiving high-quality child-care and frequent home visits. The control group was provided with other services other than child-care, such as social services, including nutritional, medical, and family support but no child-care services. Childcare was the parent's responsibility where they decided whether they wanted childcare or not. The study observed the children until grade school level. Fifty-seven children were placed in the high-quality childcare and fifty-four in the controlled group. The children ranged from 0–2 years on entering the study and exited at age five. The intervention provided small class sizes and qualified staff. The study's findings showed that children participating in the intervention group showed cognitive and behavioral improvement even up to age 21, compared with the control group, and the younger the start age, the greater the effect. The likelihood of being held back in grade during primary school declined by almost 50 percent for children who received the intervention (Ramey et al. 2000). At the age of 21, 104 of the original 111 infants in the Abecedarian Project were measured for cognitive functioning, academic skills, educational attainment, employment, parenthood, and social adjustment (Campbell et al., 2002; Clarke & Campbell, 1998).

The Abecedarian Project findings support other research on short- and long-term positive effects of attending high-quality early child-care. In this research, the participants in the treatment group had significantly higher scores in reading and math throughout the research (up until age 21). Those receiving the intervention were more likely to postpone parenthood and participate less in criminal activities. Participants were more likely to attend an institution of higher education (40%) than those in the control group (20%) and more likely to attend a four-year college (35% vs 14%) at age 21. One significant difference was that the parents in the treatment group became better educated than those in the controlled group, giving them more employment opportunities (see Almond & Currie 2010 review).

The Star Project Review. Another review is a study that supports the fact that a structural, high-quality kindergarten program has positive effects both short and long term was done by Chetty et al. (2011). The study used data from the Tennessee STAR project where 11,571 students and teachers were randomly assigned to classrooms within their schools (79 low-income schools), from kindergarten to third grade in class sizes of 15 students (small group) and 22 (large group) to observe the Student/Teacher Achievement Ratio (STAR) for four years. Chetty et al. (2011) examined data from the star project to see if the participants' standardized test scores were related to adulthood criteria. United States Tax records (SSN, date of birth, gender, and names) for approximately 95% of participants in the STAR project were used for adult data in the Chetty et al. (2011) study.

From documenting the raw data, the researcher noted a high correlation between kindergarten and adulthood (age 27) for several factors. For example, it was noted that

there was a one percentile increase in End-of-Kindergarten (K.G.) test scores which was associated with a \$132 increase in earnings at age 27 for children in the smaller class group. Children in smaller class sizes also had higher earnings, attended college, owned a home, and had retirement savings. These raw data observations generated the research question: “do classroom environments that raise test scores such as smaller classes and better teachers cause analogous improvements in adult outcomes?”

Chetty et al. (2011) discussed the Star project’s potential threats to their experiment’s validity. They then organized the cross-analysis correlation between test scores and adult outcomes and included regression and ANOVA analyses of the observable characteristics of classrooms size, teacher characteristics, and peer characteristics on adult outcomes. The aspect of this study that impacts the current research is the analysis of three features of classrooms that was observed from the data: class size, teacher characteristics, and peer characteristics. ANOVA analyses concluded that students in small classes are significantly more likely to attend college and earn higher wages. Experienced teachers in kindergarten significantly influenced higher earnings for students in adulthood. Students randomly assigned to higher-quality classrooms in grades K–3, as measured by classmates’ end-of-class test scores, also had higher earnings, college attendance rates, and other outcomes. The study concluded that the effects of class quality fade out on test scores in later grades but gains in non-cognitive measures persist (Chetty et al., 2011).

Obion County Longitudinal Study. The Obion County longitudinal study supports the theory that at-risk children benefit from attending high-quality early child-care programs. In this study, the researchers examined data from 2004 to 2013 of children

who were provided full scholarships to attend eight high-quality early childhood programs in Obion County, Tennessee. All the early childhood programs were privately owned and used a common curriculum based on early development standards. The authors compared the kindergarten readiness of children who participated in the scholarship program and attended the child-care program regularly (90% attendance) to those who did not participate (including those in the program and had attendance rates less than 90%) using the Brigance Early Childhood Screen II K & 1 (Brigance & Page, 2005). The results showed that children with 90% and higher attendance ($N = 267$, $M = 65.6$) scored higher on the Brigance assessment than children with less than 90% attendance ($N = 103$, $M = 59.1$), $t(368) = 2.85$, $p < .01$, showing the positive effect attending a high-quality program had on the students in the study.

NCEDL Study. The National Center for Early Development and Learning (NCEDL) where pre-kindergarten and kindergarten programs were studied to identify the differences among state-funded pre-kindergarten programs and how they relate to child outcomes (Early et al., 2013). First released in 2013 and later revised by the researchers in 2018, the study included data from 11 states, including New York, and utilized information taken from two previous studies done by the NCEDL and the State-Wide Early Education Programs Study (SWEEP). Pre-K programs, randomly selected for the study with one classroom per program observed over four academic semesters, Fall 2001, Spring 2002, Fall 2003, and Spring 2004. The variables examined included information on pre-kindergarten teachers, children, and classrooms for a total of 721 classrooms and 2,982 pre-kindergarten children. Across the 11 states, most children enrolled in pre-K

were from families with low incomes and low maternal education levels. These children had many other risk factors, such as limited English proficiency.

In that research, it was found that the quality of the classroom experiences, such as instructional climate, teacher-child relationships, and the amount of exposure to certain areas of instruction (process quality features), predicted the most growth in the children's language, literacy, and social domains. However, in general, the researchers found that classroom quality was below what past research indicated children need for the best learning outcomes. The research showed that most pre-kindergarten days were spent eating meals, performing routines like handwashing, or standing in line, and not engaging in constructive learning or playing for a portion of the day. Also, the instructional quality, which helps children learn new concepts and provides valuable feedback, was mostly lacking in the programs studied.

Measuring the Quality of ECE Programs

Early childhood education programs vary significantly in size, structure, mission, resources, and funding. Each of these factors may affect their ability to deliver quality instruction to children. Researchers have created instruments to investigate the quality of programs based on their defining characteristics. The most widely used instruments are the ECERS-R (Harms et al., 1998) and the CLASS (Pianta et al., 2008). Additionally, some states have implemented their version of an instrument known as Quality Rating and Improvement Systems (QRIS), which may incorporate existing instruments or utilize a state-approved list of standards. Head Start programs also employ the Family and Child Experiences Survey (FACES), implemented at the national level for program feedback and evaluation.

The Early Childhood Environment Rating Scale (ECERS-R) authors describe it as a tool to measure global quality in center-based early childhood programs. The ECERS-R can be used to show how well a program meets children's needs or to see whether children receive the protection, learning opportunities, and positive relationships they need for successful development (Cryer et al., 2003). The ECERS-R is a revision of the ECERS, initially published in 1980.

The Classroom Assessment Scoring System (CLASS) authors state that like the ECERS-R instrument, CLASS is an observational instrument developed to assess classroom quality in preschool through third-grade classrooms (Pianta et al., 2008). The CLASS criteria are based on observed interactions among teachers and students in classrooms. The criteria were developed based on a review of several concepts assessed in other classroom observation instruments used in educational settings. They also used other mediums, such as literature on effective teaching practices, focus groups, and extensive piloting to arrive at the product and said the Observational Record of Classroom Environments (ORCE, ECRN, NICHD, 1996) served as the CLASS development foundation. There are two versions of the instrument, one for pre-K evaluation and another for kindergarten to third-grade classroom evaluation. The instrument measures Classroom Interaction, Emotional Support, Classroom Organization, and Instructional Support.

