

SECTION 1, CHAPTER 3

**USING A SOCIAL DETERMINANTS
OF EARLY LEARNING
FRAMEWORK TO ELIMINATE
EDUCATIONAL DISPARITIES
AND OPPORTUNITY GAPS**

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The achievement gap is one of the greatest social problems in the U.S.. As currently constructed, the achievement gap indicates that White children and children from higher-income households perform better than Black, Hispanic, and Native American Indian children—and children from low-income households—on various indicators, such as reading, math, and science skills, as well as on adult outcomes later in life (e.g., health, income, educational attainment). Although most of the data substantiating this gap are gathered when children are in third grade or around age eight, there is evidence that the gap starts prior to age three. For instance, by kindergarten entry, many children from low-income and minoritized families¹ (e.g., Black/African American, Latino/a, non-English speaking) are months if not years behind children from White and higher-income families. We need to question how and why the achievement gap persists regardless of the academic outcomes being examined or whether we're looking at national, state, or local data. In fact, we need to stop discussing the existence of the achievement gap, or as Humphries and Iruka (2017) put it, “stop-gap gazing,” and examine the root causes of educational disparities and study how early care and education can potentially disrupt these trends.

McKinsey & Company (2009) found that not closing the achievement gap between 1983 and 1998 cost the U.S. between \$1.3 trillion to \$2.3 trillion in economic output, representing 9 to 16% of GDP. With this economic and social cost of underutilized human potential and capability, the achievement gap, which is a symptom of systemic discriminatory policies and laws, needs to be treated as a public-health crisis. In this chapter, we adapt a framework used by the public-health sector—Structural Determinants of Health—to address inequities and support the well-being of U.S. citizens at a population level (e.g., infant mortality and morbidity, teen pregnancy, or smoking) to show how early learning can address the inequities in education. To effectively eradicate disparities and inequities in early learning, we must stop gap-gazing and instead examine how systems continue to perpetuate racism and inequities that reverberate throughout the early learning system and beyond. This means examining how certain policies and laws may reduce opportunities for certain groups to thrive and meet their potential.

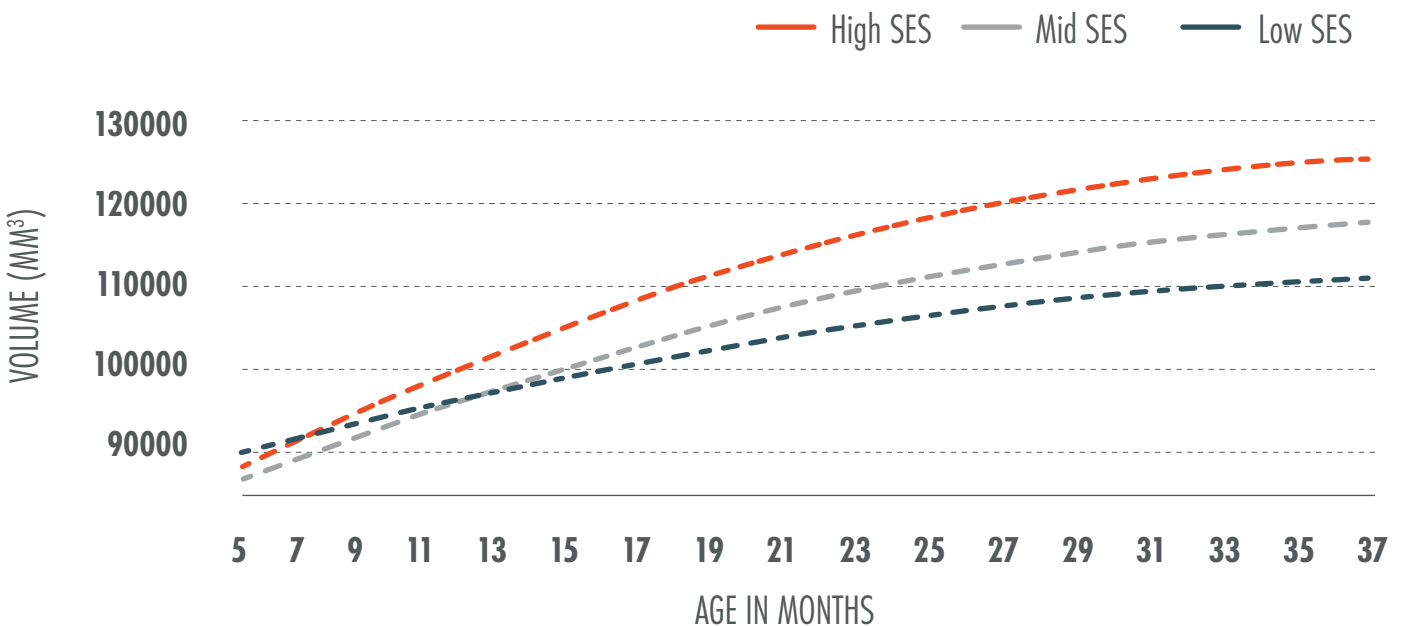
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¹ Smith (2016) states that “groups that are different in race, religious creed, nation of origin, sexuality, and gender and as a result of social constructs have less power or representation compared to other members or groups in society should be considered minoritized.” People who are minoritized endure mistreatment and face prejudices that are forced upon them because of situations outside of their control. <https://www.theodysseyonline.com/minority-vs-minoritize>

