

NEIGHBORHOOD QUALITY, CHILDCARE QUALITY, AND CHILDREN'S  
EARLY DEVELOPMENTAL OUTCOMES

by

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Neighborhood Quality, Childcare Quality, and Children's Early Developmental  
Outcomes

A thesis submitted in partial fulfillment of the requirements for the degree of Master of  
Arts at George Mason University

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## ABSTRACT

### NEIGHBORHOOD QUALITY, CHILDCARE QUALITY, AND CHILDREN'S EARLY DEVELOPMENTAL OUTCOMES

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There has been mounting interest in the social sciences about the importance of multiple ecological contexts such as family, child-care settings, and neighborhoods that influence developmental outcomes in children. While the influence of the immediate family environment on early development has been investigated in detail, the effects of distal contexts beyond the family have only recently received attention. As a result of the changing trends in parental employment (e.g., growth in maternal employment) during the past half century, young children have begun to spend substantial hours in various child-care settings and to experience direct contact with neighborhoods through several neighborhood settings such as parks, churches, libraries, and children's programs. The purpose of this current study is to explore the ways in which the interrelations between

two important ecological systems -- neighborhood and childcare -- are associated with young children's cognitive, social-emotional, language, and behavioral outcomes.

As a part of a larger project, The Miami School Readiness Project, participants included 7,563 four-year-old preschool children receiving subsidies to attend community-based childcare, Title 1 public school pre-k programs, and children attending fee supported public-school pre-k programs in Miami-Dade County, Miami, Florida. Hypotheses were tested using statistical analyses including correlations, multiple regressions, and ANOVA. The results revealed small but significant relations between neighborhood characteristics and child outcomes. First of all, neighborhood risk negatively predicted children's social-emotional and language outcomes after controlling for the family-level characteristics of parent income, parent education, and parent ethnicity. Among the neighborhood dimensions, socio-economic status was found to be the most influential characteristic of neighborhoods on child outcomes. Second, the quality of childcare services was lower in high-risk neighborhoods. Unexpectedly, high-socio economic status of the neighborhoods predicted only the facilities and building attractiveness of childcare, but did not predict the quality of services, activities, and interactions provided by childcare centers. Third, the relationship between the neighborhood quality and children's outcomes was found to be stronger for children attending public school pre-kindergarten programs than for children receiving subsidies to attend community-based childcare centers. Fourth, family density/the presence of young children was negatively associated with childcare quality indicating that high quality childcare services are not found in the neighborhoods where they are needed the

most. Finally, childcare quality did not buffer against the influence of neighborhood risk on development.

## Introduction

In his ecological systems theory, Bronfenbrenner defines development as a “joint function of person and environment” (Bronfenbrenner, 1988, pg. 25) and calls attention to the multiple contexts that are important for individuals. He conceptualizes the contexts of development in four levels that are hierarchically structured and nested within the next. Microsystems are characterized by direct, face-to-face interactions in an immediate setting such as home, classroom, and playground. Mesosystems comprise interrelations among two or more microsystems (e.g., interactions between home and school). Exosystems consist of larger settings that the developing person does not actively participate in but influence the immediate settings in which the person is found (e.g., the parent’s workplace, neighborhood institutions involved in policy making). Finally, macrosystems comprise the economic, social, educational, and legal patterns of the society (e.g., beliefs, values, regulations, laws, customs) that are common to a particular culture or subculture. Micro-, meso-, and exosystems operate within the macrosystem.

There has been mounting interest in the social sciences about the importance of these multiple ecological contexts that influence developmental outcomes in children (Chase-Lansdale, Gordon, Brooks-Gunn, & Klebanov, 1997). Examples of contexts in which early development unfolds include family, child-care settings, and neighborhoods. While the influence of the immediate family environment and resources on early

development has been investigated in detail (Becker, 1981; Bradley et al., 1989; McLanahan & Sandefur, 1994), the effects of distal contexts beyond the family have only recently received attention (Shonkoff & Phillips, 2000). As a result of the changing trends in parental employment (e.g., growth in maternal employment) during the past half century, young children have begun to spend substantial hours in various child-care settings (Marshall, 2004) and to experience direct contact with neighborhoods through their visits to several neighborhood settings such as parks, churches, libraries, and children's programs (Shonkoff & Phillips, 2000). Accordingly, the question has arisen: To what extent and how do these out-of-home environments --especially neighborhoods and processes operating in neighborhoods such as childcare-- influence early development?

*Importance of Neighborhoods for Young Children's Development: Theoretical Orientations and Research Findings*

Interest within the social sciences to investigate the effects of neighborhoods on children and youth has grown since the publication of William Julius Wilson's (1987) book, "The Truly Disadvantaged." Wilson argued that the shift in the American economy and the departure of middle-class working families from inner-city neighborhoods to more desirable, high SES suburban areas have led to increased levels of joblessness, which, in turn have resulted in social isolation of low-income, mostly single-parent families in inner-city neighborhoods. Further, he described the adverse effects of social isolation on children and families living in impoverished neighborhoods, which include

the lack of social and job networks, high quality institutions such as childcare and schools, and positive role models.

Jencks and Mayer (1990) have identified two sets of theoretical models by which neighborhood characteristics might influence young children's development and behavior. The first set of mechanisms, including epidemic models, collective socialization models, and institutional models, emphasizes the advantages of affluent neighborhoods. These theories suggest that children who are raised in relatively advantaged neighborhoods are more inspired to finish school, find gainful employment, and avoid trouble. Epidemic (contagion) models emphasize the influence of others, especially peers, on one another's behavior. According to epidemic models, behavior is contagious and negative behaviors spread in the neighborhood as a result of observing and imitating peers who demonstrate problems behaviors. Collective socialization models focus on the presence of successful adult role models in the neighborhood other than children's own parents, who can monitor, supervise, motivate, and enforce children to learn social norms, work hard, and behave consciously to maintain public order. Institutional models highlight the importance and the quality of neighborhood resources such as childcare, schools, parks, libraries, health centers, and police departments that support healthy and safe development. Jencks and Mayer (1990) argue that, for example, the quality of schools (e.g., better teachers, child-to-staff ratio) is higher in affluent neighborhoods than in low SES neighborhoods. The existence of adults (e.g., teachers) from outside the community who work in the above-mentioned neighborhood institutions and the influence of these adults on children are also emphasized in institutional models.

The second set of models – relative deprivation, competition for scarce resources, and cultural conflict – described by Jencks and Mayer (1990) assume that the presence of affluent neighbors affects children’s development and behavior negatively. Relative deprivation models imply that people evaluate their own position in the community by comparing themselves with their more affluent neighbors, peers, or schoolmates. Children from low SES families, for instance, who make unfavorable judgments of their school performance and economic standards by comparing themselves with their more affluent counterparts may reduce their effort and drop out of school instead of trying harder to get good grades and be successful at school. Competition models focus on the importance of the limited number of resources in a neighborhood and the individuals’ struggle for these scarce resources, such as available jobs in the community or grades in schools. Finally, models of cultural conflict suggest that individuals who are not able to meet the expectations of society form a “common culture” as a reaction to the unequal living conditions, opportunities, and successful individuals in the society.

The theory of social disorganization, first introduced by Shaw and McKay (1942) and studied in detail by others (e.g., Sampson & Groves, 1989), has also been prominent especially in explaining the structural factors that lead to social disorganization, which, in turn lead to increased rates of delinquency, crime, and other problem behaviors. Low socioeconomic status, high residential instability (population turnover), ethnic heterogeneity, and family disruption are identified as factors that disrupt social organization within the community. These factors are thought to impede community structure to establish shared goals and maintain public order by reducing both informal

(local friendship networks, kinship bonds) and formal (participation in community organizations) social networks in a community, and hence, the capacity of the community to monitor and supervise children and youth.

Recently, Leventhal and Brooks-Gunn (2000) identified three potential mechanisms that capture ways to estimate neighborhood effects on children's development and behavior by recomposing the previous approaches explained above. These three mechanisms included *a) institutional resources*, which emphasize the availability, accessibility, affordability, and quality of institutions in the community that provide and promote stimulating learning and social opportunities, such as childcare, schools, recreational centers, health centers, and employment opportunities; *b) relationships*, which focus on family-level processes including parental characteristics (e.g., mental and physical health, coping strategies), parenting styles and behavior (e.g., warmth, responsiveness and sensitivity of the caregivers to the child's needs, harshness, supervision), and characteristics of the home environment (quality and the structure); and *c) norms/collective efficacy*, which posits that neighborhoods may influence children by means of the community-level formal and informal institutional processes which facilitate monitoring and supervising children and youth and prevent problem behaviors in the community.

Most of the studies analyzing the neighborhood effects on developmental outcomes employ non-experimental methods, rely on census-based data which are provided by the Census Bureau decennially to measure neighborhood characteristics (Shonkoff & Phillips, 2000), use cross-sectional data, and focus on adolescents (Gephart,

1997). Most examine socioeconomic status as the main dimension of neighborhoods (Leventhal & Brooks-Gunn, 2003).

In one of the few studies investigating the effects of neighborhood characteristics – low SES, high SES, male joblessness, family concentration, and ethnic diversity—on pre-school (3-4 year olds) and early school-age (5-6 year olds) children, Chase-Lansdale et al. (1997) assessed children in two developmental domains including cognitive and behavioral functioning deriving data from two different data sets: a) The Infant Health and Development Program (IHDP, 1990), and b) The Children of the National Longitudinal Survey of Youth (NLSY, see Chase-Lansdale, Mott, Brooks-Gunn, & Phillips, 1991). The IHDP produced a longitudinal data set in which a total of 793 subjects were examined at age three and then at age five. In IHDP, children’s verbal ability was tested with the Peabody Picture Vocabulary Test-Revised (PPVT-R; Dunn & Dunn, 1981) at both ages. Children’s cognitive functioning was measured using the Stanford-Binet Intelligence Scale Form L-M (third edition; Terman & Merrill, 1973) at age three and using the Wechsler Pre-school and Primary Scale of Intelligence (WPPSI; Wechsler, 1967) at age five. Finally, children’s behavioral functioning was assessed with the Child Behavior Checklist for Ages 2-3 (CBCL/2-3; Achenbach, Edelbrock, & Howell, 1987) at age three and with the Revised Child Behavior Profile for ages 4-5 (CBP/4-5, Achenbach & Edelbrock, 1984) at age five. The NLSY, on the other hand, was a cross-sectional data set and included a total of 882 pre-school and 697 early school-age children. Similar to IHDP, all children in NLSY were assessed for their verbal ability using the PPVT-R. In addition, early school-aged children were examined for their

intellectual functioning using the Peabody Individual Achievement Tests (PIAT) of Reading Recognition and Mathematics (Dunn & Markwardt, 1970). Children's behavioral functioning was tested with Behavior Problems Index (BPI; Peterson & Zill, 1986) at all ages except at age three. Analyses indicated that the absence of affluent families but not the presence of low-income families was strongly related with young children's IQ scores. The presence of affluent neighbors was also associated significantly with early school-age children's verbal ability, reading recognition scores, and academic performance. Further, male joblessness accounted for an increased amount of internalizing behavior problems in the NLSY. Finally, ethnic diversity of the neighborhood was associated with lower verbal IQ levels and PPVT scores among early school-age children in both samples. Neighborhood influence was found to be smaller for preschoolers than for early school-aged children as expected (Chase-Lansdale et al., 1997). One of the limitations of this study reported by the authors is that families' own preferences to live in certain neighborhoods led to selection bias. Also, the two data sets used in this study were reported to be not representative of all U.S children. Thus, the findings could only be generalized to IHDP and NYSL samples.

The Gautreaux Program (Kaufman & Rosenbaum, 1992) is noteworthy because of its quasi-experimental nature to investigate neighborhood influences on children and adolescents. The purpose of the Gautreaux Program, which was ruled by the courts in 1976, was to eliminate racial discrimination that was executed by the Chicago Housing Authority and the Department of Housing and Urban Development in Chicago's public housing program. Within the context of the Gautreaux Program, nearly 4,000 families

who resided in public housing were randomly assigned to private sector apartments in either the city or the suburbs based on the availability of the housing at the time. In a follow up study including a total of 162 Black, low-income families, Rosenbaum, Kulieke, and Rubinowitz (1987) examined the schooling outcomes and school environment of the Gautreaux children with an age range from 6 to 18 years. Among the 162 families, 114 of them moved to white suburbs and rest of the 48 families moved to urban areas in Chicago. Measures of schooling outcomes and school environment were obtained from mothers and children by interviews. Analyses focused on comparisons between the groups who moved to suburban or urban areas. Children's before-and-after-the-move experiences were also compared in suburban group. Rosenbaum et al. (1987) found that children who moved to suburban areas had higher educational quality (e.g., small classes, satisfaction with the teachers and courses) and demonstrated relatively higher academic performance compared to children who moved within the city.

Leventhal and Brooks-Gunn (2004) used experimental data from the Moving to Opportunity (MTO) program, a housing project funded by the U.S Department of Housing and Urban Development (HUD) in five cities (Baltimore, Boston, Chicago, Los Angeles, and New York City), to evaluate the effects of moving from low-SES neighborhoods to higher SES neighborhoods on the schooling outcomes of children. Families who reside in public housing in low-SES neighborhoods were randomly assigned to housing subsidies a) to move into private housing in higher SES neighborhoods, or b) to move into private housing without any constraints in their location of choice. Some of the families did not receive any assistance and remained in

public housing. In this 3-year follow-up study, Leventhal and Brooks-Gunn collected data on New York City children's educational outcomes – grade repetition, suspensions or expulsions from school, and achievement test scores --, family characteristics, and school characteristics including school composition, safety, and quality. In total, 583 children with an average age of 11.79 years and their parents participated in the study. Children's educational outcomes were assessed with standardized tests, administrative records provided by National Center for Educational Statistics (NCES), and information obtained from interviews conducted with children and families. Data on family characteristics were acquired from families by interviews. Finally, school safety and school quality were measured based on parents' reports. Analyses were run to make comparisons of program effects between a) families who received vouchers to move in high SES neighborhoods and families who remained in same neighborhoods, and b) families who received vouchers to move into neighborhoods of their choice and families who remained in the same neighborhoods. Results indicated that adolescents who moved to higher-SES neighborhoods had higher achievement scores compared with the other two groups. Further, these children and their families were more satisfied with the quality of schools than their peers who remained in low SES neighborhoods. However, neither of these school characteristics played a mediating role between the program effects and elementary school children's educational outcomes. The MTO program is important for its experimental nature, which eliminates the complications of selection bias. However, as a result of voluntary participation, results could be generalized only to families who agreed to be a part of the MTO program in New York City.