The Relationship between Program Type and Teacher Quality

Program Type. Some early childhood education programs receive funding from federal and state sources. The actual amount received is based on program type, funding source, and budget. Public schools receive a per child allotment which differs from the

amount given per student to Community-Based Organizations (CBOs). Adequate funding for a program enables the program to furnish a high-quality, enriched, and stimulating learning environment and to hire and retain qualified staff members. Low retention and high attrition often plague early childhood education programs because they cannot afford attractive incentives, adequate salaries, teacher professional support, or paid leave. Morale is often low, and teachers suffer from poor job satisfaction. Programs lose their best and most talented teachers to programs that pay a higher wage and have staff professional development resources (Phillips et al., 2009).

Supporting Collaboration. Collaboration makes a difference in quality. Schilder and Smith-Leavell (2015) researched Head Start/Child Care Partnerships using survey data from 61 child-care centers, of which 50% were non-funded programs engaged in a partnership with Head Start and the other 50% were non-funded programs that were not involved in any partnership. Partnership classrooms outperformed non-partnership classrooms in seven of the ten subscales of the Early Language and Literacy Classroom Observation (ELLCO) scale, with the most considerable difference in the language and literacy criteria. Other results show that classrooms at partnership centers demonstrated higher observed quality in six subscales of the ECERS-R and the total overall score than non-partnership classrooms (Nevada Department of Education, 2015)—in other words, engaging in partnerships with funded early childhood programs led to higher quality non-funded programs.

Even though family child-care programs are not included in this research, observation and results made by Roggman et al. (2013), which relate to the evaluation instruments, are relevant support to the theoretical framework. These researchers studied

the interactions between caregivers and children in group-care settings to determine the correlation between different evaluation instruments that measured child-care quality, including the ECERS-R instrument. Two hundred and seven providers were observed for a mean of 2.87 hours (172 min) and surveys were done to complete data collection for the analysis. The child-care providers rated the day in several different contexts of children's activities, such as snack time, center time, and circle time. Pearson correlation analyses were conducted to calculate established childcare-quality measures. The results showed a statistically significant correlation between the child-care provider and the listening and talking variables, with family child-care scoring higher in these facets. The affection, responsiveness, and encouragement domains also showed significant correlations in favor of the teachers. There was no significant relationship between family child-care center providers and the center-based providers in the teaching domain. Centre-based providers scored higher than family-based providers overall on the ECERS-R mean scores and, on the Space, and Furnishings, Personal Care Routines, Activities, and Program Structure subscales' scores. These results are relevant to the current research because they support the validity of the ECERS-R instrument and provide a framework for research on comparative elements of the programs setting.

The Relationship between Leadership and Program Quality

The McCormick Center for Early Childhood Leadership. The McCormick Center for Early Childhood Leadership at National Louis University (2020) (the Center) has been a leading research center for early childhood education leadership and has conducted many valuable studies in the field, The center has stated that there is enough supporting evidence that leadership matters when it comes to high-performing early

childhood education programs (Dennis & O'Connor, 2013; Doherty et al., 2015; Early Childhood Leadership Development Consortium, 2016). The Center noted that maintaining high program quality in ECE programs has been problematic because of an absence of consistent standards, policies, and support for the professional leaders, especially with regard to qualifications and competencies. The center further stated that the leadership inconsistencies are evident when comparing the administrators of other types of early childcare programs to the administrator or school principals serving pre-K children in a public-school setting (Abel et al., 2016; Lieberman, 2017). Some states, including New York City, require a master's degree in educational leadership for elementary school principals while other states and some NYC private early childcare programs accept a minimum of an associate degree for directors or a Child Development Associate (CDA) certification. No state to date requires a degree for administrators of licensed/registered family or group family childcare programs (Abel et al., 2018).

In 2004, the first edition of the Program Administration Scale: Measuring Early Childhood Leadership and Management (PAS) was developed and used across the United States to reliably measure and improve center-based leadership and management practices. In 2011, the second edition was published and included updated national norms and refinements reflecting best practices in early childhood program administration. Data was collected by the McCormick Center for Early Childhood Leadership between 2011 and 2021, which presented the administrative practices of a large, national sample of center-based programs. The instrument includes 25 items within 10 subscales, which measure both leadership and management practices of center-based early care and education programs.

Each item is scored on a Likert scale of 1–7, with 1 representing inadequate quality, 3 representing minimal quality, 5 representing good quality, and 7 representing excellent quality in administrative practices. Each indicator is aligned with the 1-7 Likert scale and rated as either Yes or No based on the program’s ability to meet the indicator criteria. The PAS was administered and assessed by certified assessors.

The average PAS item score for the above sample was calculated at 3.40, with a standard deviation of 1.12. Mean individual items’ scores ranged from 1.61 (Benefits) to 6.44 (Community Outreach). Overall, the results of the data analysis suggest that most programs do not have well-developed administrative practices in place to support program sustainability and long-term quality (McCormick Center for Early Childhood Leadership, 2021).

The McCormick Center for Early Childhood Leadership conducted another research study with the support of the Foundation for Child Development to figure out if there is a consensus among ECE leaders and stakeholders for a unified professional framework for onsite administrators in centers, schools, or family-based childcare. The data for the study was collected in four waves of 90 minutes (about one and a half hours) each session, for a total of 14 virtual sessions. Participants in the first three waves responded to a series of questions relevant to key areas of a professional unified framework for onsite leadership. The highest-ranked responses were then added to the next wave and in the final wave, respondents reacted to a draft report synthesizing the findings which included five recommendations generated from the first three waves.

A total of 207 ECE leadership stakeholders, from 32 states and the District of Columbia, registered to participate in one or more of the four waves of data collection.

The national sample provided representation from three ECE stakeholder groups: program and site leaders (22%); higher education faculty and leadership developers (38%); and national and state system leaders (40%).

The findings showed that all five of the final recommendations had a strong level of agreement (4.2 through 4.6 on a 5-point agreement scale). While there were numerous variations, such as the degree type or the level of the ECE credential required as a foundation, there was proof that a fundamental need for a unified framework for program leaders and agreement on equitable compensation based on educational qualifications and responsibilities; a minimum requirement of a degree; achievement of competencies aligned to the Whole Leadership Framework; and a foundation of the ECE Level I, II, or III (established in Power to the Profession). These five consensus recommendations developed in the earlier waves and tested in Wave four with additional participants, appear to be strong pillars for the development of program leadership for the future.

Teacher Collaboration and Quality

NYCDOE's Provision for Collaboration. Wikipedia defines collaboration as the process of two or more people, entities, or organizations working together to complete a task or achieve a common goal. Simply put, it is the cooperation of all stakeholders. In 2019, the New York Department of Education, Division of Early Childhood Education (DECE) developed a system referred to as the Early Childhood Framework for Quality (EFQ), which replaced all other versions.