WOULD STARTING EARLY ERADICATE THE ACHIEVEMENT GAP?

What is it about the U.S. that maintains these differences and gaps? Scholars suggest that the lack of opportunities for many children of color and children from low-income households—the opportunity gap—may lead to the achievement gap. Such opportunities include access to high-quality early care and education, living in economically stable households and communities, and having enriching home- and classroom-learning environments. For example, there is a movement to ensure that children receive high-quality early learning experiences before starting school via preschool and pre-k programs, as well as programs starting at birth, such as Early Head Start and home visiting. The rationale for such programs stems from evidence showing that prior to and after birth, experience starts shaping children’s genetic potential and lays an increasingly complex foundation for learning and development. Studies show an association between poverty and cognitive development, including brain development and functioning (Hanson et al., 2013; Luby et al., 2013). Luby and colleagues (2013) find that poverty is associated with less white and cortical gray matter and smaller hippocampal and amygdala volumes (see Figure 1), which are areas that support memory, cognition, and learning. Studies examining the link between poverty and brain development, including cognitive development and executive function (EF), emphasize the dire impact of poverty, and other associated factors, such as low maternal education, single parenthood, stressful home and community environments, and poor nutrition and health, among other factors (Atkinson et al., 2015; Jeon, Buettner, & Hur, 2014). More studies should examine the impact of racism on children’s brains and health in the early years.

Figure 1. Volume of parietal gray matter in the brain across socioeconomic status (SES) groups.



Early intervention studies suggest that for children who are living in concentrated disadvantage with limited learning opportunities, experiencing enriching, high-quality early education programs at an early age may serve as a buffer that lasts a lifetime, though this is not guaranteed. When placed in a larger context, many of the children (most of them African American) who participated in the Carolina Abecedarian Project and HighScope Perry Preschool Project did not perform at the same level as White children or children from higher-income households. For example, almost a third of children from the treatment groups were arrested multiple times and did not graduate from high school, and almost two-thirds required public assistance as adults. Thus, even when looking at the best seminal early childhood programs, it seems that more than high-quality early education is needed to disrupt the influences that lead to the achievement gap and other disparities in school and life outcomes.

Although we need to strengthen the impact of early learning with other supports and structures, children who experience intellectually stimulating and enriching environments are likely to benefit from these high-quality early learning experiences—especially children from low-income households (Camilli, Vargas, Ryan, & Barnett, 2010). This is particularly critical because we know that children’s acquisition of school skills and knowledge depends on development and learning that occur long before formal schooling (Cunha & Heckman, 2008). Early school outcomes affect every area of life, including later school outcomes, family formation, child-rearing capacity, career and work preparation and stability, physical and mental health, and becoming a civically engaged, contributing member of the community and citizenry. Though access to early learning opportunities has increased, academic and social gaps by income and race/ethnicity have not been eliminated. Education scholars see some reduction in these gaps, but “at the rates that the gaps declined in the last 12 years, it will take another 60 to 110 years for them to be completely eliminated” (Reardon & Portilla, 2016, p. 12). Thus, early learning in isolation will not close the achievement gap in a timely way. Researchers, in partnership with practitioners and policymakers, must uncover and address the root causes of racial and economic disparities, and find research-based specific practices and policies that can eradicate these gaps and inequities.