These studies suggest that neighborhood characteristics may play an important role in children's developmental outcomes. In order to prevent the negative influence of neighborhoods, it is important to understand the processes that may mediate neighborhood effects. Among the proposed mechanisms above, institutional models have been the least examined dimension in neighborhood studies (Leventhal & Brooks-Gunn, 2000). Children's programs in libraries and churches, community and health centers, schools and childcare settings are institutional resources in communities that are central to young children's development. The characteristics of neighborhoods may influence the quality of these resources that are located in those neighborhoods, and hence, the developmental outcomes of children – including cognitive, social-emotional, language and behavioral skills. Of particular concern, here is the influence of childcare quality on children's developmental outcomes.

#### *Childcare Quality and Children's Development*

High-quality childcare has been identified as a setting that provides children with an optimal stimulating learning environment in the areas of cognitive, language, social, and behavioral skills (Marshall, 2004; Shonkoff & Phillips, 2000). Variables that have been used to examine child-care quality have been classified into two groups: structural quality and process quality (Marshall, 2004).

Structural features of childcare include child-staff ratios, the number of children in the setting (group size), and childcare provider's education and training (Burchinal, Roberts, Nabors, & Bryant, 1996; Lamb, 1998). Burchinal et al. (1996) found that lower child-staff ratios predicted better cognitive development, communication, and language

skills. Lower child-staff ratio has also been associated with higher teacher sensitivity to children (Phillipsen, Burchinal, Howes, & Cryer, 1997). Children in centers with smaller group sizes experience more positive interactions with their teachers (Howes, 1983). Teacher education and training have been found to be related to higher cognitive and language skills (Burchinal et al., 2000).

Process quality refers to the interaction between the childcare provider and the child, including caregiver's responsiveness and sensitivity to the child's needs and the activities that are available to the child and appropriate for child's age (Burchinal et al., 1996). A number of studies indicate that children in settings with higher process quality are more likely to promote secure attachment to their childcare provider and have better social-emotional skills (Howes, Phillips, & Whitebook, 1992; Peisner-Feinberg et al., 2001).

In general, high-quality childcare has been associated with children's cognitive, language, and social-emotional skills. However, associations between neighborhood quality and childcare quality and children's developmental outcomes have almost never been studied.

### *The Current Study*

The purpose of this current study is to explore the ways in which the interrelations between two important ecological systems -- neighborhood and childcare -- are associated with young children's cognitive, social-emotional, language and behavioral outcomes. One of the few studies investigating the quality of childcare in low-income communities found highly variable quality of care (Phillips, Voran, Kisker, Howes, &

Whitebook, 1994). Fuller, Coonerty, Kipnis, and Choong (1997) also reported lower quality of childcare in low SES neighborhoods.

This study will use 2003-2004 school year data from the Miami-Dade School Readiness Project (Winsler, Bleiker, Hartman, Madigan, Levitt, & Ditlow, 2005; Winsler, Tran, Hartman, Madigan, Manfra, & Bleiker, 2007) in Miami-Dade County, Florida. The Miami School Readiness Project, started in 2002, is a continuing, applied, large-scale project being conducted by the collaboration of universities, schools, childcare centers, multiple agencies, and the community. The purpose of the Miami-Dade School Readiness project is to investigate the school readiness and transition of four-year old children receiving subsidized childcare services and children attending public school pre-kindergarten programs. It also aims to evaluate program, curriculum, and intervention characteristics that are employed by schools. It comprises almost the entire population of four-year old children in poverty attending non-Head Start childcare programs in Miami-Dade County.

Miami-Dade County is an optimal environment to study neighborhood characteristics and effects, and quality of childcare programs for the following reasons. First, it has a very diverse population that includes people from a wide range of socioeconomic statuses, ethnicities, languages, and educational backgrounds. This diverse population forms a wide range of neighborhood types. Second, Miami-Dade is a very large school district (the 4<sup>th</sup> largest school district in the USA) consisting of 80,000 children that allows us to conduct research on a large number of schools and children.

In this present study, three research questions are proposed: 1) Does community deprivation/neighborhood disadvantage place children at risk with respect to their cognitive, social-emotional, language, and behavioral development? 2) Are neighborhood characteristics associated with differences in childcare center quality? 3) Does childcare quality buffer against the influence of neighborhood risk on development? I expect that higher quality neighborhoods will have higher quality childcare opportunities for its residents. The influence of childcare quality on preschool children's developmental outcomes has received extensive attention from researchers. However, little is known about the protective effects of childcare quality against neighborhood risk factors in young children's lives. I expect that high-quality childcare will be a protective factor for children who experience lower quality neighborhood environments.

## Method

### *Participants*

The participants of this current study included 7,192 four-year-old preschoolers who were part of a larger project investigating the school readiness of children in Miami Dade County (Winsler et al., 2007). The sample was approximately evenly divided by gender: 49.8% female, 50.2% male. Of the sample children, 57.5% were Hispanic/Latino, 34.1% were African American, and 8.3% were White/ Caucasian. The current sample comprised children: a) receiving subsidies to attend center-based childcare programs in the community ( $n = 3,170$ ), b) attending public school pre-kindergarten programs via Title 1 subsidies ( $n = 2,806$ ), and c) attending fee-supported public school pre-kindergarten programs ( $n = 1,216$ ) in the 2003-2004 school year. Children receiving subsidies to attend childcare programs were from economically at-risk families whose income was below 150 % of the federal poverty threshold ( $M = \$ 16,100$ ,  $SD = \$ 7,617$ ).

As seen in Table 1, the majority of children's parents were Hispanic/Latino in subsidized community-based childcare centers (64.2 %). Of the families of the subsidized community-based childcare children, the first language of parents was English for 42.9 % and Spanish for 51.7 %. The vast majority of children came from single, divorced or separated families in all three groups. The parents of most of the child participants held a

high school diploma. Information about parent demographic characteristics was not available for children attending public school pre-kindergarten programs.

### *Measures*

*Childcare quality.* Childcare quality was measured using the Early Childhood Environment Rating Scale-Revised (ECERS-R; Harms, Clifford, & Cryer, 2005). Graduate students from the collaborating university in Miami and assessors that were hired from the County Agency Center conducted the ECERS-R at schools. All the assessors received extensive training on the administration of the instrument. Childcare quality data were available for a representative subsample ( $n = 375$ ) of the children from community-based childcare centers, but not for the children in public school pre-kindergarten programs.

Public school pre-kindergarten programs, however, are required to meet certain standards in areas such as number of teachers in classroom, teacher qualifications, class size, and curriculum. Briefly, these standards include a maximum class size of 24 4- and 5-year-old children, presence of a highly trained, licensed lead teacher and a part-time activity leader with early childhood development training in the classroom, and the use of a research-based curriculum that is academically appropriate for children's development, such as High Scope. Consistent with previous research (Barnett, 1995; Gilliam & Zigler, 2000), implementation of these standards increases the quality of care granted in the public school pre-kindergarten programs compared to the quality of care provided by community-based childcare centers.

The ECERS-R examines the overall quality of childcare setting (e.g., supervision, materials, scheduling children's daily activities etc.) with a total of 43 items in 7 subscales: *Space and furnishings* (indoor space, furniture for routine care, play and learning; furnishings for relaxation and comfort, room arrangement for play, space for privacy, child-related display, space for gross motor play, and gross motor equipment); *personal care routines* (greeting/departing, meals/snacks, nap/rest, toileting/diapering, health practices, and safety practices); *language-reasoning* (books and pictures, encouraging children to communicate, using language to develop reasoning skills, and informal use of language); *activities* (fine motor, art, music/environment, blocks, sand/water, dramatic play, nature/science, math/number, use of TV, video, and/or computers; and promoting acceptance of diversity); *interaction* (supervision of gross motor activities, general supervision of children (other than gross motor), discipline, staff-child interactions, and interactions among children); *program structure* (schedule, free play, group time, and provisions for children with disabilities), and *parents and staff* (provisions for parents, provisions for personal needs of staff, provisions for professional needs of staff, staff interaction and cooperation, supervision and evaluation of staff, and opportunities for professional growth). Items are rated on a 7-point scale ranging from 1 = inadequate conditions to 7 = excellent conditions. Authors (Harms et al., 2005) reported good internal reliability consistencies for subscales (ranging from .71 to .88) and for the total scale (.92).

The influence of childcare quality on child outcomes was explored in several ways. First, a score for each ECERS-R subscale was calculated in order to examine the

effects of the seven dimensions separately. Second, the ECERS-R total score was obtained by dividing the sum of all item scores by the total number of scored items (ECERS-R; Harms et al., 2005) to indicate the overall childcare quality score. Finally, variables related to childcare provider including whether the provider is licensed, whether the provider is accredited, number of accreditations, total enrollment, number of children per adult (child/staff ratio), and provider charges (weekly fee) were investigated. These later variables were obtained from the County Childcare Resource and Referral Agency.

*Cognitive and language skills.* The children's cognitive and language skills were assessed with The Learning Accomplishment Profile-Diagnostic (LAP-D; Nehring, Nehring, Bruni, & Randolph, 1992) at the beginning of the 2003-2004 school year. Testing took place in a one-on-one quiet setting at the child's school at a time during the day other than lunchtime or naptime. Each assessment lasted for about an hour. Bilingual assessors—including 82 MA level social workers and educational/school psychologists in total—who had received considerable training on the use of the instrument given by the staff of the local collaborating university and the publisher of the instrument, administered the LAP-Ds to the subsidized care children. The assessors determined the language of assessment (English or Spanish) based on the teacher's report about the child's strongest language. When the teacher was not able to make this judgment, the assessor arrived at a decision about the language of assessment after interacting with the child for a while. In public school pre-kindergarten programs, the LAP-Ds were administered by the child's teacher. Assessments were given predominantly in English (91.6 %) to the public school children. The use of English and Spanish assessments was

almost 50/50 (49.4 % English, 50 % Spanish) within the sample that represented the subsidized care children.

The LAP-D is a standardized battery designed to assess children with an age range of 30-72 months in four major domains of development, each with two subscales: *cognitive* (matching and counting), *language* (comprehension and naming), *fine motor* (writing and manipulation), and *gross motor* (body and object movement) (For the current study, only the cognitive and language scale total scores were used in the analyses). The LAP-D was reported (Nehring et al., 1992) to have good internal consistency reliability alphas ranging from .76 to .92, and correlates highly with other measures of development and intelligent tests (correlations ranging from .40 to .87 between the LAP-D and the Battelle Developmental Inventory (BDI; Newborg, Stock, Wnek, Guidubaldi, & Svinicki, 1984), Developmental Indicators for the Assessment of Learning – Revised (DIAL-R; Mardell-Czudnowski, & Goldenberg, 1983), and the Wechsler Preschool and Primary Scale of Intelligence – Revised (WPPSI-R; Wechsler, 1989). Internal consistency reliabilities within this diverse Miami sample for cognitive and language scales were .93 and .95, respectively (Winsler et al., 2007).

*Social-emotional skills and behavioral problems.* Teachers' ratings of the children's social-emotional skills and behavioral problems were gathered using the Devereux Early Childhood Assessment (DECA; LeBuffe & Naglieri, 1999). The DECA was designed to assess potential risk and protective factors that impact children's social-emotional development with the purpose of promoting children's social-emotional strengths and increasing their resilience. The DECA consists of four sub-scales: initiative,

self-control, attachment/closeness with adults, and behavioral concerns. Teachers rate the items that ask the frequency of child's behavior within the past four weeks under each sub-scale on a 5-point Likert-type scales ranging from 0 = Never to 4 = Very frequently. High scores in the first three subscales indicate greater strength. Consistent with standard DECA administrative procedure, an overall social-emotional total protective factor (TPF) score was obtained by combining the initiative, self-control, and attachment scales scores. As opposed to these three sub-scales, bigger numbers indicate greater behavioral problems in the behavioral concern scale. Example items for the initiative subscale include "try or ask to try new things or activities" and "ask other children to play with him/her." Example self-control scale items are "accept another choice when her/his first choice was unavailable" and "calm herself/himself down when upset." The attachment scale comprises items such as "act in a way that made adults smile or show interest in her/him" and "respond positively to adult comforting when upset." Finally, example items for the behavioral concern scale are "use obscene gestures or offensive language" and "fight with other children."

Teachers completed the forms at the childcare center. Assessment forms were available in both English and Spanish. Of the teachers working for the subsidized childcare centers, 51.9 % completed the forms in Spanish.

The DECA has been shown to have good internal consistency reliability alphas (.94 and .91 for teacher and parent reports of total protective factors; .80 and .71 for teacher and parent reports of behavior concerns), and test-retest reliability alphas (.94 and .74 for teacher and parent reports of total protective factors; .68 and .55 for teacher and

parent reports of behavior concerns) (LeBuffe & Naglieri, 1999). Internal consistency reliabilities for total protective factors were .94 (teacher) and .91 (parent), and for behavioral concerns were .81 (teacher) and .72 (parent) within this diverse Miami sample. Reliability alphas for both English and Spanish forms were similar (Crane, Mincic, & Winsler, 2007).

*Neighborhood Quality.* “Census tract” is used as the unit of analysis of “neighborhood” in this study. Census-tracts are geographical units containing approximately 1,500 – 8,000 people (United States Census Bureau, 2000). The neighborhood data in this present study come from the U. S Census 2000 data of Miami-Dade County in Miami. The census-tract data provides information on population, housing, and socio-economic characteristics of geographical units including, but not limited to, household relationship, age, sex, marital status, racial composition, school enrollment and educational attainment, work status, income, whether homes are owned or rented, vacancy characteristics of the housing units, housing units in structure, year moved into residence, and value of home or monthly rent paid.

Of particular interest, the characteristics of the neighborhood in which the child’s school is located will be examined in this current study. School addresses of the participating children were collected for the Miami School Readiness Project (Winsler et al., 2007) in the 2003 - 2004 academic year. These addresses were geocoded and linked to 2000 census tract variables by Business Information Technologies, Inc. This information, then, was linked to the participating children’s ID numbers by the collaborating university staff.

In light of the previous research and theories explaining the neighborhood effects on children's developmental outcomes, all the relevant neighborhood variables in the census file were examined to identify the potential variables that are thought to be related to the questions of interest in the present study. Table 2 shows the entire list of variables. These variables are grouped in 8 categories: 1) ethnicity, 2) socioeconomic status, 3) educational attainment, 4) school enrollment, 5) family type/size, 6) population density, 7) employment status, and 8) housing.

## Results

### *Preliminary Analysis*

Descriptive analyses describing the demographic characteristics of children including child's age, gender, ethnicity, parent's ethnicity, parent's primary language, marital status, education level, family size, and annual household income were performed (see Table 1). Descriptive statistics were also calculated to obtain frequencies, means, and standard deviations of the neighborhood variables, childcare characteristics, and child outcomes.