The EFQ is a six-element guidance system, based on research, covering best practices in early childhood programs among leadership, teaching teams, parents, and the community. It is hoped that the quality of the programs will increase and learning

opportunities for children will be maximized in all age groups and settings. Of the six elements, three are relevant to this research. The relevant elements covered by the EFQ linked to this research are collaborative teachers, effective leadership, and the program's community ties.

The EFQ outlines that a program should “demonstrate strategic leadership and that leadership should establish teams—leadership and teaching teams—based on the organizational culture, structure, and resources. They should promote and execute a shared vision for quality. The EFQ outlines that family roles as primary caregivers, teachers, and advocates should be an integral aspect of the daily program routine. The EFQ directives continue to say that program leadership teams and teaching teams are to work together to build relationships with families and communities by providing “meaningful opportunities and resources that support children’s development and the whole family’s well-being” (Early Childhood Framework for Quality, 2019). The EFQ made provision for programs early childhood programs to use data to improve program and classroom quality in partnership with families and communities.

Teacher Collaboration. Teachers as professionals bring to their programs varying levels of experience and knowledge. Dettmer et al. (2005) explained that when referring to an early childhood program a general and practical definition of collaboration is difficult due to the differences in school structures and circumstances. Many synonyms for collaboration in an educational setting exist, such as coaching, consultation, and teaming. Synonyms for collaboration have specific meanings and purposes and can be characterized as forms of collaboration (Dettmer et al., 2005). The NYCDOE’s collaborative efforts are primarily for providing inclusive classrooms that offer the

opportunity for special education students to learn and socialize with typically developing peers in their least restrictive environment (NYCDOE InfoHub). In 2006, the department began a new paradigm of decision-making known as Collaborative Inquiry where teams of teachers have learned to work together to diagnose the learning gaps of struggling students in their classrooms and to identify and develop effective strategies to meet their learning needs. This system of inquiry uses data to inform decision making to improve student achievement.

The department encourages programs to collaborate with parents and the general community. It is believed that parents feel a sense of inclusion in their child's education and respond positively when they are included as partners. Schools are to create opportunities for parents to visit classrooms and take part in daily activities.

Teacher Quality. Teacher quality is an essential factor for student learning experiences in ECE. Even though it is not one of the factors to be analyzed by this research, it is a vital component to include because it has bearings on both structural and process quality. For structural quality, teacher qualification is a direct aspect, and for process quality it is indirectly related to the quality of classroom activities. In a direct evaluation of program quality's impact on children's outcomes in Head Start programs, Sabol et al. (2020) compared 196 centers serving 4,130 children using FACES and ECERS-R measures. Their findings indicated no consistent or significant relationship between program quality ratings and children's outcomes in pre-literacy or pre-mathematics skills or behavior and social development. However, they found that significant differences existed between classrooms within centers, leading to the

conclusion that teacher quality was a critical factor in supporting children's positive outcomes.

To comply with structural quality, NYC childcare teachers are required to have at least a bachelor's degree and a teacher's certification to be a group teacher, or a study plan working towards certification. Of interest also is a meta-analysis of 32 studies (18 were comparative studies and 14 were correlations studies) conducted by Kelley and Camilli (2016), which provided more insight into the relationship between teacher quality (educational attainment) and student outcomes. The research compared teachers with bachelor's degrees and higher to teachers with less than a bachelor's degree regarding classroom quality scores and student attainment in center-based early childhood programs. In this study, the researchers aggregated four different constructs (global classroom quality, teacher-child interaction, teacher pedagogical beliefs and knowledge, and classroom instructional activities) into a single quality measure. Results of this meta-analysis showed a positive relationship between program quality and teachers' educational levels. The average effect size was 0.16 standard deviation ($p < .05$) higher for teachers with a bachelor's degree than for teachers with lower educational attainment.

Koubek and Moeller (2005, 2015) investigated multiple forms of professional development, such as in-service and coaching, to establish the relationship between teacher quality and student improvement. The study examined a sample of 2,149 Head Start teachers who completed the Head Start Family and Child Experiences Survey (FACES, 2003). Data was collected using the ECERS-R instrument to evaluate learning and social-emotional practices in the classroom environment. The analysis produced findings that substantiated those teachers with an early childhood education major in their

pre-service training provided higher-quality learning and social-emotional practices in the classroom.

At this point, the researcher has referenced research on teacher qualification as a factor of high quality. It would be considered unconscionable to omit literature on professional development as an element of teacher quality. McDonald et al. (2006) conducted a research study that evaluated the quality of the pre-kindergarten and kindergarten programs in the district of South Carolina, using the ECERS-R (Harms et al., 1998). In this study, the teachers rated their classrooms using the ECERS-R instrument, both before and after professional development and support in areas the teachers had shortcomings. The demographic data showed that all the teachers had at least a bachelor's degree, with half possessing a master's degree or higher, 83.1% had majored in early childhood education, 76% had initial certification in early childhood education, and 23% had certifications in teaching higher grades with minors in early childhood. The findings showed that teachers rated their classrooms significantly different from the pretest to the post-test, with the latter rating higher. The experiment supported the importance of professional development and evaluations as a means of establishing and maintaining high quality in an early childhood program.

Equity in Access to Early Childhood Care

Families are faced with numerous obstacles when trying to enroll their children in quality childcare: location options, application requirements, and cost are some of such obstacles. These obstacles have been especially challenging for low-income, homeless, immigrant, non-English speaking families as well as families whose children have some form of disability or special need. As such, these children's parents often must settle for

whatever childcare is accessible, and the children often end up not receiving the same high-quality early childhood care as their more affluent peers.

Within the last decade, the federal and state governments have taken steps to provide access to education to all children from birth to five years, hoping that all children will attend high-quality early childhood education programs. According to a 2017 report by the Early Childhood Data Collaborative, additional policy efforts and strategies are being adopted at the state level to gather and use their ECE data to understand better families' needs and the availability of services in communities. In this report, states provided strategies for improving access for disadvantaged groups. One such strategy was that states should use the collected data to “map the potential risks to healthy development, both economic and health-related, with programs and services available to support early development.” Washington DC created a “Risk and Reach Assessment” to categorize risk factors as low-, moderate-, or high-risk for each of its communities (Moodie et al., 2012). They then matched available child-care centers, Head Start/Early Head Start sites, and pre-K programs to identify gaps in high-quality ECE program availability in D.C. communities with the highest risk (Early Childhood Data, 2017; Moodie et al., 2012).

Conclusion

There are frequent modifications and updates in early childhood program policies and regulations by the National Association for the Education of Young Children and the National Institute for Early Education Research (Barnett et al., 2004; NIEER) that have impacted program quality. Policies and standards on structural quality features, such as teacher qualification, class size, and curriculum were upgraded, and process quality

features, such as classroom interaction between teachers and children, have been emphasized as requiring more focus. For at-risk children to benefit and have an equal opportunity for success alongside their non-at-risk peers, they need to access programs that can effectively implement these upgrades. Federal and state governments and numerous stakeholders have invested time and funds, hoping that all children will have access to high-quality childcare. The current study investigated quality in these NYC programs to shed light on the level of quality in the various program types for understanding the learning gap. It will also identify the relationship between program quality and program variables to provide an overall view of what influences high quality. It is the hope that evidence for improving early learning experiences for all children and evidence of what works will emerge.