MINORITIZED CHILDREN’S EARLY LEARNING EXPERIENCES

By 2050, it is estimated, children of color will make up the majority of children in the U.S.; in 2014, children of color already made up the majority in public schools. With minority children becoming the majority, we urgently need to attend to the causes of educational disparities as early as possible. Although high-quality early learning is viewed as one strategy to ensure that children are prepared for school and life, research consistently finds that due to many stratification factors, minoritized children are at higher risk for poor outcomes than White, English-speaking children, and children from higher-income and more educated households. Race, ethnicity, and socioeconomic status (SES) are often confounded in U.S. society. Minoritized children are likely to live in concentrated poverty and disadvantage (Aud, Fox, & KewalRamani, 2010). Specifically, 34% of African American and 28% of Latino/a children and adolescents lived in poverty in 2016, compared to the 12% rate for non-Latino/a, White, and Asian children and adolescents (Koball & Jiang, 2018). African American and Latino/a youth are also more likely than

White and Asian youths to attend high-poverty, segregated schools (Urban Institute, 2019). Data from the National Center for Education Statistics consistently finds that ethnic minority children, especially African American and Latino/a children, are likely to be from single, female-headed households, live in poverty, have less-educated mothers, attend high poverty schools, and have less-educated teachers (Aud et al., 2010; McLoyd & Wilson, 1990). Additionally, low-income, ethnic-minority, and immigrant families are likely to live in racially segregated enclaves that may limit their ability to access quality early-education programs that meet their preferences (Meyers & Jordan, 2006). These disparities in social and familial characteristics are also more pronounced for dual language learners, primarily Hispanic children, compared to English speakers (Hernandez, Denton, & Macartney, 2008). Concentrated disadvantage places children at considerable risk for being less school-ready as indicated by proficiency in letter recognition and numbers and shapes, as well as for school failure and dropout (DeNavas-Walt, Proctor, & Lee, 2006; McFarland et al., 2018). If minoritized children need early learning opportunities, we must ensure that they experience the highest quality that meets their individual needs, lived experiences, and contexts.

To address the many risk factors facing disadvantaged children, federal and state programs like (Early) Head Start, Smart Start, and pre-k were developed or expanded to ensure that children placed at risk of poor school readiness and academic achievement have enriching early-childhood education programs prior to school entry (Barnett, Hustedt, Friedman, Boyd, & Ainsworth, 2007). Several studies point out that these early education programs are important for children's development and predict positive outcomes more strongly for disadvantaged children than for advantaged children (U.S. Department of Health and Human Services, 2010; Vandell et al., 2010). Not all studies have found this, however (e.g., Pungello et al., 2010), possibly because of the level of quality that disadvantaged children experience. Barnett and colleagues (2013), in a national study from the U.S. Department of Education, found that most children were in low- to moderate-quality care, but minoritized children were more likely to be in lower-quality care than were their White peers. This is concerning as many states and localities move toward universal pre-K or quality rating and improvement systems that align standards and resources for all early childhood education, including community child care (i.e., center- and home-based programs), Head Start, and pre-k programs. Although early-learning systems are being instituted, children of color and/or children from low-income households do not necessarily experience the highest quality, similar to what we see in K-12 education.

Rigorously designed early-childhood studies, such as the HighScope Perry Preschool Project and the Carolina Abecedarian Project, as well as state and municipal pre-K programs like Boston Public Schools Universal Pre-K, the North Carolina Prekindergarten Program (NC pre-K program), New Jersey's Abbott Program, and Tulsa, Oklahoma's pre-k program, have consistently and systematically shown sustained outcomes over time. But no current studies show a significant reduction in economic and racial academic disparities. For example, NC's pre-K program is a state-funded educational program for eligible four-year-olds, designed to enhance their school-readiness skills. The program operates on a school day and school calendar basis for 6.5 hours per day and 180 days per year. Local sites are expected to meet a variety of standards around curriculum, screening and assessment, training and