Table 3 presents the structural characteristics of neighborhoods of schools attended by the children in this sample. In general, neighborhoods included a higher percentage of White residents ( $M = 59.85$ ,  $SD = 32.54$ ) and Hispanic residents ( $M = 52.73$ ,  $SD = 31.52$ ) than Black/African-American residents ( $M = 29.98$ ,  $SD = 33.66$ ). The percentage of native born and foreign people in neighborhoods were almost 50/50 ( $M = 52.80$  and  $47.20$  and  $SD = 23.17$  and  $23.17$ , respectively). The majority of people (74.13 %) lived in neighborhoods that had an average income of less than \$60,000 and more

than 20 percent of the residents of these neighborhoods lived in poverty. In general, neighborhoods consisted of people with a high school diploma or less education (approximately two thirds of the residents). Of the families with children that comprised neighborhoods, almost 50 % were headed by single parents. On average, the unemployment rate was approximately 11 % ( $M = 10.53$ ,  $SD = 5.28$ ). The working population of the neighborhoods was mostly employed in sales or services.

The mean scores for childcare quality measures are included in Table 4. On average, the quality of childcare services in community-based childcare centers was mediocre with a mean score of 3.73 (0-2.9 = poor quality, 3.0-4.9 medium quality, and 5+ = high quality). Among the subscales, *Parent and Staff* ( $M = 4.33$ ,  $SD = 1.40$ ), *Interaction* ( $M = 4.15$ ,  $SD = 1.71$ ), and *Space and Furnishings* ( $M = 4.06$ ,  $SD = 1.12$ ), were rated higher than the other four subscales. These results, in general, indicate that a) staff were provided with some provision and supervision for their personal needs and professional growth, parents had some learning opportunities on their child's development, and staff-parent interaction and cooperation were somewhat emphasized, b) children had some supervision for their activities and interactions with others including staff members and peers, and c) the physical environment of the childcare centers was generally appropriate for children's personal care, play, and learning activities in childcare centers. *Activities* was the lowest-rated subscale ( $M = 3.20$ ,  $SD = 1.15$ ), suggesting that children may need more opportunities for playing, learning, and exploring their environment in those centers. Among the community-based childcare centers, 91 %

of them were licensed to provide childcare services. In general, most of the childcare centers were not accredited (74.1 %). On average, there were 12 to 13 children per adult.

Finally, Table 5 provides children's assessment scores on all child outcome measures. As seen in the table, children's scores were below the national averages (50<sup>th</sup> percentile) in the areas of language and cognitive skills ( $M = 34.45$ ,  $SD = 27.91$  and  $M = 43.76$ ,  $SD = 29.18$ , respectively). Language skills were the weakest area of children's development. In terms of social-emotional outcomes, teachers' ratings for children's social-emotional protective factors ( $M = 52.47$ ,  $SD = 28.21$ ) were higher than their cognitive and language scores, and slightly above the national norms. Teacher's ratings for children's behavioral concerns ( $M = 47.28$ ,  $SD = 29.22$ ) were below the national averages suggesting that children's behavioral strengths (smaller numbers indicate greater strength) were slightly greater in our sample compared to national standards.

*Data Reduction.* Exploratory data analyses were employed to assess the quality of neighborhood data and to detect variables with errors. These analyses involved identifying problematic variables by creating the scatter plots of the variables listed in Table 2, and correcting them where possible. The corrections were made for those that had extreme, sole outliers that are 3 SDs away from the mean. These outliers were eliminated and the variables were recoded. The list of recoded variables included "percentage of people aged 65 and above," "percentage of families with an income of \$ 60,000 - \$ 74, 999," "percentage of people with graduate degree," "and percentage of people who are minorities" which had clearly errant values.

In order to reduce the number of indicators of neighborhood quality, correlations among variables within each category were explored. Results revealed high and significant associations between family-level and household-level variables. For instance, the correlation between the “percentage of families with an income below \$ 14,999” and “percentage of households with an income below \$ 14, 999” was .96 ( $p \leq .01$ ). Likewise, a very high association was found between the “percentage of families with an income over \$ 100,000” and “percentage of households with an income over \$ 100,000” ( $r = .99$ ,  $p \leq .01$ ). Other family and household income level variables that fall between these two amounts were correlated similarly (absolute  $r$ 's ranging from .89 and 1.0,  $p \leq .01$ ). Thus, only family level variables were included in our analyses where possible. The “percentage of foreign people who are not a citizen” could not be computed and this variable was removed from the list. The “percentage of households with assistance income” variable was correlated very poorly with other SES variables, hence, eliminated. In addition, for simplicity, only the “percentage of total population with poverty status” was taken into account instead of using all the variables showing the breakdown of the population by age living in poverty. Furthermore, the marital status variables indicating the marital status of people over the age of fifteen that fall under the family type/size category were combined into one variable for each marital status without any gender distinction. For example, the “percentage of people over age 15 that are divorced” was computed and included in the analyses instead of using the “percentage of females over 15 that are divorced” and “percentage of males over 15 that are divorced” separately. Likewise, the “percentage of females over age 15 that are married, spouse absent” and

“percentage of males over age 15 that are married, spouse absent” were combined into a variable called “percentage of people over age 15 that are married, spouse absent.”

Finally, the housing variables including the “percentage of housing units that are mobile homes,” “percentage of occupied housing units that are vacant,” and “percentage of occupied housing units that are for rent” were eliminated because these variables could not be computed from the existing data.

To calculate the neighborhood quality scores, we used a similar technique that was employed by Chase-Lansdale et al. (1997). In their study, Chase-Lansdale and her colleagues initially identified thirty-four variables from census tract data and submitted them to a principal component analyses. They employed scree and kaiser criteria to identify the lower and upper end of a range of possible values. They examined the most highly loaded variables with respect to previous theoretical explanations of neighborhood effects. As a result, they categorized twenty-one of their thirty-four variables under six neighborhood dimensions.

In this current study, fifty-eight census tract variables, listed in Table 3, were submitted to a principal component analysis (PCA) to examine the intercorrelations and redundancies among them. Varimax with kaiser normalization was used as a rotation method. The examination of the initial eigenvalues yielded seven factors with eigenvalues equal to or greater than 1. However, the scree plot revealed only 5 factors that would best categorize these fifty-eight variables. Thus, all of the variables were forced into a five-factor solution. Using this factor analysis as a guide and considering the theoretical interpretability of the factors, 5 neighborhood dimensions of neighborhood

composition were created. These dimensions were named: 1) High-SES, 2) Middle-SES, 3) Black/African-American Presence, 4) Family/Child Density, and 5) Presence of Alternative/Minority Families.

Table 6 demonstrates the results of the principal component analysis. As shown in the table, neighborhoods that score high on Factor 1, High-SES, included percentage of people who are Asian or Pacific Islander, percentage of people with an income over \$100,000, high household income and home value, percentage of people with bachelor degree, percentage of people with graduate degree, percentage of preschool children enrolled in private school, percentage of people in management, and percentage of people who are professionals. The second factor, Middle-SES, was largely made up of income variables ranging from \$ 40,000 to \$99,000, median contract rent in dollars, median mortgage costs in dollars, percentage of people with associate or some college degrees, a higher percentage of people over age 15 that are married (spouse present), and percentage of people in sales. Factor 3, Black/African-American Presence, was highly loaded with the following variables: percentage of black, minority, and native born people, people with high school diploma, people over age 15 that have never married, the population cohort of people aged 14-17, and people in services. Factor 4, Family/Child density, was largely made up of large families, percentage of married couples or people with children, and the presence of many younger children aged between 0-13 years. Finally, neighborhoods that score high on Factor 5, Alternative/Minority Families, included percentage of people from other races, people with retirement or social security income, and percentage of male headed families or families headed by single parents.

Three different methods were employed in order to examine the influence of neighborhood quality. First, all of the neighborhood variables given in Table 3 were submitted to a principal component analysis as described above and standardized composite factor scores for five neighborhood dimensions were calculated from the factor weights on all variables. Second, an overall neighborhood risk factor score was created. To compute this score, sixteen variables of interest from prior research and theories (Chase-Lansdale et al., 1997; Sampson & Groves, 1989; Wilson, 1987) were transformed into z scores and average risk score was obtained by dividing the sum of all of these standardized scores by the number of selected variables. These variables included “percentage of foreign people,” “percentage of people who are minorities,” “percentage of families with an income below \$ 14,999,” percentage of people with an income of \$ 15,000 - \$ 24,999,” “percentage of total population with poverty status,” “percentage of households that are renter occupied,” “median home value in dollars,” “median household income in dollars,” percentage of people with education of under grade 9,” “percentage of people with education of grade 9-12,” percentage of other families with a female householder with children,” “percentage of other families with children headed by alone parents,” population density,” “percentage of people that are unemployed,” “percentage of people in management,” and “percentage of people who are professionals.” Among these variables, “median home value in dollars,” “median household income in dollars,” “percentage of people in management,” and “percentage of people who are professionals” were reverse coded. High scores thus indicated greater neighborhood risk. Lastly, the effects of selected individual neighborhood variables that

have been explained by theories and explored in previous research (Chase-Lansdale et al., 1997; Sampson & Groves, 1989; Wilson, 1987) were investigated. These variables are indicated with a star (\*) in Table 3.

*Preliminary descriptive relationships between neighborhood quality, childcare quality and child outcomes*

Table 7 shows the associations between children's demographic characteristics and developmental outcomes. As seen in the table, the correlations ranged from small (i.e., the correlation between child's gender and behavioral concerns was  $-.19, p \leq .01$ ) to almost no association (i.e., the correlation between parent education and language skills was  $.07, p \leq .01$ ). Child's gender (0 = female, 1 = male) appeared to have the highest correlation with behavior concerns ( $r = -.19, p \leq .01$ ) suggesting that boys were more likely to show behavioral problems than girls. Moreover, girls tended to have better cognitive ( $r = .10, p \leq .01$ ), language ( $r = .09, p \leq .01$ ), and social-emotional skills ( $r = .17, p \leq .01$ ). In terms of family characteristics, parent's primary language (0 = English, 1 = Spanish) was associated higher with children's cognitive ( $r = -.10, p \leq .01$ ), language ( $r = -.16, p \leq .01$ ), and behavioral outcomes ( $r = -.09, p \leq .01$ ) than other family level variables. These associations indicated that children from Spanish speaking families tended to perform slightly lower in the areas of cognitive and language, but obtained slightly better scores in the area of behavioral concerns compared to children from English speaking families. Children from single parent, divorced, or separated families were also slightly more likely to have behavior concerns ( $r = .07, p \leq .01$ ). Correlations of the same magnitude were seen between parent education and children's language

scores ( $r = .07, p \leq .01$ ) suggesting that children with parents with less than a high school diploma tended to have lower language scores. Parent income was significantly related only to children's cognitive skills ( $r = .07, p \leq .01$ ) and behavioral functioning ( $r = -.07, p \leq .01$ ).

To test for the relationship between ethnic differences and child outcomes, an ANOVA was conducted. Results revealed that Caucasian children scored slightly higher on cognitive ( $F [2, 6276] = 36.639, p \leq .01, d = 0.40$  for White vs. Hispanic children and  $d = 0.35$  for White vs. Black children), language ( $F [2, 6239] = 91.464, p \leq .01, d = 0.61$  for White vs. Hispanic children and  $d = 0.40$  for White vs. Black children), and social-emotional ( $F [2, 6370] = 13.272, p \leq .01, d = 0.15$  for White vs. Hispanic children and  $d = 0.22$  for White vs. Black children) areas than both Black/ African-American and Hispanic/ Latino children. The biggest difference was observed in the area of language development. With respect to behavior concerns, Black/ African-American children were more likely to have problematic behaviors than children in the other two groups ( $F [2, 6370] = 40.381, p \leq .01, d's = 0.29$  and  $0.22$ , respectively). The effects reported here for the comparisons of three ethnic groups were small to moderate in size.

Associations between characteristics of neighborhoods where children's schools are located and demographic characteristics of children and their families are included in Table 8. Only correlations that are equal to or higher than .2 were included in the table. Correlations ranged from moderate ( $r = .20, p \leq .01$ ) to high ( $r = .67, p \leq .01$ ). As shown, the highest correlations were found between the language of parent and the ethnic composition of the neighborhood. Spanish speaking families' children were more likely

to go to schools in neighborhoods with high rates of White and Hispanic/Latino population and less likely to go to schools in neighborhoods with many native born people, African-American/Black populations and minorities. In addition, children from Spanish-speaking families tended to go to schools in neighborhoods where, in general, the percentage of families earning more than \$14,999 was higher. Furthermore, Spanish-speaking families' children are inclined to attend schools in neighborhoods where the unemployment rate is low. In addition, the percentage of people with education higher than high school, the percentage of married couples, and the percentage of people with jobs in management and sales were also higher in the neighborhoods attended by Spanish speaking children compared to English speaking children.

To address the differences between child ethnicity and neighborhood characteristics, an ANOVA was performed. Results of an ANOVA revealed that African American/ Black children were more likely than both White and Hispanic children to attend schools in neighborhoods with high rates of families in poverty that earn less than \$ 14,999 ( $F [2, 6997] = 437.261, p \leq .05; d = 0.99$  for Black vs. White children and  $d = 0.62$  for Black vs. Hispanic children). On the other hand, children from white families are more likely to attend schools in affluent neighborhoods when compared to their Black and Hispanic counterparts ( $F [2, 6997] = 400.088, p \leq .05, d's = 0.58$  and  $1.3$ , respectively). The population of people with high school education or beyond and people with managerial and professional jobs was higher in neighborhoods attended by mostly white children. Relative to White and Hispanic children, African American/Black children tended to go to schools where the rate of single parent families is higher ( $F [2,$

6897] = 388.267,  $p \leq .05$ ,  $d$ 's = 0.53 and 0.73, respectively). Unemployment rate was also found to be higher in African-American/Black dominant neighborhoods compared to mostly White and Hispanic dominant neighborhoods ( $F [2, 6997] = 756.706$ ,  $p \leq .05$ ,  $d$ 's = 1.26 and 0.88, respectively). The effect sizes reported here for the comparisons among the ethnic groups were moderate to large.

Finally, Table 9 presents the correlations between childcare quality and children's outcomes. Only two of the childcare quality variables were significantly related to child outcomes. To a small extent, whether the provider is licensed was negatively associated with children's social-emotional protective factors ( $r = -.08$ ,  $p \leq .01$ ). Provider's weekly fee was correlated with child outcomes in all areas except children's social-emotional protective factors ( $r$ 's = .07, .06, -.08,  $p \leq .01$  for cognitive, language, and behavioral concerns, respectively).

### *Addressing the Research Questions*

Question 1: Does community deprivation/neighborhood disadvantage place children at risk with respect to their cognitive, social-emotional, language, and behavioral development?

Correlation and regression analyses were performed to address this question.