CHAPTER 3

This study used quantitative methods to examine program quality in New York City early childhood centers. This chapter details the research questions, data collection, and analytic methods that will be employed.

Research Questions and Hypotheses

This study will explore the following research questions shown, along with their statistical testing hypotheses.

RQ1: Is program quality associated with the racial composition of the students in the program?

H₀: ECERS-R scores are not associated with the percent of Black, Whites, Asians, and Hispanic students served by the program.

H₁: ECERS-R scores are associated with the percent of Black and Hispanic students served by the program.

RQ2. Is there a difference in program quality among the different types of ECE programs?

H₀: ECERS-R scores do not vary among the different types of ECE programs in NYC.

H₁: ECERS-R scores vary among the different types of ECE programs in NYC.

RQ3: Is program quality associated with leadership quality, teacher collaboration, family, and community ties?

H₀: ECERS-R scores are not associated with the ECE programs' leadership quality, teacher collaboration, family, and community ties in NYC.

H₁: ECERS-R scores are associated with the ECE programs' leadership quality, teacher collaboration, family, and community ties in NYC.

RQ4: What factor most strongly predicts quality in a program?

H₀: There is no significant relationship between a program's quality rating and its type, teacher collaboration, classroom interaction, community and family ties, or leadership quality.

H₁: There is a significant relationship between a program's quality rating and its type, teacher collaboration, classroom interaction, community and family ties, or leadership quality.

Table 1*Research Question, Data Source, and Analyses*

# Research Questions	Hypotheses	Analysis	Variables (Data Source in Parentheses)
1 Is program quality associated with the racial composition of students in the programs?	H ₀ : ECERS-R scores are not associated with the percent of Black and Hispanic students served by the program. H ₁ : ECERS-R scores are associated with the percent of Black and Hispanic students served by the program.	A simple linear regression	IV: % of program racial composition DV: Average ECERS-R Scores (NYC Data Hub: 2018 School Quality Report Results for Pre-K) ECERSROBSERVATIONSCOREAVERAGE
2 Is there a difference in program quality among the diverse types of ECE (Early Childhood Education) programs?	H ₀ : ECERS-R scores do not vary among the various ECE programs in NYC. H ₁ : ECERS-R scores vary among the various ECE programs in NYC.	One-way ANOVA	IV: Program Type DV: Average ECERS-R Scores (Same as above)
3 Is program quality associated with program leadership quality, collaborative teachers, and family and community ties	H ₀ : ECERS-R scores are not associated with the ECE programs leadership quality, collaborative teachers, and family and community ties scores in NYC. H ₁ : ECERS-R scores are associated with the ECE programs leadership, collaborative teachers, and family and	Multiple linear regression	IV: Program Leadership – Survey Percent Positive. Collaborative Teachers – Survey Percent Positive. Family-Community Ties – Survey Percent Positive. (NYC Data Hub: 2018 School Quality Report Results for PreK) DV: Average ECERS-R Scores (Same as above)

# Research Questions	Hypotheses	Analysis	Variables (Data Source in Parentheses)
4 What factor of those studied most strongly predicts quality in a program?	community ties scores in NYC H ₀ : There is no significant relationship between a program's quality rating and its type, teacher collaboration, programs community involvement, and family ties, interaction, or leadership quality. H ₁ : There is a significant relationship between a program's quality rating and its type, teacher collaboration, programs community involvement and family ties, interaction, or leadership quality.	Multiple regression	IV: Program Type Interaction – % Score from ECERS-R evaluation Program Leadership – Survey Percent Positive (Same as above) Collaborative Teachers – Survey Percent Positive (Same as above) Family-Community Ties – Survey Percent Positive (Same as above) DV: Average ECERS-R Scores (Same as above)

Data Source

The New York City Department of Education 2018 School Quality Report for pre-kindergarten, located on the NYC Open Data website is the main source for the data used to perform some of the analyses for this research. The website defines the Quality Review as “a process that evaluates how well schools are organized to support student learning and teacher practice.” The pre-kindergarten data presents a picture of NYCDOE

(New York City Department of Education) early childhood programs' performance statistics as "it applies to the effectiveness of student learning."

According to the NYCDOE information webpage families, teachers and select school support staff complete a survey known as NYC School Survey. This survey is aligned with the Department's Framework for Great Schools. The survey provides information on the program from the community's point of view about the learning environment at their school with the hope it will identify weaknesses and strengths of the program.

A total of 1,984 programs are in the database. The categories used are as follows: program names. Some programs are assigned a program identifier by the Department of Education.

Program Type identifies the program as one of the following: (1) District Public School, defined as a public elementary school with a pre-K program; (2) NYC Early Education Centers (NYCEECs), which include community-based organizations (CBO), Charter Schools, Head Starts, Private Childcare Centers, and Religious Schools with Pre-K programs; (3) Department of Education Pre-K centers, which are programs with pre-K enrollment only.

Racial Composition is a breakdown of the program's enrollment according to its racial population.

Teacher Collaboration Score provides the data results of the school's community survey. It gives ratings on the quality of teachers' participation in opportunities to develop, grow, and contribute to the school's learning community. This rating reflects

how well teachers participate in opportunities to develop, grow, and contribute to the continuous improvement of the school community.

Family Involvement data is also found in the quality review and is the rating reflecting how well the program forms effective partnerships with families. This data is sourced from a NYC School Survey.

Effective Program Leadership is a rating that reflects how well school leadership “inspires the school community with a clear instructional vision and effectively distributes leadership to realize this vision” (NYCDOE). This section uses data from the NYC School Survey.

Program ECERS-R Score (Early Childhood Environment Rating Scale-Revised) is the evaluation instrument used to score the quality of a program’s strengths and areas for growth in specific areas. The results are shown on a four-bar rating scale. A program receiving four bars means the program is “Excellent” in that area; three bars is “Good;” two bars is “Fair”; and one bar means the program “Needs Improvement.” A final aggregate score is then calculated. The ECERS-R evaluation instrument assesses programs in the following areas: language reasoning, interaction, classroom activities, personal care routine, space and furnishing, and program structure.

Interaction is one of the areas assessed on the ECERS-R instrument. The results are as stated above and can be viewed independently or as part of the aggregate score. It was singled out as a variable to be analyzed due to its relevance to the theoretical framework.

Population and Sample

The NYC education system is grouped into 32 community school districts across the five boroughs: Manhattan, the Bronx, Queens, Brooklyn, and Staten Island. This study will use all ECE programs with ECERS-R quality evaluation scores posted on the NYCDOE public databases. The sample population will include programs from the 32 districts. The programs will include district schools, pre-K centers, NYC Early Education Centers (NYCEECs), and charter schools. The programs' 2018–19 demographic and quality evaluation data will be used for the analyses. Ideally, the programs serve a diverse array of children. I will access several public databases, as described in the following sections.

The New York City Department of Education (NYCDOE)

The NYCDOE's Pre-Kindergarten and Kindergarten Quality Snapshot is a secondary data source that provides quality information on programs and can be accessed on the department's website. The factors that decide a high-quality program are featured, and the Snapshot includes critical assessment and survey information such as the results of a program's ECERS-R evaluation. The ECERS-R scores found on this site show a program's average score and not individual classroom scores.