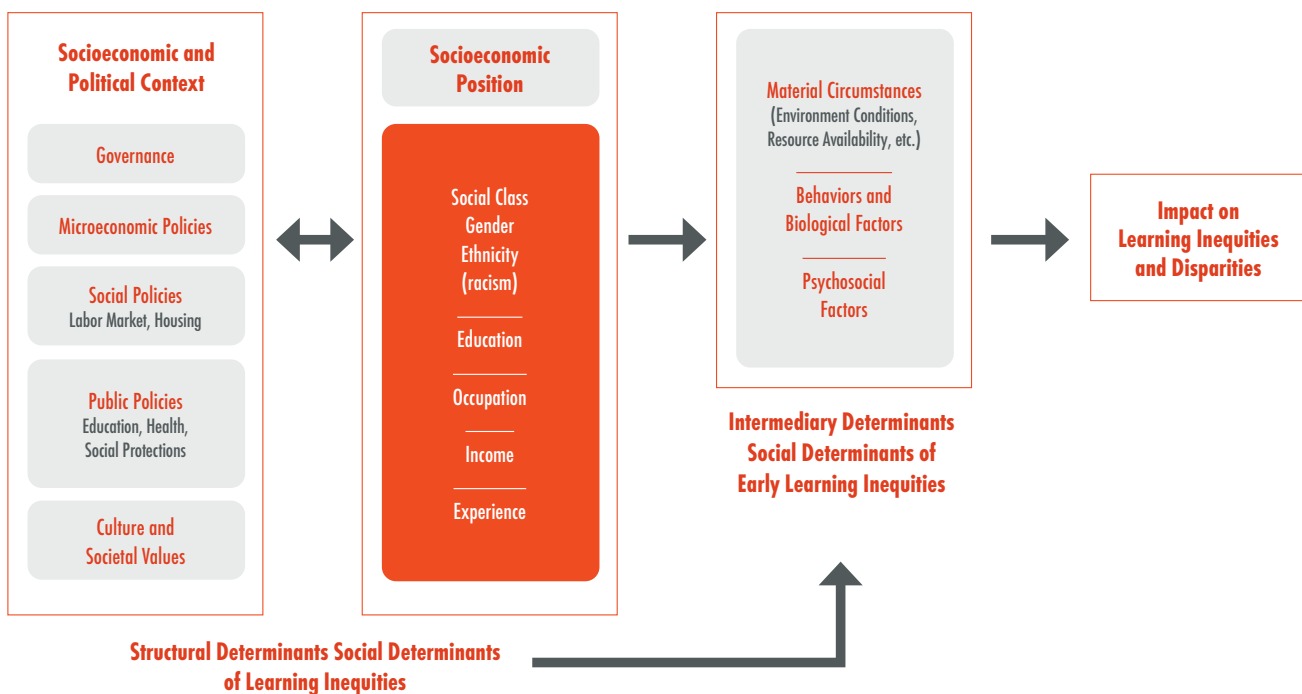
education levels for teachers and administrators, class size, adult-child ratios, North Carolina child care licensing levels, and provision of other program services. No treatment effects have been observed for language measures or teacher ratings of behavior skills at the end of kindergarten. But there are treatment effects in math and EF at the end of kindergarten for most measures, with children in NC pre-K scoring higher than matched children who aren't in the program. These effects are in the small range. Thus, while well-implemented studies show that children who get high-quality early learning do better than similar children, they don't show disruption of the achievement gap.

SOCIAL DETERMINANTS OF EARLY LEARNING

For early childhood education to truly address early-learning disparities at the systems level, we propose adapting the Social Determinants of Health framework (SDoH) to early learning, calling it Social Determinants of Early Learning (SDoEL) (see Figure 2).

The Centers for Disease Control and Prevention defines social determinants of health as “the complex, integrated, and overlapping social structures and economic systems that are responsible for most health inequities. These social structures and economic systems include the social environment, physical environment, health services, and structural and societal factors. Social determinants of health are shaped by the distribution of money, power, and resources throughout local communities.”

Figure 2. Social Determinants of Early Learning.