*Correlations between neighborhood factors and child outcomes.* Correlation analyses examined the relations between child outcomes and three different measures of neighborhood quality. First correlation analysis was run to explore the associations between the five neighborhood factors and child outcomes. Second correlation analysis aimed at understanding the relations between overall neighborhood risk and child

outcomes. Finally, the correlations between selected individual neighborhood variables and children's developmental outcomes were investigated.

Table 10 demonstrates the associations between child outcomes and the five neighborhood dimensions. As seen in the table, socio-economic status was the most influential characteristic of neighborhoods on child outcomes. Neighborhood High-SES and Middle-SES were significantly correlated, albeit to a small degree, with all child outcomes (absolute  $r$ 's ranging from  $-.06$  to  $.19$ ,  $p \leq .01$ ). Consistent with previous research (Chase-Lansdale et al., 1997), the presence of high-SES families associated positively with children's cognitive and language skills ( $r$ 's =  $.13$  and  $.19$ ,  $p \leq .01$ , respectively) indicating that children attending schools among affluent neighbors tended to show better cognitive and language skills. On the other hand, the presence of many Middle-SES families was more likely to be related to children's social-emotional outcomes ( $r = .11$ ,  $p \leq .01$  for social-emotional protective factor and  $r = -.10$ ,  $p \leq .01$  for behavioral concerns). To a lesser extent, Black/African-American presence tended to correlate positively with children's language skills ( $r = .10$ ,  $p \leq .01$ ). The last two dimensions, family/child density and alternative/minority families, had almost no relation with children's outcomes ( $r$ 's less than  $.05$ ,  $p \leq .01$ ).

The association between the overall neighborhood risk factor score and child outcomes is also shown in Table 10. Neighborhood risk was found to be significantly correlated with all child outcomes. The strongest correlation existed between neighborhood risk and children's language skills ( $r = -.16$ ,  $p \leq .01$ ) suggesting that children had lower language scores in high-risk neighborhoods when compared to low-

risk neighborhoods. In the areas of cognitive skills, social-emotional protective factors, and behavioral concerns, correlations were of the similar magnitude ( $r$ 's = -.12, -.11, and .12,  $p \leq .01$ , respectively).

Finally, the associations between selected individual neighborhood variables and children's outcomes are included in Table 11. Overall, correlations between neighborhood variables and outcomes were small ( $r$ 's  $\leq .21$ ,  $p \leq .01$ ). In addition, relations between neighborhood variables and child outcomes tended to be non-domain specific suggesting that associations were similar across cognitive, language, TPF and behavior concerns. However, correlations were slightly stronger for children's language skills. In general, the strongest associations were found for socio-economic status, educational attainment, and employment status. As seen in the table, socio-economic status of neighborhoods appeared to matter for children's outcomes in all areas. The strongest associations were found between the "percentage of families with an income over \$100,000" and children's language ( $r = .13$ ,  $p \leq .01$ ) and cognitive skills ( $r = .19$ ,  $p \leq .01$ ). Educational attainment of neighbors was also related to children's outcomes. Children that go to schools in neighborhoods where the percentage of people with graduate degree is higher were more likely to have higher cognitive ( $r = .15$ ,  $p \leq .01$ ), language ( $r = .18$ ,  $p \leq .01$ ), and social-emotional scores ( $r = .10$ ,  $p \leq .01$ ), and show less problematic behaviors ( $r = -.11$ ,  $p \leq .01$ ). Correlations of similar magnitude were found for the relationship between the presence of people with professional jobs and children's outcomes ( $r$ 's = .15, .21, .11, -.09,  $p \leq .01$  for cognitive, language, social-emotional protective factors, and behavioral concerns, respectively). Children attending schools in

neighborhoods with higher rates of African-American/ Black residents tended to have slightly more problematic behaviors ( $r = .08$ ). In the neighborhoods where Hispanic and foreign people were the dominant population, children were more likely to experience difficulties in the area of language ( $r$ 's =  $-.11$  and  $-.12$ ,  $p \leq .01$  respectively) and this is regardless of the language of assessment (Spanish or English).

*Multivariate prediction of child outcomes from neighborhood variables.* Three different hierarchical regression models were employed to predict each child outcome from the five neighborhood dimensions and the overall neighborhood risk factor composite score (average risk). In the first model, only the five neighborhood dimensions were included. The second model considered the effects of five neighborhood dimensions after controlling for the family level variables (including parent income, parent education, and parent ethnicity). The third model only included the overall neighborhood risk factor composite score and family level variables.

The combined effects of five neighborhood level dimensions -- without controlling for family level variables -- on children's developmental outcomes can be seen in Table 12. This first set of analyses indicated a positive association between the presence of High -SES families and children's cognitive ( $\beta = .13$ ,  $p \leq .05$ ), language ( $\beta = .18$ ,  $p \leq .05$ ), and social-emotional outcomes ( $\beta = .07$ ,  $p \leq .05$ ), implying that children who went to school among affluent neighbors had higher cognitive, language, and social-emotional scores. In addition, these children were more likely to have less behavioral concerns ( $\beta = -.07$ ,  $p \leq .05$ ). Consistent with the previous correlation analyses, the biggest effect of affluent neighborhoods was found for children's language skills. Moreover,

children attending schools in Middle-SES neighborhoods also showed higher cognitive ( $\beta = .07, p \leq .05$ ), language ( $\beta = .07, p \leq .05$ ), and social-emotional strength ( $\beta = .11, p \leq .05$ ) and less behavioral concerns ( $\beta = -.11, p \leq .05$ ). Furthermore, third factor, Black/African-American presence, predicted children's language outcomes, but to a lesser extent ( $\beta = .10, p \leq .05$ ). The fourth and the fifth dimensions had almost no effect on outcomes ( $\beta$ 's  $< .05, p \leq .05$ ). Neighborhood level characteristics explained only approximately 1 to 5 percent of the variance.

When the five neighborhood level characteristics were considered together with the family level variables in the second model (see Table 13), in general, neighborhood dimensions still had an effect on child outcomes in the areas of cognitive, language, and TPF above and beyond the family level characteristics. The biggest neighborhood effect was found for children's social-emotional strengths. No significant neighborhood effects were observed for children's behavioral concerns after family variables were held constant. As seen in Table 13, the effect of living among more affluent neighbors on children's language outcomes decreased ( $\beta = .05, p \leq .05$ ) and didn't remain significant for children's cognitive, social emotional, and behavioral strengths. The effect of the presence of Middle SES families also decreased for children's social-emotional protective factor scores ( $\beta = .08, p \leq .05$ ) and disappeared for children's cognitive, language, and behavioral outcomes. In addition, Factor 3, living in neighborhoods with more Black/ African-American presence, was associated with lower social-emotional protective factor scores in this model ( $\beta = -.07, p \leq .05$ ) when compared to the effect of this neighborhood characteristic before controlling for family level characteristics ( $\beta = -$

.03,  $p \leq .05$ ). Interestingly, children's cognitive and language scores were more related to the presence of Black/African-American neighbors when the family level variables were taken into account. Furthermore, the effect of Black/African-American presence on children's behavior concerns did not remain significant after family level variables were included. Similarly, the effect of Factor 5, the presence of alternative/minority families, on children's social-emotional protective factor ( $\beta = .08, p \leq .05$ ) and cognitive scores ( $\beta = .06, p \leq .05$ ) increased but the change was very little. In addition, a new neighborhood effect appeared; the family/child density was negatively related to children's social-emotional strengths in this model. However, its small but significant effect on children's language outcomes did not remain significant. Lastly, none of the neighborhood dimensions remained significantly related to children's behavioral concerns. In terms of variance explained, the neighborhood variables contributed significantly, albeit to a small degree, in the areas of social-emotional protective factors ( $\Delta R = .02$ ), cognitive ( $\Delta R = .01$ ), and language ( $\Delta R = .01$ ) outcomes.

Finally, the third model tests the effect of overall neighborhood risk after adjusting for the family level variables. In general, the effects of overall neighborhood risk above and beyond the family level characteristic were observed only for children's social-emotional protective factors and language outcomes, but not for their cognitive and behavioral skills. As seen in Table 14, neighborhood risk remained significant only for children's social-emotional protective factors and language outcomes. However, the magnitude of the neighborhood risk effect decreased ( $\beta$ 's =  $-.06$  and  $-.05, p \leq .05$  for TPF and language, respectively). Only little additional variance was explained by

neighborhood risk after controlling for the family level variables ( $\Delta R^2$ 's = .002 and -.003 for TPF and language, respectively).

Question 2: Are neighborhood characteristics associated with differences in childcare center quality?

Correlation analyses were conducted to examine the association between childcare quality of community-based centers and public schools and neighborhood quality by using the five different composite scores and the overall neighborhood quality score separately. As seen in Table 15 (only correlations with significant values included in the table), correlations ranged from almost no association ( $r = .01, p \leq .01$ ) to moderate ( $r = -.36, p \leq .01$ ). Relative to low-risk neighborhoods, overall childcare quality tended to be poorer ( $r = -.14, p \leq .01$ ) and the following ECERS-R subscales were more likely to be rated lower in high-risk neighborhoods: Space and Furnishings ( $r = -.30, p \leq .01$ ), Language and Reasoning ( $r = -.20, p \leq .01$ ), and Activities ( $r = -.26, p \leq .01$ ). Among the neighborhood factors, neighborhood High-SES had the strongest association with the physical quality of the childcare centers ( $r = .28, p \leq .01$ ). Unexpectedly, no associations were found between High-SES and the remaining ECERS-R subscales. Overall childcare quality was not related to neighborhood High-SES, either. The Middle-SES neighborhood factor, on the other hand, associated positively with four of the ECERS-R subscales (*Space and Furnishing* ( $r = .17, p \leq .01$ ), *Language and Reasoning* ( $r = .19, p \leq .01$ ), *Activities* ( $r = .27, p \leq .01$ ), *Program Structure* ( $r = .20, p \leq .01$ )), and overall quality ( $r = .14, p \leq .01$ ). Interestingly, the association between all ECERS-R subscales and neighborhoods that are characterized by the family/child density was negative

(absolute  $r$ 's ranging from -.16 for *Program Structure* to -.36 for *Activities*,  $p \leq .01$ ).

Likewise, Factor 5, alternative/minority families, was correlated negatively with *Space and Furnishings* ( $r = -.22$ ,  $p \leq .01$ ), *Language and Reasoning* ( $r = -.25$ ,  $p \leq .01$ ), *Activities* ( $r = -.21$ ,  $p \leq .01$ ), and overall childcare quality ( $r = -.16$ ,  $p \leq .01$ ).

*Categorical contrasts.* Two independent samples t-tests were run to determine whether the neighborhood quality is different for a) licensed and not-licensed centers, and b) accredited and non-accredited centers.

In terms of the licensure status of childcare centers (Table 16), results were significant for only socio-economic status dimensions. In High-SES neighborhoods, children were more likely to attend licensed childcare centers. In contrast, children were more likely to receive not-licensed childcare services in Middle-SES neighborhoods.

With respect to accreditation status of childcare centers (Table 17), none of the results for the socio-economic status dimensions were significant. The childcare centers that children attend in neighborhoods with high rates of Black/African-American presence, family-child density, and alternative/minority families appeared to be mostly non-accredited.

*The effect of combined neighborhood quality on childcare quality.* A regression analysis was performed to investigate whether neighborhood characteristics account for the differences in the quality of care provided by the childcare centers in our sample. In this model, all five neighborhood-level dimensions were entered as independent variables and ECERS-R total score indicating the overall childcare quality as the dependent variable (See Table 18). Results yielded significant effects of only three of the five

neighborhood dimensions: Black/African-American presence ( $\beta = -.12, p \leq .05$ ), family-child density ( $\beta = -.35, p \leq .05$ ), and presence of alternative/minority families ( $\beta = -.12, p \leq .05$ ). The family/child density appeared to be the strongest predictor of childcare quality ( $\beta = -.35, p \leq .05$ ). Surprisingly, the relationship between the family/child density and childcare quality was negative suggesting that neighborhoods with many families and young children do not have high quality centers.

To test whether the relationship between the neighborhood quality and child outcomes is different for community-based center and public school children, a moderated regression analysis was employed for each of the child outcomes. The overall neighborhood risk factor score and center type variable (community-based childcare centers vs. public school pre-kindergarten programs) were entered in the first step of the equation. The second step included the interaction between the overall neighborhood risk and center type. Results are given in Table 19. The relationship between the neighborhood quality and children's outcomes was moderated by center type. The interaction between the neighborhood quality and center type was found to be significant for all outcomes. Center type had a stronger moderating impact on cognitive ( $\beta = -.21, p \leq .05$ ) and language ( $\beta = -.22, p \leq .05$ ) skills. Correlation analyses revealed that this moderating effect was only significant for children attending public school pre-kindergarten programs (Table 19a), but not for children receiving childcare services provided by community-based childcare centers (Table 19b); that is, neighborhood risk was related to child outcomes for public school children but not for children attending community-based childcare centers.

To further explore whether there are differences in the relationship between neighborhood risk and child outcomes just for children in poverty attending public school pre-kindergarten programs via Title 1 subsidies and children not in poverty attending fee-supported public school pre-kindergarten programs, another moderated regression analysis was performed for each of the child outcomes (Table 20). The first step included the overall neighborhood risk factor score and the public school pre-kindergarten program type (title 1/ fee supported). The second step considered the interaction between the overall neighborhood risk and program type. Results indicated that program type moderated the relationship between neighborhood risk and child outcomes. Neighborhood risk was significantly negatively associated with children's cognitive ( $\beta = -.28, p \leq .05$ ) and language ( $\beta = -.31, p \leq .05$ ) skills after controlling for poverty. Correlation analysis showed that, for Title 1 children, the associations between neighborhood risk and children's outcomes were only significant for their cognitive scores ( $r = -.07, p \leq .01$ ). The relationship between neighborhood risk and children's cognitive and language outcomes was stronger for children in the fee-supported group ( $r$ 's =  $-.15$  and  $-.12, p \leq .01$  respectively).

Question 3: Does childcare quality buffer against the influence of neighborhood risk on development?

A 2 X 3 ANOVA was employed to investigate the potential protective effects of childcare quality against the influence of neighborhood deprivation on child developmental outcomes.

The overall neighborhood risk measure was classified into 3 categories based on the 33<sup>rd</sup> and 66<sup>th</sup>: a) high risk neighborhood, b) medium risk neighborhood, and c) low risk neighborhood. Similarly, childcare quality measure was grouped in 2 categories by using the categorical cut-off scores of ECERS-R where scores between 0-3.49 indicated low quality, and 3.5- 5+ indicated high quality. Then, a 2x3 ANOVA was performed with each of the child outcomes as dependent variables separately. None of the results was significant.