Variables

Table 2

Variables in the Study by Data Source

Variables	Data Source
Program Types	NYCDOE Quality Report (infohub.nyced.org)
Student Ethnicities	
ECERS-R 2018-2019 evaluation scores	
Program strong community ties Survey	
Program Leadership Quality Survey	
Teacher Collaboration Survey	
Classroom interaction scores	

The ECER-R Instrument

The original ECERS by Harms and Clifford (1980) was the first of the environment rating scales series. It was designed to evaluate early childhood environments to identify areas that needed improvement (Clifford et al., 2010). With the international use of the instrument and improvements in child-care policies in 1998, a revised version of the ECERS called the ECERS-R was released. This ECERS-R version has seven subscales: (a) Space and Furnishings, (b) Personal Care Routines, (c) Language-Reasoning, (d) Activities, (e) Interaction, (f) Program Structure, and (g) Parents and Staff. The ECERS-R emphasizes essential and emerging issues in early childhood child-care relevant to this research, such as children with disabilities, family concerns, and cultural diversity. One added change in the transition from the ECERS to the ECERS-R is the use of a stricter indicator system to support the rating scales (Clifford et al., 2010). In 2014, yet another version of the ECERS evaluation instrument was released, referred to as ECERS-3. The difference with this version is the inclusion of a mathematics and literacy component that evaluates age-appropriate activities. The latest

version is aligned with the changes made to child-care policies that emphasize the broad range of developmental needs of children 3–5 years old. The authors are of the impression that it is a better predictor of child outcomes and that it is stronger at identifying the difference in program quality compared to its predecessor (Clifford et al., 2010).

NYCDOE used the ECERS-R evaluation instrument for the 2018–2019 school year. The ECERS-3 will not be used until the 2020–2021 school, and the data will not be available for this research. ECERS-R version of the instruments is appropriate because the authors specifically developed it to evaluate the process quality in settings for children and further evaluate all the necessary criteria for this research. As mentioned by Clifford et al. (2010), “process quality refers to the experience of children within the child-care environment and includes interactions with others, materials, and activities” (Phillipsen et al., 1997). As an observation tool that evaluates process quality criteria, it is said to be “more predictive of child outcomes than structural indicators of quality such as staff to child ratio, group size, cost of care, and type of care” (Clifford et al., 2010).

The Validity of the ECERS-R

The Environment Rating Scales used globally to assess child-care programs’ quality can measure quality confidently across cultures (Clifford, 2005; Clifford & Rossbach, 2017; Peisner-Feinberg et al., 2001; Zill & Resnick, 1998). In the United States, the ECERS-R has been used in significant studies, including the Head Start Family and Child Experiences Survey (FACES 2003) and the Preschool Curriculum Evaluation Research Program (PCER) (Clifford et al., 2010). Various agencies have used the scale for program quality assessment, funding, accreditation, and licensing programs.

Many states have utilized the scales in different circumstances: Connecticut used its results for inclusion of children with disabilities; Colorado, to include low-income children; and Arkansas to make federal funding decisions. It is also used internationally, in countries such as England, Canada, Spain, Korea, Italy, and many others. Higher scores on the ECERS-R are related to more positive child development outcomes (Melhuish & Petrogiannis, 1996). The instrument's validity enables its use despite cultural differences in international programs because of its alignment to a core set of child development goals and early childhood practices (Clifford, 2005), which are consistent across cultures.

Reliability of the ECERS-R

The reliability of the ECERS-R instrument has proven consistent over time and among different rates. The authors of the ECERS-R offer three-five-day workshops to assist raters in mastering the evaluation tool's contents. They provide take-away video training materials and resource guides. While there is no certification available, raters must demonstrate a complete understanding of the scoring system and all indicators to reliably complete the scoring system training. NYCDOE early childhood program evaluators are all trained in administering the ECERS-R instrument; program directors and Pre-K staff are provided workshops and printed materials to familiarize themselves with ECERS-R program expectations.

Research Design and Data Analysis

For the present research study, a quantitative ex-post-facto study was deemed most suitable due to the nature of the data under consideration (Gay et al., 2006). The following analyses will be used in this study to answer each research question:

RQ1: Is program quality associated with the racial composition of the students in the programs?

Simple linear regression will be performed for each racial group to determine the relationship between the programs' quality and racial/ethnic composition.

$$ECERS R_s = \beta_0 + \beta_1 (ethnic) + e_s$$

Where $[ECERS R_s]$ is the ECERS-R score for programs, s , and $[ethnic]$ is the program's racial/ethnic composition, as measured by the percent of Black and Hispanic students served. The coefficient of interest is $[\beta]$, which will indicate whether the ethnic composition is a significant predictor of ECERS-R score.

RQ2: Is there a difference in program quality among several types of programs?

A one way between subjects' analysis of variance (ANOVA) was performed with the dependent variable of programs' ECERS-R scores. The independent variables will be the different types of programs, with the following levels: (1) NYCDOE district schools; (2) NYC DOE Pre-K Centers; (3) NYC Early Education Centers (NYCEECs). Post-hoc testing will be done to identify specific differences among the types of programs.

RQ3: Is program quality associated with the program leadership quality, family and community ties, and teacher collaboration?

Multiple regression analysis will be performed to determine whether leadership quality, teacher collaboration, and family and community involvement affect program quality.

$$ECERS R_s = \beta_0 + \beta_1 (Teachercolab) + \beta_2 (leadership\ quality) + \beta_3 (strongties) + e_s$$

Where $[ECERS R_s]$ is the ECERS-R score for a center, s , and $[Teachercolab]$ is the program's teacher collaboration scores, $(leadership\ quality)$ is program leadership

scores, and (*strong.ties*) is community and family leadership scores. The coefficient of interest is $[\beta]$, which will indicate whether the composition is a significant predictor of the ECERS-R score.

RQ4: What factor of those studied most strongly predicts quality in a program?

A multiple regression analysis will investigate the strength of the relationship between program quality represented by the ECERS-R scores and the various independent variables explored in this study.

Testing the hypothesis that there is no relationship between the program quality ($[ECERS R_s]$), for s centers, and the independent variables ($(interaction_s)$, ($strongties_s$), ($effectiveleadership_s$) and ($teachercolab_s$) will determine whether the explained variance, R^2 , is “significantly different from 0, suggesting that these factors do explain variation in program quality. The regression to be estimated is:

$ECERSR_s = \beta_0 + \beta_1(TeachersColab_s) + \beta_2(Effectiveleadership) + \beta_3(Interaction) + \beta_4(Strongties) + e$. Where $[ECERS R_s]$ is the ECERS-R score for centers, $[TeacherColab.]$ is the percent of teachers collaboration score the program receive on the annual survey, $[Interaction]$ is the individual score the program received for classroom interaction on the ECERS R evaluation, and $[Strongties]$ is the score the program received on the annual survey for family and community ties. The associations of interest are $[\beta_1]$, $[\beta_2]$, $[\beta_3]$ and $[\beta_4]$, which will indicate whether the percentage of teacher’s collaboration, effective leadership, classroom interaction, and community ties are significant predictors of ECERS-R scores. Comparisons of the coefficients will provide information regarding the strongest predictor of quality in a child-care program among the variables considered.