Source: Centers for Disease Control and Prevention

As Figure 2 shows, the concept behind SDoEL is that socioeconomic and political contexts (e.g., social policies about housing and education) lead to individuals' socioeconomic position (e.g., education, income, or occupation), which then impacts their resources and living conditions, greatly reducing some children's opportunities to thrive. This framework is further expanded below.

► **Structural determinants of SDoEL**

The first structural determinant of early education is socioeconomic and political context, which include macroeconomics, public policies, and societal values. That is, the political context at the federal and state levels impacts early learning. In their *Kids Share* report, Edelstein, Hahn, Isaacs, Steele, and Steuerle (2016) find that over the past 50 years, child-focused spending grew from 0.6% of GDP in 1960 to 2% in 2015, compared to 2% to 9% for adult-focused spending during this same time period. The majority of spending on children is for Medicaid, followed by three tax provisions: the Earned Income Tax Credit, the Child Tax Credit, and the dependent exemption. Early-childhood programs, such as Head Start, are not in the top 10 for federal spending for children. Edelstein and colleagues conclude that "total federal spending on children has been fairly flat over the past four years, in real dollars. In the future, overall federal spending is projected to increase substantially, but virtually none of the additional funds will be directed toward children" (Edelstein et al., 2016, p. 11). This lack of available funding for early-childhood programs at the federal level means that fewer children, especially those most in need, may be able to access high-quality ECE programs; there may be fewer supports to ensure high-quality ECE programming; and teachers and caregivers may not be adequately compensated and supported to provide stable, high-quality, enriching early-learning opportunities. The lack of federal spending means that states and localities are spending more because they see the economic and societal value in supporting the early learning of young children. In the *State Preschool Yearbook*, Friedman-Krauss and colleagues (2018) note that although states spent more on preschool in 2017 than in 2002, going from \$2.4 billion in 2002 to over \$7.6 billion in 2017, when adjusted for inflation per-child spending during this same period decreased. This reduction in per-child spending may be due to the attempt to increase access, which rose from 14% of the four-year-old state population served in 2002 to 33% in 2017.

Beyond macroeconomics, social and public policies also have implications for early-learning disparities and equity. For example, social policies about labor have implications for early learning, such as whether being an ECE teacher and provider should be considered a career, which in turn has implications for access to adequate compensation, benefits, federal funding, etc. Currently, a wide range of early childhood advocates, practitioners, and funders are focused on creating an economically sustainable professional pathway for those who teach and care for children from birth to age 8. If successful, these efforts could ensure that all children have access to highly qualified and well-compensated ECE providers. They could also lead to increased costs to families (and possibly to programs) to provide services to children. Other policies that effect early learning opportunities include standards for programs (e.g., licensing, group size, ratio, materials, curriculum, or assessment duration), workforce (e.g., credential,

bachelor's degree, or pre- and in-service hours), and eligibility (e.g., universal or targeted). Policies about housing, the workforce, transportation, the environment, and general education, to name a few, also have implications for early-learning disparities. For example, housing policies about what constitutes adequate living conditions, standards for renters and landlords, and availability of affordable housing, etc., affect children's well-being. Policies about affordable housing or the lack thereof could bear on who can live in a particular community. This impact may be particularly pronounced for low-resourced families. Coupled with transportation policies, such policies could impact a communities' ability to ensure that residents are gainfully employed, which affects the community's tax base—a potential source for early-learning funding.