## Discussion

The purpose of this current study was to explore the ways in which the interrelations between two important ecological systems -- neighborhood and childcare -- are associated with young children's cognitive, social-emotional, language and behavioral outcomes. As noted in the introduction, most prior work investigating the influence of neighborhoods has been focused on older children, especially adolescents. Moreover, among the proposed models explaining how neighborhoods might affect children, institutional models have been the least examined aspect of neighborhoods in neighborhood studies. Hence, the current study aimed to contribute to the literature by examining neighborhood effects on young children and influence of neighborhood-childcare interaction on preschool children's developmental outcomes.

### *Neighborhood Quality and Child Outcomes*

One of the important issues addressed in this study was whether the characteristics of neighborhoods were related to young children's developmental outcomes. It was hypothesized that preschool children's developmental outcomes -- including cognitive, social-emotional, language, and behavioral skills -- would be related to the features of neighborhoods in which they go to school.

First, as expected, neighborhood risk was significantly related to child outcomes in all four developmental areas. Neighborhood risk negatively predicted children's

cognitive, language, and social emotional skills, and positively predicted behavior problems. Neighborhood risk had the strongest influence on children's language outcomes. Although for the most part, the direct neighborhood influence was small ( $\beta$ 's  $\leq$  -.06  $p \leq .05$ ) or ruled out by family characteristics, the effects of neighborhood risk on children's social-emotional protective factors and language outcomes remained significant even after controlling for family level variables: that is, neighborhood risk contributed to children's social-emotional and language skills above and beyond the family environment.

Among the neighborhood dimensions, neighborhood socio-economic status was found to be the most influential characteristic of neighborhoods. High-SES was the strongest neighborhood predictor of children's cognitive and language skills. Although the effect size was small ( $\beta = 0.05$   $p \leq .05$ ), the effect of neighborhood High-SES on children's language outcomes persisted even after controlling for the family level characteristics – including parent income, parent education, and parent ethnicity. This finding is consistent with a related study of preschool children (Chase-Lansdale et al., 1997) that found strong positive associations between the presence of affluent neighbors and preschool children's IQ scores. This result could be explained by the *collective socialization/efficacy* (Jencks & Mayer, 1990; Leventhal & Brooks-Gunn, 2000) framework. According to our factor analysis, the High-SES dimension of neighborhoods in our study included high income, high education, and managerial/professional job variables. In accordance with the *collective socialization/efficacy models*, social interactions of the families and their children through local institutions such as libraries,

churches, and daycares, and the presence of successful adult role models in affluent neighborhoods who can motivate and supervise children to learn, may positively influence children's outcomes. Additionally, neighborhood Middle-SES remained positively related to children's social-emotional protective factor scores when both neighborhood and family characteristics were considered. The analyses that we ran to address for the ethnic differences in our sample revealed that Hispanic children, in general, go to schools that are located in Middle-SES neighborhoods. Accordingly, we speculate that these Latino families also reside in Middle-SES neighborhoods. Previous studies reported that Hispanic families value strong kinship bonds, live in close proximity to extended family, and support each other (Garcia Coll et al., 1996; Martinez, 1999). These close relationships among families and neighbors may be an emotional support system for children.

Second, Black/African-American presence also positively predicted children's language outcomes. This finding was expected because neighborhoods that scored high on this factor included higher rates of native-born people who were mostly exposed to only one language (English) instead of two (English and Spanish). Interestingly, the effects of the presence of Black/African-American population on children's cognitive and language skills increased and become more positive when the family level variables were held constant. That is, family environment variables had a suppressor effect on the relationship between neighborhoods and child outcomes. Our analyses indicated that many children live in families with low-income and low-education, in neighborhoods with high rates of Black/African-American presence. Once the negative effects of family

education, income, and ethnicity were adjusted, the positive effects of neighborhoods increased in these areas.

Third, children's cognitive and social-emotional protective factor scores were positively related, but to a very small extent, to the presence of alternative/minority families when neighborhood characteristics were considered both alone and with family level variables in the combined model. One methodological explanation might be that we are discovering very small and inconsequential effects due to using a very large sample. From a substantive point of view, we speculate with caution that these communities could include high rates of gay parents due to the large presence of same-sex couples in Miami (Cianciotto, 2005). Some of the previous studies reported that children with gay parents do just as well as children with heterosexual parents (Fitzgerald, 1999; McCann & Delmonte, 2005). However, more research on this subject is necessary before drawing firm conclusions.

Finally, for behavioral concerns, none of the neighborhood dimensions were significant when family level variables were taken into account; that is, family environment was the larger determining factor of children's behavioral concerns in the present study. This finding is also consistent with studies exploring the role of parenting and family environment in early childhood behavioral problems (Campbell, 1995).

In summary, the influence of neighborhood characteristics on children's developmental outcomes is small but significant in early childhood. Previous studies also indicated smaller neighborhood effects on young children's outcomes when compared to the size of neighborhood effects on school-age children and adolescents (Ceballo,

McLoyd, & Toyokawa, 2004; Chase-Lansdale et al., 1997). Our analyses revealed that, for the most part, the size of the effects of neighborhood characteristics either decreased or disappeared when family level characteristics were included. However, High-SES dimension of neighborhoods had an impact on children's language development ( $\beta = 0.05$   $p \leq .05$ ) whereas family income did not. Moreover, the effect of High-SES on children's language outcomes was as strong as family education. The similar pattern was found for children's social-emotional outcomes. That is, relative to family-level characteristics, Middle-SES and the presence of alternative/minority families had a slightly stronger impact on children's total-protective factor scores ( $\beta = 0.08$   $p \leq .05$  for both factors). These findings suggest that more proximal contexts such as family environment may have a more direct influence on child outcomes in the early years of childhood. However, the effects of more distal contexts such as neighborhoods on children's developmental outcomes should also be considered in early childhood.

#### *Neighborhood-Childcare Interactions and Child Outcomes*

The second essential issue that was addressed in this study was whether the characteristics of neighborhoods were related to the quality of childcare services, one of the most important neighborhood resources that is central to young children's development. It was hypothesized that children who attend schools in high-quality neighborhoods would be more likely to receive high quality child-care services, and as a result, show better developmental outcomes. This hypothesis was based upon Jencks and Mayer's (1990) *institutional models*, which was then reformulated as *institutional resources* by Leventhal and Brooks-Gunn (2000). As explained in the introduction, these

models both highlighted the importance and the quality of childcare settings that are located in neighborhoods to provide children with satisfactory learning and social opportunities, and promote children's healthy development. Jenks and Mayer (1990), for example, suggested that affluent neighborhoods offer higher quality childcare services and well-equipped teachers as positive adult role models that work in childcare settings, which influence child outcomes positively.

Foremost is the finding that the quality of childcare services was lower in high-risk neighborhoods. Unexpectedly, high socio-economic status of the neighborhoods did not predict the educational quality of services (e.g., activities, interactions, program structure, and learning opportunities for language development) provided by childcare centers. Moreover, as indicated by correlation analyses, high-SES was only related to the physical quality of childcare centers, but not to the other aspects of childcare quality. These findings suggest that, first of all, childcare centers in affluent neighborhoods may be more appealing with respect to their physical qualities (e.g., well-designed indoor and outdoor spaces, clean and safe environment, and adequate amount of materials in good condition), however, do not necessarily offer adequate educational opportunities. Second of all, the negative association between high-risk neighborhoods and childcare quality may be explained by risk factors other than socio-economic status such as ethnic diversity, educational attainment, employment status, and family type/size. Furthermore, the negative relationship between the family/child density and childcare quality calls attention to the fact that good quality childcare centers tend not to be located in neighborhoods where they are needed the most. Additionally, childcare centers in these

neighborhoods were found to be mostly non-accredited. It is arguable that, in neighborhoods where there are many families with young children, families simply seek childcare services without considering the quality. In other words, these families may be sacrificing the quality for other factors such as cost and location (i.e., choosing a childcare closer to home or parents' workplace for convenience). In addition, it could be that some family processes such as parents' child rearing beliefs, maternal education, and ethnicity may play an important role in parents' selection of childcare services for their children (Fuller, Holloway, & Liang, 1996).

The second finding of interest was the fact that, neighborhood risk was associated with child outcomes only for public school children but not for children attending community-based childcare centers. That is, neighborhoods had stronger effects on children when the school quality was presumably higher. The explanation might be that the quality of school should be high in order to detect neighborhood effects. Further exploration of the neighborhood effects for children attending public school pre-kindergarten programs via Title 1 subsidies and children attending fee-supported public school pre-kindergarten programs yielded similar results; that is, neighborhood risk had a stronger impact on children's cognitive and language outcomes in the fee-supported group. These larger neighborhood effects found for public school and fee-supported children could be explained by the increased variance we see in the fee-supported group (not in poverty) in terms of individual, family, and neighborhood characteristics such as child outcomes, parent income, parent education, and socio-economic status of the neighborhoods.

I also hypothesized that high-quality childcare would be a protective factor for children who experience lower quality neighborhood environments. Surprisingly, none of the results in this area was significant. Contrary to our expectations, childcare quality did not moderate the relationship between neighborhood risk and children's developmental outcomes. The reason could be methodological. Our data for childcare quality were collected only for a small sample of children. In addition, this data set does not necessarily indicate the quality of classrooms that these children attend. It indicates the average quality of centers. Hence, our data set for childcare quality may not be detailed enough to predict child outcomes.

#### *Limitations*

There are several limitations of this present study that should be taken into account while interpreting the results. First of all, the study's sample is not representative of all U. S. children. Although our sample is composed of a large and diverse population of children, these children were recruited from a single multicultural community. Therefore, the generalization of the findings of the current research is limited to children in Miami Dade County, Florida.

The second major limitation is methodological. First, the study is not experimental in nature; that is, we did not have the opportunity to use random assignment to control for the possible differences between families, hence their children, who choose to live in high risk or high quality neighborhoods. As suggested by other researchers previously (Barnes, Belsky, Broomfield, Melhuish, & the National Evaluation of Sure Start (NESS) Research Team, 2006; Levental & Brooks-Gunn, 2003), as a result of

selection bias, some of the individual and family characteristics – including, but not limited to, parenting style, parents’ mental health, and parental conflict - that might be related to neighborhood residence and the selection of childcare services may be left unmeasured and these confounding variables may be a better explanation for the results of this study. However, it is important to keep in mind that experimental or quasi-experimental designs requiring random assignment of families in neighborhoods are very difficult, if not impossible, to employ while studying neighborhood effects. Second, all the results in this study are based on correlational analyses. Thus, no causal relationship between neighborhood characteristics and child outcomes can be established. Finally, more reliable and consistent results may be obtained by employing techniques that allow researchers to consider the multi-level and nested nature of the center and neighborhood data (e.g., children and childcare services within neighborhoods), such as hierarchical linear models (HLM).

Third, the neighborhood variables examined in this present study are derived from the U. S Census 2000 data provided by the U. S. Census Bureau every ten years, thus, are only limited to structural and socio-demographic characteristics of neighborhoods such as socio-economic status, educational attainment, marital status, and ethnic composition of the community. Although the structural and socio-demographic characteristics of neighborhoods provide us with very good information about neighborhoods, they do not capture all features of neighborhoods. The arguments of the models – for example, collective socialization model (Jencks & Mayer, 1990), collective efficacy model (Leventhal & Brooks-Gunn, 2000), and social disorganization theory

(Sampson & Groves, 1989; Shaw & McKay, 1942) – that emphasize the importance of adult monitoring and supervision, the presence of successful adult role models, and informal (local friendship networks, kinship bonds) and formal (participation in community organizations) social networks in the community cannot be evaluated with the information provided by the census data. Furthermore, factors such as crime rate, peer relations, the number and quality of community services, and how families perceive their neighborhoods should also be investigated for a complete and deeper understanding of neighborhood effects.

Fourth of all, neighborhoods in which children go to school (not necessarily where they live) were the question of interest in this study. That being said, it should be remembered that children do not necessarily attend school in neighborhoods in which they live (National Working Commission on Choice in K-12 Education, 2003). The characteristics of neighborhoods in which children live may be more advantaged or disadvantaged, and more influential on children's developmental outcomes than the characteristics of neighborhoods in which they go to school. This factor should be taken into account while interpreting the results.

Finally, our childcare quality data were only available for a small sample of children attending community-based childcare centers, but not for public school children. Thus, the quality of community-based childcare centers was not directly compared to the quality of public school pre-kindergarten programs. Moreover, the childcare quality data were collected at the center-level and not at children's classroom-level. It indicates the

average quality of the center, but not necessarily the quality of classroom of children in our sample.

### *Implications and Future Research*

How should we interpret and imply the findings of this study? First, this research suggest that, even after controlling for family level variables, neighborhoods do matter for better child outcomes particularly in language and social-emotional domain. In other words, neighborhoods make an impact on early literacy and social-emotional development above and beyond the family environment. Particularly socio-economic status and family composition of the neighborhoods seemed to be associated with these outcomes. Consistent with institutional resources and collective socialization theories, the quality and the amount of neighborhood resources and the quality of social interactions in neighborhoods may be the two important processes affecting child outcomes, which may require policy actions such as promoting stable employment opportunities for low-income parents, encouraging social activities to enhance social interactions among neighbors, identifying the necessary community resources that are central to children's development, and ensuring that these resources provide adequate and appropriate services to residents of neighborhoods. However, before drawing firm conclusions, it is important to know through what mechanisms neighborhoods affect child outcomes. In other words, it is essential to know the factors that mediate the relationship between advantaged or disadvantaged neighborhoods and child outcomes. Future studies should go beyond the census tract data and try to explore these mediators to be able to explain *how* neighborhoods may affect child outcomes.

In the present study, we examined the interactions between one of the most important neighborhood resources that might be critical for child development, quality of childcare, and neighborhoods. Contrary to our expectations, we did not find solid evidence that quality of care buffer against the influence of neighborhood risk on development. However, we did find that quality of childcare was different in high-risk and low-risk neighborhoods. In addition, affluent children were more likely to be affected from neighborhood risk. Although we do not know at this point what creates this difference between high-income and low-income children, we suggest that parents should consider neighborhood quality, not only school quality, when selecting schools for their children.

Another observation is that high-SES neighborhoods did not offer the best quality childcare in our study. In middle-SES neighborhoods, childcare quality was found to be better in terms of providing children with structured social and learning opportunities. This finding reminds us that socio-economic status is not the only determinant of childcare quality. Research and practice should focus on improving educational quality as well as physical quality of childcare centers by developing and using rich and stimulating curriculum, establishing standards for teacher education and competence in early childhood education, and reducing turnover rates among childcare providers working in those childcare centers by increasing benefits and improving working conditions (Love, 1997).