Limitations of the Study

Notably, the sample did not include family and group family child-care centers, some catholic schools (without ECERS-R scores), private nonfunded centers, and private schools and charter schools. While this does not compromise the research's integrity, it limits the extent to which this research's findings can be generalized to include all types of child-care programs, which was the original research intent. Moreover, generalization is restricted to early childhood education programs in urban areas that serve a high needs population. The information should be interpreted with caution when considering other types of districts, other states, and student populations. Finally, because the research uses public data, the full scale of ECERS-R scores was not available to the researcher. This could have caused variation in the outcome and some correlations may be estimated to be lower than they would with complete data.

Threat to Study's Validity

The present COVID 19 pandemic has affected the choice of data collection which may present a sampling bias. The initial intention was to perform program evaluation in funded childcare programs with or without an ECERS-R evaluation and to perform an initial evaluation for programs randomly chosen without such an evaluation. The pandemic has changed the primary data collection and therefore excluded certain types of early childhood programs, such as privately-owned day cares, family daycares, group family day cares, some charter schools, and head start programs. This threat to the study's validity could lead to an insufficient representation of childcare programs, limiting generalization, and thereby affecting the research's statistical power.

Another threat to research validity can be viewed as an external one. The NYCDOE's ECERS-R evaluator can have biases that can affect the results of the program's evaluation. They are extensively trained and are thorough in executing their jobs, but there is always a chance of personal biases.

Other bias can present itself in the form of parent's choice of enrollment in a particular program. Most parents choose programs close to home and may live in a community that is culturally based (Asians in Chinatown). Therefore, they will attend programs that predominantly reflect their ethnicity. As such, the research conceptualizes the relationship between program quality and student demographics (Figure 1) as a bi-directional relationship between the student racial factors and the quality variables. The unclear relationship of some variables can create an internal threat to the study's internal validity.

CHAPTER 4

For this study, the sample population is taken from New York City Early Childhood 1,640 Programs. The data for these programs is located on the NYC website open data for the 2018–2019 school year. The data includes information on the dependent variable and all the related independent variables. The quality evaluation score as represented and used in this research as the dependent variable is referred to as the ECCERS-R score. The independent variables data include the ethnicity of the students in the programs, the four program types in which programs are not equal in number: charter schools, district schools, NYCEEC, and pre-K Centers. The rest of the data which are results of the NYC annual survey is also found on the open data website and includes the results for the programs' quality leadership scores, teacher collaboration quality scores, and the program's community ties quality scores.

The largest number of programs in any of the four program types is 395 programs (S.D = 24.04, M =37.21).

Table 3

NYC Department of Education Total Number of ECE Programs for 2018

Descriptive Statistics						
	N	Minimum	Maximum	Sum	Mean	Std. Deviation
Enrollment	1604	0	395	59685	37.21	24.036
Valid N (listwise)	1604					

Results for Research Question 1

To answer the research question whether there is a difference in program quality among the different types of Early Childhood Education programs, a one-way between subjects ANOVA was conducted to compare the ECCERS-R scores of the various programs using SPSS analysis. The dependent variable was the ECERS-R scores for the

programs and the independent variable was the different types of programs. The assumption based on the null hypothesis is that there were no significant differences in the quality of the various types of programs as represented by the programs' ECERS-R scores. The outcome of the one-way ANOVA analysis showed there was a significant difference between the various types of programs' quality represented by their ECERS-R scores at the $p < .05$ level for the three conditions [$F(3, 1639) = 29.01, p = 0.001$]. Therefore, the null is rejected. A post hoc comparison using the Tukey HSD test with an $\alpha = 0.05$ was done and its results indicated that the mean score for the pre-K Center type programs ($M = 4.99$) was significantly higher than the other types of program's quality scores. The other three types of programs were closer in quality ratings with charter schools coming in next ($M = 4.41$), followed by NYCEEC programs ($M = 4.31$), and District School programs coming in last in program quality scores ($M = 4.01$).

Table 4

Comparison Between Types of Programs Using ECERS-R Scores

ANOVA
ECERSR OBSERVATIONS CORE AVERAGE

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	44.382	3	14.794	29.007	<.001
Within Groups	835.922	1639	.510		
Total	880.304	1642			

Table 5

Ad Hoc Comparison of Program Types Using ECERS-R Scores

ECERSR OBSERVATIONS CORE AVERAGE
Tukey Ba,b

program type	N	Subset for alpha = 0.05	
		1	2
District School	605	4.0107	
NYCEEC	1009	4.3124	
Charter School	14	4.4143	
Pre-K Center	15		4.9933

Note. Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 28.421.

b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

Results for Research Question 2

For the next research question, whether program quality is associated with the racial composition of students in the programs, a number of simple regressions were performed, also in SPSS. In each analysis, the dependent variable used was the programs' ECERS-R Scores and the independent variables were the student's ethnicity which had five levels: (1) Blacks, (2) Whites, (3) Hispanics, (4) Asian and (5) Mixed Race. The null hypothesis assumed that there is no association between the ethnicity of the students and the programs' ECERS-R quality scores.

The outcomes show that a significant regression equation was found ($F(1, 1641) = 10.997, p < .001$), with an R^2 of .007 for Asian students. For the other three ethnic groups - Blacks, Hispanic, and White, there was no significant association between program quality as reported by the ECCERS-R scores and these students being enrolled in the early childhood programs. These other results were as follows Blacks ($F(1,1641) = 2.016, p = 0.156$), with an R^2 of .001. For the Whites ($F(1,1641) = 0.323, p = 0.570$), with R^2 of 0.000. For the Hispanic ($F(1,1641) = 3.833, p = 0.050$) with R^2 of 0.002. The results show a positive association to the program's quality score by 7% when Asians are enrolled in a program. The other three groups' enrollment was not significantly associated with a programs' quality rating. Blacks influence the programs' quality by 1% and Hispanics by 2%. Whites' enrollment in a program does not affect the programs' quality scores.

Based on the resulting Coefficient, Quality scores on the ECERS-R can be predicted by ethnicity as follows: Asian enrollment ($\beta = .082$, $t = 3.316$, $p < .001$). For every enrollment of an Asian student, the program quality score increases by .082. For Hispanics ($\beta = .048$, $t = -1.958$, $p = .050$); Blacks ($\beta = -.035$, $t = -1.958$, $p = -.050$) and Whites ($\beta = .014$, $t = .568$, $p = .570$).

Table 6

Quality Predictor Based on Asian Enrollment

Model Summary				Change Statistics					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.082 ^a	.007	.006	.72998	.007	10.997	1	1641	<.001

a. Predictors: (Constant), Per Asian

Table 7

Quality Prediction Based on Black Enrollment

Model Summary				Change Statistics					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.035 ^a	.001	.001	.73197	.001	2.016	1	1641	.156

a. Predictors: (Constant), Per Black

Table 8

Quality Predictor Based on Hispanic Enrollment

Model Summary				Change Statistics					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.048 ^a	.002	.002	.73157	.002	3.833	1	1641	.050

a. Predictors: (Constant), Per Hispanic

Table 9*Quality Predictor based on White Enrollment*

Model Summary

Model R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
				R Square Change	F Change	df1	df2	Sig. F Change
1	.014a	.000	.73235	.000	.323	1	1641	.570

a. Predictors: (Constant), Per White

Results for Research Questions 3 and 4

Analysis in response to the questions on whether there is a significant relationship between early childhood program quality scores and the three following independent variables: leadership quality, teacher collaboration, and program’s family and community involvement. The corresponding hypotheses assume that there is no significant relationship between the variables and the dependent variable, the program’s ECCERS-R scores. Multiple linear regression was used to test leadership quality, program teachers’ collaboration, family and community involvement, and classroom interaction significantly predicted the ECCERS-R score for early childhood programs in NYC. The study’s hypotheses predict that there is no association between these independent variables and the program quality scores as represented by the ECCERS-R scores.