When SDoEL is overlaid with critical race theory (CRT),² we can recognize that race and racism are enduring and pervasive in the U.S. and that power structures lead to systematic inequities (Matsuda, Lawrence, Delgado, & Crenshaw, 1993). Recognizing that race permeates the fabric of the U.S. and the lived experiences of minoritized groups, and finding ways to systematically address racism in education, including early learning, is pertinent to culturally responsive and sustaining practices and pedagogy. When we examine macroeconomic policies, such as housing and environmental policies, as well as their historical ramifications, we see that Black people and other people of color are often disenfranchised and marginalized. The U.S. policies that barred Black families from owning and renting in particular areas have resulted in Blacks living in segregated enclaves that are characterized by more poverty, crime, dilapidated housing, low-resourced schooling, low-quality air and water, and limited employment options. This residential segregation has had a detrimental impact on the opportunities of Black people for generations, including those who are highly educated and middle-class (Massey, Condran, & Denton, 1987). Segregation also affects early childhood. Over 50% of Black and Hispanic preschool children in public school-based programs attend racially segregated schools (Urban Institute, 2019). Reid, Kagan, Hilton, and Potter (2015, p. 5) note that “most children in public preschool programs attend economically segregated programs that are often segregated by race/ethnicity as well.” Studies have shown that programs serving high proportions of children of color and children from low-income homes are less enriching and engage in more routine-based activities (Early et al., 2010), further exacerbating early-learning disparities. Thus, the U.S. historical and contemporary culture of limited opportunities for children and families of color has lifelong implications for families' socioeconomic position, which directly impacts children's early learning and later outcomes, and the opportunities provided to them.

Families' socioeconomic position represents another structural determinant of early education; it includes social class, gender, ethnicity, education, occupation, and income, and is likely determined by the U.S. socioeconomic and political context. Policies about labor, employment, housing, and education, etc., have a direct impact on

² Critical race theory came out of legal scholarship that recognizes that racism is engrained in the fabric and system of the American society, that institutional racism is pervasive in the dominant culture, and that power structures are based on white privilege and white supremacy, marginalizing people of color and others due to sex, class, national origin, and sexual orientation.

families' socioeconomic position, and this impact varies based on their social class, gender, and ethnicity. For example, policies about the need for bachelor's degrees or higher for certain positions (e.g., teaching) could lead to stratification based on race and economic background; such stratification has long-term impacts, especially when many of these positions may have livable wages and salaries, benefits, and pensions. These policies are manifested in the education field. National data indicate that although minoritized children make up the majority of public school students, White teachers make up over 72% of the preschool and kindergarten teaching workforce (Black teachers make up 18% and Hispanic teachers even less; <https://datausa.io/profile/soc/252010/#demographics>). Taking a CRT perspective, the systematic barriers for people of color to access and afford higher education, which then influences the type of positions they are qualified for, shows how inequities are maintained through policies that directly impact access and opportunities for families of color and their children. Even when people of color qualify for particular positions, they are likely to earn less than their White counterparts. In the 2018 Early Childhood Workforce Index, Whitebook, McLean, Austin, and Edwards (2018) found that black center-based teachers are more likely than teachers from all other racial/ethnic groups to earn less than \$15 per hour, which has implications for their socioeconomic position. A pay rate of \$15 per hour results in an annualized salary of \$31,200 (without benefits), keeping one's income above the U.S. poverty threshold of approximately \$24,000 for a family of four.

► **Intermediary determinants of SDoEL**

Based on the conceptual framework of SDoEL, structural determinants influence individuals' and families' processes. For example, families' socioeconomic positioning affects their material circumstances (e.g., food, housing, and work conditions), behavior and biological functions, and psychosocial factors (e.g., stress). Scholars have found that families' investments and stressors are possible explanatory factors linking socioeconomic status to children's school readiness (Iruka, LaForett, & Odom, 2012; Mistry, Benner, Biesanz, Clark, & Howes, 2010; Raver, Gershoff, & Aber, 2007). Specifically, the family-investment model postulates that parents with more income, time, and education are able to provide enriching learning opportunities and resources that support children's learning. But families with fewer economic resources experience a lot of stress, which increases depression and detachment, minimizing the quality of interactions and relationships with their children and having a detrimental impact on children's development and learning.

Socioeconomic positioning is associated with early-learning disparities due to other factors and conditions in the environments in which children are born, live, learn, and grow up that affect the quality of their development and the risks they face. The social, economic, and physical conditions of children's homes, communities, and early-education settings affect children's learning opportunities. For example, children's economic condition determines the early-learning environments children can access. That is, the quality of children's environments at home or outside the home often determines the quality of the learning environments (e.g., safe, nurturing, and enriching) and interactions (e.g., responsive and language-rich) they are likely to experience. Higher-income families likely can afford better-quality environments (Barnett et al., 2018). In comparison to those with limited opportunities,