Finally, childcare quality was lower in the neighborhoods where many families with young children reside; that is, childcare quality was poor in neighborhoods where

childcare services are needed the most. We need more efforts to establish better standards for childcare centers that provide families with local and accessible childcare services and increase their quality.

## APPENDIX

Table 1. Demographic Characteristics of Children in the Child Care Programs

	Subsidized Child Care Center-Based	Subsidized Title I Pre-K	Fee-Supported Pre- K
Child's age (in months)	<i>n</i> = 3,170	<i>n</i> = 2,806	<i>n</i> = 1,216
<u>M</u>	53.66	53.81	53.72
<u>SD</u>	3.53	3.53	3.49
Child's gender	<i>n</i> = 3,169	<i>n</i> = 2,797	<i>n</i> = 1,216
% Male	51.7	49.6	49.6
Child's ethnicity	<i>n</i> = 3,153	<i>n</i> = 2,699	<i>n</i> = 1,153
% Caucasian	7.5	2.6	25.8
% Hispanic/Latino	60.3	49.0	66.4
% Black/African-American	32.3	48.4	7.7
Parent's ethnicity	<i>n</i> = 2,069		
% Caucasian	3.6		
% Hispanic/Latino	64.2	N/A	N/A
% Black/African-American	32.2		
Parent's primary language	<i>n</i> = 2,075		
% English	42.9		
% Spanish	51.7	N/A	N/A
% Creole	5.3		
Marital status	<i>n</i> = 2,066		
% Married	8.9	N/A	N/A
% Single, divorced or separated	91.1		

Parent education	<i>n</i> = 2,075		
% Less than high school diploma/GED	18.3	N/A	N/A
% High school diploma/ GED	81.7		
Family size	<i>n</i> = 2,075		
<u>M</u>	3.34	N/A	N/A
<u>SD</u>	1.12		
Parent income	<i>n</i> = 2,075		
<u>M</u>	\$16,100	N/A	N/A
<u>SD</u>	\$7,617		

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Table 2. Neighborhood Characteristics

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Ethnic Diversity

Percentage of People who are American Indian, Eskimo or Aleut  
Percentage of People who are Asian or Pacific Islander  
Percentage of People who are Black  
Percentage of People who are White  
Percentage of People who are of Hispanic Origin  
Percentage of People who are Minorities  
Percentage of People who are Other Race  
Percentage of Householders who are American Indian or Alaskan Native  
Percentage of Householders who are Asian or Pacific Islander  
Percentage of Householders who are Black  
Percentage of Householders who are Hispanic  
Percentage of Householders who are White  
Percentage of Householders who are Other Race  
Percentage of People who are foreign born  
Percentage of Foreign born people who are not a citizen  
Percentage of People who are native born

SES

Percentage of Families with an Income Below \$14,999  
Percentage of Families with an Income of \$15,000 - \$24,999  
Percentage of Families with an Income of \$25,000 - \$39,999  
Percentage of Families with an Income of \$40,000 - \$59,999  
Percentage of Families with an Income of \$60,000 - \$74,999  
Percentage of Families with an Income of \$75,000 - \$99,999  
Percentage of Families with an Income Over \$100,000  
Percentage of Households with an Income Below \$14,999  
Percentage of Households with an Income of \$15,000 - \$24,999  
Percentage of Households with an Income of \$25,000 - \$39,999  
Percentage of Households with an Income of \$40,000 - \$59,999  
Percentage of Households with an Income of \$60,000 - \$74,999  
Percentage of Households with an Income of \$75,000 - \$99,999  
Percentage of Households with an Income Over \$100,000  
Percentage of People with Retirement Income  
Percentage of People with Social Security Income  
Median Contract Rent in Dollars  
Median Family Income in Dollars  
Median Household Income in Dollars  
Median Home Value in Dollars  
Median Mortgage Costs in Dollars  
Percentage of Households that are Renter Occupied  
Percentage of Households that are Owner Occupied  
Percentage of Total Population with Poverty Status  
Percentage of Those with Poverty Status Under 17 Years Old; CT level  
Percentage of Those with Poverty Status 18 - 64 Years Old  
Percentage of Those with Poverty Status 65 - 74 Years Old  
Percentage of Those with Poverty Status Over 75 Years Old  
Percentage of 0 Vehicle Households  
Number of Households With Assistance Income  
Number of Households that gave Public Assistance Data

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Educational Attainment

Percentage of People with Education Under Grade 9  
Percentage of People with Education of Grade 9 - 12  
Percentage of People with High School Diploma  
Percentage of People with Associate Degree  
Percentage of People with Bachelor Degree  
Percentage of People with Some College  
Percentage of People with Graduate Degree

School Enrollment

Percentage of Preschool Children Enrolled in Private School  
Percentage of Grade K-12 Children Enrolled in Private School

Family Type/Size

Percentage of Grandparents with Grandchildren and are Living with own GC  
Number of People in the Average-Size Household  
Percentage of Female-Headed Families with Children  
Percentage of Male-Headed Families with Children  
Percentage of Families with Children Headed by Alone Parents  
Percentage of Married Couples with Children  
Percentage of Females over Age 15 that are Divorced  
Percentage of Females over Age 15 that are Married, Spouse Present  
Percentage of Females over Age 15 that are Married, Spouse Absent  
Percentage of Females over Age 15 that have Never Married  
Percentage of Females over Age 15 that are Widowed  
Percentage of Males over Age 15 that are Divorced  
Percentage of Males over Age 15 that are Married, Spouse Present  
Percentage of Males over Age 15 that are Married, Spouse Absent  
Percentage of Males over Age 15 that have Never Married  
Percentage of Males over Age 15 that are Widowed  
Percentage of People or Household with Children

Population Density

Population Density  
Percentage of People Aged 0 - 5  
Percentage of People Aged 6 - 13  
Percentage of People Aged 14 - 17  
Percentage of People Aged 65 and Above  
Median Age

Employment Status

Percentage of People are Unemployed  
Percentage of People in Management  
Percentage of People who are Professionals  
Percentage of People in Sales  
Percentage of People in Services

Housing

Percentage of Housing Units that are Mobile Homes  
Percentage of Occupied Housing Units that are Vacant  
Percentage of Occupied Housing Units that are for Rent

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Table 3. Neighborhood (Census Tract) Characteristics (Original Raw Variables)

	<i>M</i>	<i>SD</i>	<i>Minimum</i>	<i>Maximum</i>
<b>Ethnicity</b>				
Percentage of People who are American Indian, Eskimo or Aleut	.20	.30	0	2.41
Percentage of People who are Asian or Pacific Islander	1.29	1.50	0	6.69
* Percentage of People who are Black	29.98	33.62	0	98.17
Percentage of People who are White	59.85	32.54	.99	94.61
* Percentage of People who are of Hispanic Origin	52.73	31.52	1.34	95.25
* Percentage of People who are Minorities	.35	.48	0	1
Percentage of People who are Other Race	8.69	4.36	0	28.96
* Percentage of Foreign People	47.20	23.17	.07	99.78
* Percentage of People who are Native Born	52.80	23.17	.22	99.93
<b>SES</b>				
*Percentage of Families with an Income Below \$14,999	19.40	12.01	0	59.73
Percentage of Families with an Income of \$15,000 - \$24,999	15.94	6.12	0	34.92
Percentage of Families with an Income of \$25,000 - \$39,999	20.19	5.32	4.24	32.37
Percentage of Families with an Income of \$40,000 - \$59,999	18.60	5.77	0	81.08
Percentage of Families with an Income of \$60,000 - \$74,999	9.12	4.43	0	22.27
Percentage of Families with an Income of \$75,000 - \$99,999	8.25	5.03	0	20.40
* Percentage of Families with an Income Over \$100,000	8.50	9.70	0	63.07
Percentage of People with Retirement Income	10.66	3.70	0	22.83
Percentage of People with Social Security Income	23.25	8.14	2.87	46.39
Median Contract Rent in Dollars	593.61	182.09	149.00	1481.00
* Household Income in Dollars	35407.29	16059.44	7595.00	112162.00
* Median Home Value in Dollars	114951.13	51835.98	0	398900.00
Median Mortgage Costs in Dollars	714.42	299.26	0	1878.24
* Percentage of Households that are Renter Occupied	42.62	24.44	0	96.67
* Percentage of Total Population with Poverty Status	21.22	12.56	1.08	61.09
Percentage of 0 Vehicle Households	15.86	13.51	.81	72.77
<b>Educational Attainment</b>				
* Percentage of People with Education Under Grade 9	16.75	9.89	.20	44.55
* Percentage of People with Education of Grade 9 - 12	20.37	8.03	2.80	47.42
Percentage of People with High School Diploma	23.82	5.43	9.89	37.91
Percentage of People with Associate Degree	5.83	2.72	.91	17.06
Percentage of People with Bachelor Degree	9.76	6.82	0	32.08
Percentage of People with Some College	16.72	5.16	3.57	30.19
* Percentage of People with Graduate Degree	6.74	5.37	0	29.57
<b>School Enrollment</b>				
* Percentage of Preschool Children Enrolled in Private School	45.50	25.58	0	100.00
Percentage of Grade K-12 Children Enrolled in Private School	10.53	10.32	0	59.70

<b>Family Type / Size</b>				
Percentage of Grandparents with Grandchildren and are Living with own GC	9.29	12.62	0	95.02
Number of People in the Average-Size Household	3.07	.44	1.50	3.90
* Percentage of Female-Headed Families with Children	39.71	11.72	0	72.33
Percentage of Male-Headed Families with Children	9.97	4.66	0	30.00
* Percentage of Families with Children Headed by Alone Parents	49.68	12.77	0	80.61
Percentage of Married Couples with Children	50.69	13.30	.35	99.81
Percentage of People over Age 15 that are Divorced	11.71	2.63	4.16	31.33
* Percentage of People over Age 15 that are Married, Spouse Present	41.23	12.27	6.23	69.31
Percentage of People over Age 15 that are Married, Spouse Absent	9.08	3.80	1.39	39.60
Percentage of People over Age 15 that have Never Married	31.05	9.01	.46	56.15
Percentage of People over Age 15 that are Widowed	6.93	2.73	.49	16.45
Percentage of People or Household with Children	35.89	9.79	7.02	61.72
<b>Population Density</b>				
* Population Density	8792.20	6171.49	22.58	38851.26
* Percentage of People Aged 0 - 5	8.36	2.38	0	15.71
Percentage of People Aged 6 - 13	12.51	3.28	0	21.62
Percentage of People Aged 14 - 17	6.13	1.73	0	15.71
Percentage of People Aged 65 and Above	12.25	5.73	1.82	29.98
* Median Age	33.39	5.05	21.00	47.20
<b>Employment</b>				
* Percentage of People who are Unemployed	10.53	5.28	0	31.76
Percentage of People in Services	19.76	7.53	3.75	46.59
Percentage of People in Sales	29.57	5.42	14.23	42.15
Percentage of People in Management	10.25	6.22	0	31.27
* Percentage of People who are Professionals	14.13	6.21	0	31.44

\* selected individual variables for analysis

Table 4. Childcare Characteristics of Community-Based Childcare Centers

	<i>M or %</i>	<i>SD</i>
ECERS-R total ( <i>n</i> = 375)	3.73	1.13
Space and Furnishings ( <i>n</i> = 375)	4.06	1.12
Personal Care Routines ( <i>n</i> = 375)	3.88	1.49
Language-Reasoning ( <i>n</i> = 375)	3.37	1.61
Activities ( <i>n</i> = 375)	3.20	1.15
Interaction ( <i>n</i> = 375)	4.15	1.71
Parents and Staff ( <i>n</i> = 375)	4.33	1.40
% Licensed ( <i>n</i> = 3171)		
0 – 1 not licensed	9.0	--
2 – 3 licensed	91.0	
% Accredited ( <i>n</i> = 3171)	25.9	--
Number of Accreditations ( <i>n</i> = 945)		
% 0 accreditations	76.1	
% 1-2 accreditations	16.3	--
% 3-4 accreditations	7.6	
Total Enrollment of Provider ( <i>n</i> = 2410)	69.25	55.76
Number of Children per Adult ( <i>n</i> = 841)	12.93	5.14
Provider Charges in dollars (Weekly fee) ( <i>n</i> = 2062)	1441.51	1207.35

Table 5. Child Outcomes

Measures	<i>M</i>	<i>SD</i>
LAP-D		
Cognitive	43.76	29.18
Language	34.45	27.91
DECA-TEACHER		
Total Protective Factors (TPF)	52.47	28.21
Behavioral Concerns	47.28	29.22

Table 6. Principal Component Analysis

	FACTOR1 High-SES	FACTOR2 Middle- SES	FACTOR3 Black/ African- American Presence	FACTOR4 Family/ Child Density	FACTOR5 Alternative / Minority Families
<b>Ethnicity</b>					
Percentage of People who are Asian or Pacific Islander	.570	--	--	--	.348
Percentage of People who are Black	--	--	.899	--	--
Percentage of People who are White	.320	--	-.872	--	--
Percentage of People who are of Hispanic Origin	--	--	-.934	--	--
Percentage of People who are Minorities	--	--	.813	--	--
Percentage of People who are Other Race	-.325	--	-.419	--	.492
Percentage of Foreign People	--	--	-.873	--	--
Percentage of People who are Native Born	--	--	.873	--	--
<b>SES</b>					
Percentage of Families with an Income Below \$14,999	-.396	-.838	--	--	--
Percentage of Families with an Income of \$15,000 - \$24,999	-.615	-.580	--	--	--
Percentage of Families with an Income of \$25,000 - \$39,999	-.662	--	--	--	--
Percentage of Families with an Income of \$40,000 - \$59,999	--	.851	--	--	--
Percentage of Families with an Income of \$60,000 - \$74,999	--	.795	--	--	--
Percentage of Families with an Income of \$75,000 - \$99,999	.550	.660	--	--	--
Percentage of Families with an Income Over \$100,000	.912	--	--	--	--
Percentage of People with Retirement Income	--	--	--	--	.796
Percentage of People with Social Security Income	--	--	--	--	.835
Median Contract Rent in Dollars	.444	.686	--	--	--
Median Household Income in Dollars	.700	.575	--	--	--
Median Home Value in Dollars	.803	--	-.300	--	--
Median Mortgage Costs in Dollars	.608	.643	--	--	--
Percentage of Households that are Renter Occupied	--	-.789	--	-.317	.321
Percentage of Total Population with Poverty Status	-.386	-.807	.327	--	--
Percentage of 0 Vehicle Households	--	-.837	--	--	--
<b>Educational Attainment</b>					
Percentage of People with Education Under Grade 9	-.516	-.640	-.442	--	--
Percentage of People with Education of Grade 9 - 12	-.707	-.536	--	--	--