The overall regression results were statistically significant ($R^2 = .580$, $F(4, 571) = 197.089$, $p < .001$). Classroom interaction significantly predicted the ECCERS R program scores ($\beta = .752$, $p = < .001$). The results indicated that the other three independent variables did not significantly predict the programs’ ECCERS R scores: effective site leadership ($\beta = .001$, $t = .019$, $p = .985$); teacher collaboration ($\beta = .044$, $t = 1.565$, $p = .118$); and programs’ strong family and community ties ($\beta = .044$, $t = 1.456$, $p = .146$).

Table 10*ANOVA Results: Comparison of Factors to Determine Best Predictor of Program Quality*Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics			Sig. F Change	Durbin-Watson	
					R Square Change	F Change	df1			
1	.762 ^a	.580	.577	.50256	.580	197.089	4	571	<.001	1.821

a. Predictors: (Constant), Site_Strong_Ties, Interaction, Survey_pp_CT, Site_Effective_Leadership

b. Dependent Variable: ECERSROBSERVATIONSCOREAVERAGE

Table 11*Multiple Regression Analysis Determining Best Predictor of Program Quality Results*ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	199.112	4	49.778	197.089	<.001 ^b
	Residual	144.215	571	.253		
	Total	343.327	575			

a. Dependent Variable: ECERSROBSERVATIONSCOREAVERAGE

b. Predictors: (Constant), Site_Strong_Ties, Interaction, Survey_pp_CT, Site_Effective_Leadership

Table 12*Multiple Regression Analysis Showing Coefficient Results*Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients		Sig.
		B	Std. Error	Beta	t	
1	(Constant)	.625	.555		1.126	.261
	Site_Effective_Leadership	.006	.321	.001	.019	.985
	Survey_pp_CT	.392	.251	.044	1.565	.118
	Interaction	.436	.016	.752	27.593	<.001
	Site_Strong_Ties	.925	.636	.044	1.456	.146

a. Dependent Variable: ECERSROBSERVATIONSCOREAVERAGE

CHAPTER 5

Discussion and Implications

Supporting Study

Presently, there is so much investment in early childhood education and, the assumption that they are all operating at a high-quality level, especially in the New York City childcare arena, that it is hard to believe that many children are still struggling to make the grade in elementary school and beyond. Many decades of research evidence exist. As mentioned before, the High Scope Program highlighted and emphasized the importance and benefits of young children receiving a high-quality early childhood educational experience. The results of this research, in many aspects, support the fact that all children, regardless of race or ethnicity can benefit from a strong quality start. The study by Chetty et al. (2011) “How Does Your Kindergarten Classroom Affect Your Earning,” pointed out long- and short-term effects of quality intervention by examining data from the star project. They examined the participants’ standardized test scores for long-term effects on participants’ adulthood criteria. The study, even though it concluded that the effects of class quality fade out on test scores in later grades, found gains in non-cognitive measures. This present study holds the view that there are gains later in life, despite the short-term fade-out, regardless of the amount of such gain. There is a decreased deficient performance in elementary state-wide ELA and Math testing. It is understandable that fade-outs exist, but the fact remains that any gains represents a step in the right directions and more needs to be done to get us there.

This research questioned accessibility for disadvantaged children to high-quality programs and whether race played a part in program quality. With a nationwide increase

in childcare spending and an effort in policy development and reform, the question of accessibility to high-quality programs has proven valid. Valentino stated that “there is compelling evidence that low-income, minority students often do not have access to these high-quality programs” (2018). The results from this research showed that in York City Department of Education Daycare programs there is no significant relationship between the quality and ethnicity of the children enrolled. Therefore, the learning deficiency and poor early childhood program quality are not attributed to the ethnicity of the children in the program. Enrolling low-income disadvantaged children will not therefore cause a program to receive a low or high score in program quality evaluation. In this research, the Standard Deviation for Blacks, Hispanics, and White ethnic enrollment accounted for less than 2% of a program’s quality. This result indicates that there is no association between program quality and student ethnicity. What was noted though, was that Asian enrollment accounted for 7% of a program’s quality. One possibility for the difference could be cultural norms. This outcome provides support to New York City’s non-discriminatory enrollment policy that best serves a large diverse cohort of minority children waiting to access high-quality childcare. NYCDOE must seriously enforce this policy in order to be effective in narrowing the learning gap.

Examining structural and process quality factors of New York City’s funded early childhood education programs through this study provided insight into the influences both have on a program’s quality. The findings from the analyses support existing literature and clarify existing practices. Quality in early childhood education is dependent on many factors but high quality narrows the dependency to just a few. Having to choose just a few of the factors to investigate had its limitations, which will be discussed later.

This research chose independent variables the NYCDOE recognized as important to high quality in that they evaluated and included them in their ECE quality report. The research has shown, based on the results, that some of these factors in the DOE's database have little or no significance to program quality.

On the other hand, some of the variables in the DOE's data supported the conceptual and theoretical framework of the study. One such variable, classroom interaction, referred to as the "interaction" variable in this study, was specifically chosen from the sub-items in the ECCERS-R scores for its relevance and alignment to the theoretical framework, Vygotsky's theory of the Zone of Proximal Development. The results of multiple regression showed that classroom interaction has the most predictability in determining high quality of a program. This result supports Alfalagg's (2017) study, where he used Vygotsky's theory as supporting evidence to show that classroom interaction is an essential learning feature in early childhood programs and that it is an integral aspect of creating a Zone of Proximal Development. To maximize learning, early childhood programs need to create classrooms that will optimize interaction between teacher and child, child and the classroom environment, and between children and their peers. Programs developed by Maria Montessori (1870–1952) and the Reggio Emilia Approach (1940s) are two classroom approaches that promote the ZPD. This variable is one that has direct association and influence on the children's growth and development, and all programs should guarantee it is of high quality. NYCDOE and NYCDHMH should monitor its existence and provide checks and balances for better accountability.

The question of whether there are differences in quality based on program type yielded results that showed a significant difference in program quality among the different types of Early Childhood Education programs. The results supported a literature review study done by the National Center for Early Development and Learning (NCELD) where pre-kindergarten and kindergarten programs were studied to identify the differences among state-funded pre-kindergarten programs and how they relate to child outcomes (Early et al., 2013). This research found that the quality of the various programs' classroom experiences, such as instructional climate, teacher-child relationships, and the amount of exposure to certain areas of instruction (process quality features), predicted the most growth in the children's language, literacy, and social domains. Consequently, the organization and composition of a classroom's activities influence the high quality of a program; an outcome of that study which also supported the theory of Vygotsky.