Percentage of People with High School Diploma	-.550	--	.587	--	--
Percentage of People with Associate Degree	.506	.653	--	--	--
Percentage of People with Bachelor Degree	.868	.378	--	--	--
Percentage of People with Some College	.357	.766	--	--	--
Percentage of People with Graduate Degree	.878	--	--	--	--
<b>School Enrollment</b>	--	--	--	--	--
Percentage of Preschool Children Enrolled in Private School	.509	.444	--	--	--
Percentage of Grade K-12 Children Enrolled in Private School	.797	--	--	--	--
<b>Family Type / Size</b>	--	--	--	--	--
Percentage of Grandparents with Grandchildren and are Living with own GC	--	--	.395	--	--
Number of People in the Average-Size Household	-.354	.358	--	.753	--
Percentage of Female-Headed Families with Children	--	--	.395	.442	.479
Percentage of Male-Headed Families with Children	--	--	--	--	.445
Percentage of Families with Children Headed by Alone Parents	--	--	.323	.441	.603
Percentage of Married Couples with Children	--	--	--	.604	.381
Percentage of People over Age 15 that are Divorced	--	--	--	-.686	--
Percentage of People over Age 15 that are Married, Spouse Present	.344	.568	-.549	.356	--
Percentage of People over Age 15 that are Married, Spouse Absent	-.508	-.481	--	--	--
Percentage of People over Age 15 that have Never Married	--	-.456	.661	--	--
Percentage of People over Age 15 that are Widowed	--	-.302	--	-.496	-.486
Percentage of People or Household with Children	--	.368	--	.820	--
<b>Population Density</b>	--	--	--	--	--
Population Density	-.351	--	-.434	-.373	--
Percentage of People Aged 0 - 5	--	--	.410	.573	.344
Percentage of People Aged 6 - 13	--	--	.546	.711	--
Percentage of People Aged 14 - 17	--	--	.607	.555	--
Percentage of People Aged 65 and Above	--	--	-.445	-.549	-.595
Median Age	--	--	-.596	-.465	-.517
<b>Employment</b>	--	--	--	--	--
Percentage of People who are Unemployed	-.505	-.594	.366	--	--
Percentage of People in Management	.826	.395	--	--	--

Percentage of People who are Professionals	.826	.375	--	--	--
Percentage of People in Sales	--	.778	--	--	--
Percentage of People in Services	-.455	-.499	.506	--	--

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Table 7. Correlations between child demographics and children's national percentile rankings on language, cognitive, socio-emotional, and behavioral outcomes

	LAP-D		DECA-TEACHER	
	Cognitive	Language	TPF	Behavior Concerns
Child's gender	.10*	.09*	.17*	-.19*
1 = male				
2 = female				
Parent's primary language	-.10*	-.16*	.03	-.09*
0 = English				
1 = Spanish				
Marital status	-.00	.00	-.04	.07*
0 = married				
1 = single, divorced, or separated				
Parent education	.04	.07*	.01	.02
0 = less than high school diploma / GED				
1 = high school diploma/ GED or above				
Family size	-.01	-.01	-.00	.03
Parent income	.07*	.04	.06	-.07*

\* significant at the .01 level

Table 8. Correlations between neighborhood characteristics and child demographics

	<i>Income-to- needs ratio</i>	<i>Language of parent (0 = English 1 = Spanish)</i>	<i>Family size</i>
Percentage of People who are Black	--	-.62	--
Percentage of People who are White	.20	.63	-.20
Percentage of People who are of Hispanic Origin	--	.67	-.21
Percentage of People who are Minorities	--	-.56	--
Percentage of Foreign People	--	.50	--
Percentage of People who are Native Born	--	-.50	--
Percentage of Families with an Income Below \$14,999	--	-.24	--
Percentage of People with Social Security Income	--	.31	--
Median Contract Rent in Dollars	--	.28	--
Median Home Value in Dollars	--	.31	--
Percentage of Total Population with Poverty Status	-.21	-.30	--
Percentage of People with Graduate Degree	--	.22	--
Percentage of People with High School Diploma	--	-.45	--
Percentage of Preschool Children Enrolled in Private School	--	.23	--
Percentage of Grade K-12 Children Enrolled in Private School	--	.29	--
Percentage of People over Age 15 that are Married, Spouse Present	--	.38	--
Percentage of People over Age 15 that have Never Married	--	-.52	.20
Percentage of Female-Headed Families with Children	--	-.45	.20
Percentage of Families with Children Headed by Alone Parents	--	-.43	--
Population Density	--	.29	--
Percentage of People Aged 0 - 5	--	-.43	.20
Percentage of People Aged 6 - 13	--	-.46	.20
Percentage of People Aged 14 - 17	--	-.47	--
Percentage of People Aged 65 and Above	--	.43	-.20
Median Age	--	.51	-.22
Percentage of People who are Unemployed	--	-.29	--
Percentage of People in Management	--	.25	--
Percentage of People in Sales	--	.25	--
Percentage of People in Services	--	-.37	--

Table 9. Correlations between childcare quality variables and children's national percentile rankings on language, cognitive and socio-emotional outcomes

	LAP-D		DECA-TEACHER	
	Cognitive	Language	TPF	Behavior Concerns
Total enrollment of provider	--	--	--	--
Provider # of children per adult	--	--	--	--
Provider is licensed	--	--	.08	--
Provider accredited	--	--	--	--
Provider # of accreditations	--	--	--	--
Weekly fee	.07	.06	--	-.08
ECERS Space and Furnishing	--	--	--	--
ECERS Personal Care Routine	--	--	--	--
ECERS Language and Reasoning	--	--	--	--
ECERS Activities	--	--	--	--
ECERS Interaction	--	--	--	--
ECERS Program Structure	--	--	--	--
ECERS Parent and Staff	--	--	--	--
ECERS Total	--	--	--	--

Table 10. Correlations between neighborhood dimensions and children's national percentile rankings on language, cognitive and socio-emotional outcomes

Neighborhood Dimensions	LAP-D		DECA-TEACHER	
	Cognitive	Language	TPF	Behavior Concerns
High – SES	.13	.19	.07	-.06
Middle – SES	.07	.07	.11	-.10
Black/African-American Presence	--	.10	-.03	.04
Family/Child Density	--	.05	--	--
Alternative/Minority Families	.04	--	.04	--
The overall neighborhood risk factor composite score	-.12	-.16	-.11	.12

Correlations are significant at the 0.01 level

Table 11. Correlations between individual neighborhood variables and children's national percentile rankings on language, cognitive and socio-emotional outcomes

	LAP-D		DECA-TEACHER	
	Cognitive	Language	TPF	Behavior Concerns
Percentage of People who are Black	-.02	.02	-.06	.08
Percentage of People who are of Hispanic Origin	-.04	-.11	.02	-.04
Percentage of People who are Minorities	-.02	.02	-.05	.07
Percentage of Foreign People	-.06	-.12	.03	-.02
Percentage of People who are Native Born	.06	.12	-.03	.02
Percentage of Families with an Income Below \$14,999	-.10	-.11	-.11	.12
Percentage of Families with an Income Over \$100,000	.13	.19	.09	-.09
Median Household Income in Dollars	.13	.17	.11	-.12
Median Home Value in Dollars	.11	.12	.08	-.07
Percentage of Households that are Renter Occupied	-.08	-.12	-.08	.09
Percentage of Total Population with Poverty Status	-.08	-.09	-.11	.12
Percentage of People with Education Under Grade 9	-.13	-.19	-.11	.10
Percentage of People with Education of Grade 9 - 12	-.13	-.16	-.12	.11
Percentage of People with Graduate Degree	.15	.18	.10	-.11
Percentage of Preschool Children Enrolled in Private School	.10	.09	.09	-.09
Number of People in the Average-Size	-.03	-.01	-.02	0

Household				
Percentage of Female-Headed Families with	.01	.05	-.03	.05
Children				
Percentage of Families with Children Headed	.01	.04	-.01	.05
by Alone Parents				
Percentage of People over Age 15 that are	.07	.07	.10	-.11
Married, Spouse Present				
Population Density	-.04	-.11	.02	-.01
Percentage of People Aged 0 - 5	.01	.03	-.05	.07
Median Age	-.01	-.06	.02	-.05
Percentage of People who are Unemployed	-.06	-.07	-.11	.11
Percentage of People who are Professionals	.15	.21	.11	-.09

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All  $r$ 's  $\geq .04$  are significant at  $p < .01$  or less

Table 12. Effects of neighborhood characteristics on children's national percentile rankings on language, cognitive and socio-emotional outcomes

	LAP-D		DECA-TEACHER	
	Cognitive ( $\beta$ )	Language ( $\beta$ )	TPF ( $\beta$ )	Behavior Concerns ( $\beta$ )
Neighborhood factors				
High – SES	.13*	.18*	.07*	-.07*
Middle – SES	.07*	.07*	.11*	-.11*
Black/African-American Presence	.03*	.10*	-.03*	.04*
Family/Child Density	.01	.05*	-.01	.01
Alternative/Minority Families	.04*	.02*	.04*	.00
<i>F</i>	27.523*	63.264*	23.663*	20.704*
<i>Df</i>	5	5	5	5
<i>R</i> <sup>2</sup>	.02	.05	.02	.02

\* significant at the 0.05 level

Table 13. Effects of neighborhood characteristics and family characteristics on children's national percentile rankings on language, cognitive and socio-emotional outcomes

	LAP-D		DECA-TEACHER	
	Cognitive ( $\beta$ )	Language ( $\beta$ )	TPF ( $\beta$ )	Behavior Concerns ( $\beta$ )
STEP 1				
Family level characteristics				
Parent income	.08*	.03	.06*	-.08*
Parent education	.02	.06*	-.02	.04
Parent ethnicity (Black)	-.24	.13	.08	.23
Parent ethnicity (White)	-.09	.10	.01	.06
Parent ethnicity (Latino)	-.27	.07	.03	.18
<i>F</i>	7.369*	12.687*	1.818	4.319*
<i>Df</i>	5	5	5	5
<i>R</i> <sup>2</sup>	.02	.03	.005	.01
STEP 2				
Neighborhood factors				
High – SES	.01	.05*	.03	.01
Middle – SES	.02	.00	.08*	-.04
Black/African-American Presence	.10*	.12*	-.07*	-.01
Family/Child Density	.02	.04	-.06*	.02
Alternative/Minority Families	.06*	.01	.08*	.03
<i>F</i>	5.704*	9.042*	3.646*	2.859*
<i>Df</i>	10	10	10	10
<i>R</i> <sup>2</sup>	.03	.04	.02	.02
$\Delta R^2$	.009*	.01*	.02*	.004

\* significant at the 0.05 level

Table 14. The effect of overall neighborhood risk and family characteristics on children's national percentile rankings on language, cognitive and socio-emotional outcomes

	LAP-D		DECA-TEACHER	
	Cognitive ( $\beta$ )	Language ( $\beta$ )	TPF ( $\beta$ )	Behavior Concerns ( $\beta$ )
Family level characteristics				
Parent income	.08*	.03	.06*	-.08*
Parent education	.01	.05*	-.02	.04
Parent ethnicity (Black)	-.16	.10	-.03	.24
Parent ethnicity (White)	-.07	.07	-.02	.08
Parent ethnicity (Latino)	-.27	-.05	-.05	.19
<i>F</i>	7.690*	12.845*	1.318	4.404*
<i>df</i>	5	5	5	5
<i>R</i> <sup>2</sup>	.02	.03	.004	.01
An Overall Neighborhood Risk Factor (avgrisk)				
	-.02	-.05*	-.06*	.04
<i>F</i>	6.486*	11.617*	1.971	4.152*
<i>df</i>	1	1	1	1
<i>R</i> <sup>2</sup>	.02	.03	.007	.01
$\Delta R^2$	.00	.002*	-.003*	.002

\* significant at the 0.05 level

Table 15. Correlations between childcare quality and neighborhood quality

	An overall Risk Factor Composite	High-SES	Middle-SES	Black/African American Presence	Family/Child Density	Alternative/ Minority Families
total enrollment of provider	.15*	-.15*	-.14*	-.09*	.07*	--
# of children per adult provider	--	--	.10*	-.10*	-.20*	--
licensed provider	--	.01*	-.08*	--	--	--
accredited provider	--	--	--	-.12*	-.05*	-.08*
number of accreditations	-.13*	-.10*	.18*	-.13*	.17*	--
weekly fee	-.15*	.06*	.14*	-.12*	-.09*	--
ECERS Space and Furnishing	-.30*	.28*	.17*	--	-.20*	-.22*
ECERS Personal Care	--	--	--	.15*	-.32*	--
ECERS Routine	--	--	--	--	--	--
ECERS Language and Reasoning	-.20*	--	.19*	--	-.23*	-.25*
ECERS Activities	-.26*	--	.27*	--	-.36*	-.21*
ECERS Interaction	--	--	--	--	-.28*	--
ECERS Program	--	--	.20*	--	-.16*	--
ECERS Structure	--	--	--	--	--	--
ECERS Parent and Staff	--	--	--	--	-.31*	--
ECERS Total	-.14*	--	.14*	--	-.34*	-.16*

\* significant at the 0.01 level

Table 16. T-test (Licensure)

	Provider's licensure status	<i>N</i>	<i>M</i>	<i>t</i>	<i>df</i>
High – SES *	Licensed	2622	-.177	-5.346	2872
	Not licensed	252	-.425		
Middle – SES *	Licensed	2622	.128	4.069	2872
	Not licensed	252	-.143		
Black/African-American Presence	Licensed	2622	-.238	-.923	2872
	Not licensed	252	-.298		
Family/Child Density	Licensed	2622	-.078	.573	2872
	Not licensed	252	-.042		
Alternative/Minority Families	Licensed	2622	.097	-1.328	2872
	Not licensed	252	.002		

\* Significant at the 0.01

Table 17. T-test (Accreditation)

	Provider's accreditation status	<i>N</i>	<i>M</i>	<i>t</i>	<i>df</i>
High – SES	Accredited	806	-.233	1.629	2872
	Not accredited	2068	-.185		
Middle - SES	Accredited	806	-.125	.664	2872
	Not accredited	2068	-.096		
Black/African-American Presence *	Accredited	806	-.438	6.693	2872
	Not accredited	2068	-.167		
Family/Child Density *	Accredited	806	-.148	2.656	2872
	Not accredited	2068	-.046		
Alternative/Minority Families *	Accredited	806	-.048	4.274	2872
	Not accredited	2068	.142		

\* Significant at the 0.01 level

Table 18. Effects of neighborhood dimensions on childcare quality

	ECERS-R ( $\beta$ )
High – SES	-.02
Middle – SES	-.03
Black/African-American Presence	-.12*
Family/Child Density	-.35*
Alternative/Minority Families	-.12*
<i>F</i>	11.109*
<i>Df</i>	5
<i>R</i> <sup>2</sup>	.13

\* significant at the 0.05 level

Table 19. Center type moderating the relationship between neighborhood risk and outcomes

	LAP-D		DECA-TEACHER	
	Cognitive ( $\beta$ )	Language ( $\beta$ )	TPF ( $\beta$ )	Behavior Concerns ( $\beta$ )
Step 1				
Overall Neighborhood Risk Factor (avgrisk)	-.11*	-.13*	-.12*	.09*
Center type	.09*	.16*	-.03*	-.17*
<i>F</i>	75.553*	154.540*	42.893*	142.722*
<i>Df</i>	2	2	2	2
<i>R</i> <sup>2</sup>	.02	.05	.01	.04
Step 2				
Overall Neighborhood Risk Factor (avgrisk)	.07*	.06*	.01	-.01
Center type	.10*	.16*	-.03*	-.18*
Avgrisk X center type	-.21*	-.22*	-.14*	.10*
<i>F</i>	69.719*	126.993*	35.689*	99.183*
<i>Df</i>	1	1	1	1
<i>R</i> <sup>2</sup>	.03	.06	.02	.05
$\Delta R^2$	.01*	.01*	.003*	.002*

\* Significant at the 0.05 level

Table 19a. Correlations between overall neighborhood risk composite score and child outcomes for children attending public-school pre-kindergarten programs

	LAP-D		DECA-TEACHER	
	Cognitive	Language	TPF	Behavior Concerns
An Overall Neighborhood Risk Factor (avgrisk)	.12*	-.16*	-.19*	-.21*

\* significant at the 0.01 level

Table 19b. Correlations between overall neighborhood risk composite score and child outcomes for children attending community-based childcare centers.