The current result also supports the conceptual framework which outlines the two aspects that influence a program's high quality: structural quality and process quality. As mentioned previously, all programs are licensed and overseen by the New York Department of Health and Mental Hygiene and therefore are subjected to the same licensing process which accounts for the structural elements in programs. This puts them all at an equal level with respect to most structural aspects of quality. The major differences between the types of programs, affecting their high-quality criteria, will therefore be with their process quality. The research has found evidence of this in the results of the variable with the most predictability of high quality. A strong relationship between a program's high quality and the interaction that takes place in the early

childhood classroom has been reported in the literature (Berk, 2012; Bodrova & Leong, 2005). Four-year old's spend most of their waking moments in a classroom: Monday to Friday, 9:00 am to 3:00 pm. It is enough time to develop good learning habits based on high-quality learning experiences. Unless there are learning disabilities—and there are interventions—children's ZPD should be high in quality, fostering learning readiness in the higher grades.

Based on this research outcome, leadership, even though important, had no real influence on program quality as it was substantiated by multiple regression. This is substantiated by the fact that principals of the public elementary school oversee the early childhood programs in their schools. Most of these principals are licensed in teaching and school building leadership and possess a master's degree and higher, yet their programs received the worst quality rating among the various types of early childhood programs studied. Even though qualification is a huge part of the structural quality, it has little association with overall high quality which is influenced by classroom interactions.

Also too, are the other variables the DOE deemed important enough to include in their quality report yet have little association with the program's high quality. Analysis Outcomes of these other variables revealed that teacher collaboration and community strong community ties do not affect quality. Programs and teaching styles are so vastly different that collaboration is not as common as in higher grade levels. It is relevant in the inclusion of classrooms and where teachers work closely with their assistant teachers. In both situations, it is not very prevalent in ECE classrooms.

Limitations of the Study

Due to the existing pandemic, COVID 19, data collection was limited to the NYCDOE public record sites. In-person data collection was prohibited and therefore a more comprehensive data set and analyses were not possible. This limitation presented an exclusion situation. Collecting data from private, independent, family, and group family programs was not possible. These programs are not funded by public funds and do not fall under the DOE's governance. They are not formally evaluated and do not have existing ECERS-R evaluation scores. To include them in this research, an evaluation using the ECCERS-R instrument was needed. Once again, the pandemic affected performing such evaluation and prevented data collection. The exclusion of these programs from the research might have affected the outcome. In-person investigation and addition of other or alternative variables were affected. There was a need to do a teachers' and administrator's survey, but this form of data collection was not possible.

Recommendations for Future Research

This research recommends that further investigation into NYCDOE's programs' quality and accessibility be conducted in order to examine independent variables not covered here. Further research should also be conducted to investigate and compare the early childhood program evaluation systems: the CLASS instrument and the ECERS-R instrument, or its revised version: ECERS-3. This research did not rank programs based on high- or low-quality, and continued research in this area is needed to ascertain which programs are making the grade and which ones are not, independent of program type.

Further research could use program quality outcomes to investigate the learning outcome of children attending programs identified as high-quality. The NYCDOE, in its

efforts to make all programs high quality, will need to identify the reasons for the differences between pre-K centers to recognize elements and best practices for re-structure and replication across all its pre-K centers. A qualitative study could be conducted to identify differences between high- and low-quality programs. The pro quality elements can then be replicated and implemented across all programs. In the current research, the types of programs' ranking in order of highest quality to lowest are as follows: pre-K centers, charter schools, community-based organization centers, and public elementary school programs.

It would be interesting to do a future study of the NYCDOE's programs to identify the economic composition of a program's effect on quality, especially seeing as there is a large population of homeless and low-income students in the programs. Such a study can identify if the programs are as non-discriminating in enrollment as advertised, and, if not, corrections can be made to ensure equal accessibility to all of NYC's eligible students.

Recommendations for Future Practice

A program's financial resources should be utilized in creating, furnishing, and organizing the classroom to maximize children's ZPD and so, enable free movement, hands-on experiences, stimulate interest, and foster opportunities for proximal development. This should be done with the aim of improving program quality and student achievement outcomes.

All programs should be assessed annually using a high-quality assessment instrument and should receive support in creating high-quality programs. Professional

development should be extended to all programs free of charge to raise childcare quality, especially in non-funded programs.

Funded early childhood classrooms are usually flooded with learning tools; printed materials in the library corner and plastered around the room, conducive seating arrangements changeable based on the activities, and interesting science and art centers for investigation and discovery. The problem most of the time is the interaction aspect. The role of the teacher in the classroom and her ability to foster appropriate dialogue and meaningful interaction must be investigated and improved. It should be a top priority in program improvement.

As identified by the Abecedarian research, attendance is an important factor in quality and therefore should be included in a program's quality report. This way children can gain maximum benefits from the Zone of Proximal Development, especially at-risk children. They will be spending most of their awake time in a quality environment that will maximize their development, regardless of their home situation and its shortcomings.

The skills referred to above are skills that most teachers lack through no fault of their own. There is a gap in teacher training that needs to be bridged through professional development. The teacher's role in classroom interaction should be emphasized and mastered through their mandatory professional development sessions.

Finally, NYCDOE should hire a separate director for its ECE program management and not use the principal of its public school to run these programs. The results of this study show that despite their high qualifications, where all of them are licensed, have at least a master's degree, and years of experience, the public school's early childhood programs performed the worst in quality among the different program

types. The results showed that qualification might not be a factor that positively influences program quality. As in the other types of programs, a separate director for early childhood programs could be the answer to improving program quality. Quality early childhood educational experience is not a luxury but an absolute need for all children to have a chance of good citizenship in adulthood.

APPENDIX A: IRB APPROVAL

Dear Earlene Fernandez:

The St John's University Institutional Review Board has rendered the decision below for
QUALITY ANALYSIS OF EARLY CHILDHOOD EDUCATION PROGRAMS IN
NEW YORK CITY.

Decision: Exempt

PLEASE NOTE: If you have collected any data prior to this approval date, the data must
be discarded.

Selected Category: Category 4. Secondary research for which consent is not required:

Secondary research uses of identifiable private information or identifiable biospecimens,
if at least one of the following criteria is met:

(i) The identifiable private information or identifiable biospecimens are publicly
available;

(ii) Information, which may include information about biospecimens, is recorded by
the investigator in such a manner that the identity of the human subjects cannot readily be
ascertained directly or through identifiers linked to the subjects, the investigator does not
contact the subjects, and the investigator will not re-identify subjects;

(iii) The research involves only information collection and analysis involving the
investigator's use of identifiable health information when that use is regulated under 45
CFR parts 160 and 164, subparts A and E, for the purposes of "health care operations" or
"research" as those terms are defined at 45 CFR 164.501 or for "public health activities
and purposes" as described under 45 CFR 164.512(b); or

(iv) The research is conducted by, or on behalf of, a Federal department or agency using government-generated or government-collected information obtained for nonresearch activities, if the research generates identifiable private information that is or will be maintained on information technology that is subject to and in compliance with section 208(b) of the E-Government Act of 2002, 44 U.S.C. 3501 note, if all of the identifiable private information collected, used, or generated as part of the activity will be maintained in systems of records subject to the Privacy Act of 1974, 5 U.S.C. 552a, and, if applicable, the information used in the research was collected subject to the Paperwork Reduction Act of 1995, 44 U.S.C. 3501 et seq.

Sincerely,

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