	LAP-D		DECA-TEACHER	
	Cognitive	Language	TPF	Behavior Concerns
An Overall Neighborhood Risk Factor (avgrisk)	.02	-.03	.01	-.01

Table 20. Program type moderating the relationship between neighborhood risk and outcomes

	LAP-D		DECA-TEACHER	
	Cognitive ( $\beta$ )	Language ( $\beta$ )	TPF ( $\beta$ )	Behavior Concerns ( $\beta$ )
Step 1				
Overall Neighborhood Risk Factor (avgrisk)	-.12*	-.07*	-.14*	.12*
Program type	.10*	.19*	-.04*	-.02
<i>F</i>	65.233*	97.899*	53.788*	34.190*
<i>Df</i>	2	2	2	2
<i>R</i> <sup>2</sup>	.04	.06	.03	.02
Step 2				
Overall Neighborhood Risk Factor (avgrisk)	.09	.17*	-.13	.22*
Program type	.02	.11*	.04	-.05*
Avgrisk X program type	-.28*	-.31*	-.01	-.12
<i>F</i>	46.040*	68.497*	35.858*	23.401*
<i>Df</i>	1	1	1	1
<i>R</i> <sup>2</sup>	.04	.07	.03	.02
$\Delta R^2$	.002*	.003*	.00	.00

\* significant at the 0.05 level

## References

## References

- Achenbach, T. M., & Edelbrock, C. S. (1984). Psychopathology of childhood. *Annual Review of Psychology, 35*, 227-256.
- Achenbach, T. M., Edelbrock, C. S., & Howell, C. T. (1987). Empirically-based assessment of the behavioral/emotional problems of two and three-year-old children. *Journal of Abnormal Psychology, 15*, 629-650.
- Barnett, S. (1995). Long-term effects of early childhood programs on cognitive and school outcomes. *The Future of Children, 5*(3), 25-50.
- Barnes, J., Belsky, J., Broomfield, K. A., Melhuish, E., & the National Evaluation of Sure Start (NESS) Research Team (2006). Neighborhood deprivation, school disorder and academic achievement in primary schools in deprived communities in England. *International Journal of Behavioral Development, 30*, 127-136.
- Becker, G. S. (1981). *A treatise on the family*. Cambridge, MA: Harvard University Press.
- Bradley, R. H., Caldwell, B. M., Rock, S. L., Ramey, C. T., Barnard, K. E., Gray, C. et al. (1989). Home environment and cognitive development in the first 3 years of life: A collaborative study involving six sites and three ethnic groups in North America. *Developmental Psychology, 25*(2), 217-235.
- Bronfenbrenner, U. (1988). Interacting systems in human development. Research paradigms: Present and future. In N. Bolger, A. Caspi, G. Downey, & M. Moorehouse (Eds.), *Person in context: Developmental processes* (pp. 25-49). New York: Cambridge University Press.
- Burchinal, M. R., Roberts, J. E., Nabors, L. A., & Bryant, D. M. (1996). Quality of center child care and infant cognitive and language development. *Child Development, 67*, 606-620.
- Burchinal, M. R., Roberts, J. E., Riggins, R. Jr., Zeisel, S. A., Neebe, E., & Bryant, D. (2000). Relating quality of center-based child care to early cognitive and language development longitudinally. *Child Development, 71*, 339-357.
- Campbell, S. B. (1995). Behavior problems in preschool children: A review of recent research. *Journal of Child Psychology and Psychiatry, 36*, 113-149.

- Ceballo, R., McLoyd, V. C., & Toyokawa, T. (2004). The influence of neighborhood quality in adolescents' educational values and school effort. *Journal of Adolescent Research, 19*, 716-739.
- Chase-Lansdale, P. L., Gordon, R. A., Brooks-Gunn, J., & Klebanov P. K. (1997). Neighborhood and family influences on the intellectual and behavioral competence of preschool and early school-age children. In J. Brooks-Gunn, G. J. Duncan, & J. L. Aber (Eds), *Neighborhood poverty: Vol. 1. Context and consequences for children* (pp. 79-118). New York: Russell Sage Foundation.
- Chase-Lansdale, P. L., Mott, F. L., Brooks-Gunn, J., & Phillips, D. (1991). Children of the National Longitudinal Survey of Youth: A unique research opportunity. *Developmental Psychology, 27*, 918-931.
- Cianciotto, J. (2005). *Hispanic and Latino Same-Sex Couple Households in the United States: A Report from the 2000 Census*. New York: National Gay and Lesbian Task Force Policy Institute and the National Latino/a Coalition for Justice.
- Crane, J., Mincic, M. S., & Winsler, A. (2007). *Assessing socio-emotional protective factors among ethnically diverse preschoolers in poverty: Parent-teacher agreement on the Devereux Early Childhood Assessment*. Manuscript submitted for publication, George Mason University.
- Dunn, L. M., & Dunn, L. M. (1981). *Peabody Picture Vocabulary Test- Revised*. Circle Pines, MN.: American Guidance Service.
- Dunn, L. M., & Markwardt, F. C. (1970). *Peabody Individual Achievement Test manual*. Circle Pines, MIN.: American Guidance Service.
- Fitzgerald, B. (1999). Children of lesbian and gay parents: A review of the literature. *Marriage & Family Review, 29*, 57-75.
- Fuller, B., Coonerty, C., Kipnis, F., & Choong, Y. (1997). *An unfair Head Start: California families face gaps in preschool and child care availability*. Berkeley, CA: Berkeley-Stanford PACE Center, Yale University, and the California Child Care Resource and Referral Network: Growing Up in Poverty Project.
- Fuller, B., Holloway, S. D., & Liang, X. (1996). Family selection of childcare centers: The influence of household support, ethnicity, and parental practices. *Child Development, 67*, 3320-3337.
- Garcia Coll, C., Lamberty, G., Jenkins, R., McAdoo, H. P., Crnic, K., Wasik, B. H., & Vazquez Garcia, H. (1996). An integrative model for the study of developmental competencies in minority children. *Child Development, 67*, 1891-1914.

- Gephart, M. A., (1997). Neighborhoods and communities as context for development. In J. Brooks-Gunn, G. J. Duncan, & J. L. Aber (Eds), *Neighborhood poverty: Vol. 1. Context and consequences for children* (pp. 1-43). New York: Russell Sage Foundation.
- Gilliam, W.S., & Zigler, E.F. (2000). A critical meta-analysis of all evaluations of state-funded preschool from 1977 to 1998: Implications for policy, service delivery and program evaluation. *Early Childhood Research Quarterly*, *15*(4), 441-473.
- Harms, T., Clifford, R. M., & Cryer, D. (2005). *Early Childhood Environment Rating Scale Revised Edition*. Teachers College Press: New York, NY.
- Howes, C. (1983). Caregiver behavior in center and family day care. *Journal of Applied Developmental Psychology*, *4*, 99-107.
- Howes, C., Phillips, D. A., & Whitebook, M. (1992). Thresholds of quality: Implications for the social development of children in center-based child care. *Child Development*, *53*, 449-460.
- Infant Health and Development Program (IHDP). (1990). Enhancing the outcomes of low birthweight, premature infants: A multisite randomized trial. *Journal of the American Medical Association*, *263*, 3035-3042.
- Jencks, C., & Mayer, S. E. (1990). The social consequences of growing up in a poor neighborhood. In L. E. Lynn Jr. & M. G. H. McGeary (Eds.), *Inner-city poverty in the United States* (pp. 111-186). Washington, D.C.: National Academy Press.
- Kaufman, J. E., & Rosenbaum, J. E. (1992). The education and employment of low income black youth in white suburbs. *Education Evaluation and Policy Analysis*, *14*(3), 229-240.
- Lamb, M.E. (1998). Non-parental child care: Context, quality, correlates. In W. Damon, I. E. Sigel, & K. A. Renninger (Eds), *Handbook of child psychology: Vol. 4. Child psychology in practice* (5<sup>th</sup> ed., pp. 73-134). New York: John Wiley & Sons.
- LeBuffe, P. A., & Naglieri, J. A. (1999). *DECA: Devereux Early Childhood Assessment*. Lewisville, NC: Kaplan Press.
- Leventhal, T., & Brooks-Gunn, J. (2000). The neighborhoods they live in: The effects of neighborhood residence on child and adolescent outcomes. *Psychological Bulletin*, *126*, 309-337.

- Leventhal, T., & Brooks-Gunn, J. (2003). Children and youth in neighborhood contexts. *Current Directions in Psychological Science*, 12(1), 27-31.
- Leventhal, T., & Brooks-Gunn, J. (2004). A randomized study of neighborhood effects on low-income children's educational outcomes. *Developmental Psychology*, 40, 488-507.
- Love, J. M. (1997). Quality in childcare centers. *Early Childhood Research and Policy Briefs*, 1, 1-3. Retrieved November 20, 2007, from <http://www.fpg.unc.edu/~ncedl/PDFs/brief11.pdf>
- McCann, D., & Delmonte, H. (2005). Lesbian and gay parenting: Babes in arms or babes in the woods? *Sexual and Relationship Therapy*, 20, 333-347.
- McLanahan, S., & Sandefur, G. (1994). *Growing up with a single parent: What hurts, what helps*. Cambridge, MA: Harvard University Press.
- Mardell-Czudnowski, C., & Goldenberg, D. (1983). *DIAL-R (Developmental Indicators for the Assessment of Learning-Revised) manual*. Edison, NJ: Childcraft Education Corporation.
- Marshall, N. L. (2004). The quality of early child care and children's development. *Current Directions in Psychological Science*, 13(4), 165-168.
- Martinez, E. A. (1999). Mexican American/ Chicano families: Parenting as diverse as the families themselves. In H. P. McAdoo (Ed.), *Family ethnicity: Strength in diversity* (pp. 121-134). Thousand Oaks, CA: Sage.
- National Working Commission on Choice in K-12 Education. (2003). *School choice: Doing it the right way makes a difference*. Washington, DC: Brown Center on Educational Policy, Brookings Institution.
- Nehring, A. D., Nehring, E. F., Bruni, J. R., & Randolph, P. L. (1992). *Learning Accomplishment Profile – Diagnostic Standardized Assessment*. Lewisville, NC: Kaplan Press.
- Newborg, J., Stock, J., Wnek, L., Guidubaldi, J., & Svinicki, J. (1984). *Battelle Developmental Inventory: Examiner's manual*. Dallas, TX: DLM/Teacher Resources.
- Peisner-Feinberg, E. S., Burchinal, M. R., Richard, M. C., Culkin, M. L., Howes, C., Kagan, S. L. et al. (2001). The relation of preschool child-care quality to children's cognitive and social developmental trajectories through second grade. *Child Development*, 72, 1534-1553.

- Peterson, J. L., & Zill, N. (1986). Marital disruption, parent-child relationships, and behavior problems in children. *Journal of Marriage and the Family*, 48, 295-307.
- Phillips, D. A., Voran, M., Kisker, E., Howes, C., & Whitebook, M. (1994). Child care for children in poverty: Opportunity or Inequity. *Child Development*, 65, 472-492.
- Phillipsen, L., Burchinal, M., Howes, C., & Cryer, D. (1997). The prediction of process quality from structural features of child care. *Early Childhood Research Quarterly*, 12, 281-304.
- Rosenbaum, J. E., Kulieke, M. J., & Rubinowitz, L. S. (1987). Low-income black children in white suburban schools: A study of school and student responses. *The Journal of Negro Education*, 56, 35-43.
- Sampson, R. J., & Groves, W. B. (1989). Community structure and crime: Testing social-disorganization theory. *American Journal of Sociology*, 94, 774-802.
- Shaw, C., & McKay, H. (1942). *Juvenile delinquency and urban areas*. Chicago, IL: University of Chicago Press.
- Shonkoff, J. P., & Phillips, D. A. (Eds). (2000). *From neurons to neighborhoods: The science of early childhood development*. Washington DC: National Academy Press.
- Terman, L. M., & Merrill, M. A. (1973). *Stanford-Binet Intelligence Scale: Manual for the third revision. Form L-M*. Boston, MA.: Houghton Mifflin.
- United States Census Bureau. (n.d.). *Geographic changes for census 2000 + glossary*. Retrieved August 3, 2007, from <http://www.census.gov/geo/www/tiger/glossary.html#censusblocks>
- Wechsler, D. (1989). *Wechsler Preschool and Primary Scale of Intelligence – Revised (WPPSI-R)*. San Antonio, TX: Psychological Corporation.
- Wilson, W. J. (1987). *The truly disadvantaged: The inner city, the underclass and public policy*. Chicago, IL: University of Chicago Press.
- Winsler, A., Bleiker, C., Hartman, S., Madigan, A.L., Levitt, J., & Ditlow, P. (2005, December). *Fostering school readiness among low-income, ethnically-diverse preschoolers: Kindergarten outcomes for children in Miami-Dade County's early childhood assessment/intervention program*. Paper presented at the annual convention of the National Association for the Education of Young Children. Washington, DC.

Winsler, A., Tran, H., Hartman, S., Madigan, A., Manfra, L., & Bleiker, C. (2007).  
*School readiness gains made by ethnically-diverse children in poverty  
receiving childcare subsidies*. Manuscript submitted for publication.

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