children who experience high-quality learning environments in their daily lives are likely to have better opportunities that set the foundation for school readiness and a better school trajectory. Access to other resources—such as safe and affordable housing, reliable transportation, employment, safe and nonviolent communities, healthy foods, health services, and environments free of life-threatening toxins—impacts families’ and children’s mental health and functioning, which in turn affects children’s learning and development trajectory over time. This pattern aligns with Bronfenbrenner and Morris’s (2007) bioecological framework, which emphasizes that children’s development hinges on multiple contexts and systems. Indeed, research has shown the interconnection between community contexts and child outcomes (e.g., Dupéré, Leventhal, Crosnoe, & Dion, 2010). First, “collective norms and socialization, as well as the relative level of stress and support in the neighborhood, are primary ways in which neighborhood characteristics may influence parenting and, in turn, achievement” (Dupéré et al., 2010, p. 3). Second, “community socioeconomic characteristics shape the composition and quality of local institutions whose mission revolves around children’s cognitive growth, such as child care and school, and that this, in turn, influences achievement. [In essence], neighborhood financial, human, and social capital all influence the strength and vitality of neighborhood learning institutions” (Dupéré et al., 2010, pp. 4-5).

HOW CAN THE SOCIAL DETERMINANTS OF EARLY LEARNING STRENGTHEN EARLY EDUCATION TO ADDRESS DISPARITIES?

To maximize the benefits of homes and communities and buffer children from negative factors, ECE environments, systems, and classroom environments can serve as intermediaries. That is, to reduce economic and racial disparities in the early years, ECE can serve as a place-based conduit and centralizing institution to ensure that children receive early-learning opportunities that take into account the structural determinants impacting their learning. In particular, ECE must attend to the racialized U.S. context, in which children from low-income households and minoritized children and their families face more challenges and inequities than higher-income and White children and families. Garcia Coll and colleagues (1996, p. 1895) emphasize the notion that to really deliver on the promise of early childhood to equalize opportunities for minoritized children, we must consider how environments like ECE can buffer children from the effects of low and marginalized socioeconomic positions (e.g., social class, gender, and ethnicity) that lead to segregated, inadequate communities caused by “pervasive social mechanisms of racism, prejudice, discrimination, and oppression.” Although individuals may have assets directly linked to children’s learning and development in the early years, we must acknowledge the systematic influences that set children’s trajectories based on factors outside their control (e.g., race/ethnicity, language, zip code, quality of child care, and ECE policies).

To reduce economic and racial disparities in the early years, ECE can serve as a place-based conduit and centralizing institution to ensure that children receive early-learning opportunities that take into account the structural determinants impacting their learning.

Thus, to truly ensure that all children have access to and equitably benefit from high-quality early-learning practices, and to address educational disparities, we need to consider these social determinants. We need to build on existing birth-to-age-five programs and systems with attention to SDoEL and how structural factors impact children's school readiness and later outcomes. Some of these programs and systems include home-visiting programs, birth-to-age-three programs (e.g., Early Head Start), and quality rating and improvement systems, which I discuss below.

► **Birth-to-age-three and home-visiting programs**

Evaluations of early intervention programs focused on infants and toddlers have shown mixed results, especially in regard to children's cognitive, language, and socioemotional outcomes. One example is Early Head Start (EHS), a two-generation program designed to provide high-quality child and family development services to low-income pregnant women and families with infants and toddlers. In 1996, the Early Head Start Research and Evaluation Project, involving 3,001 families at 17 sites, found some positive, albeit small effects for children's cognitive and receptive language. The program was found to have more favorable impacts on children's socio-emotional development in regard to their interactions, attention, and negativity with parents during play, as well as how aggressive their parents reported them to be. When children in EHS were examined two years later during the preschool years, evaluators still found significant impacts for socioemotional behaviors in the areas of behavior problems and approaches to learning; with the exception of a positive impact for Spanish-speaking children's receptive language, there were no other achievement-related outcomes.

The recent Home Visiting Evidence of Effectiveness study funded by the U.S. Department of Health and Human Services (<http://www.acf.hhs.gov/programs/ecd/home-visiting>) provides evidence of a positive and long-term impact from various home-visiting programs that focus on improving the quality of the home environment and increasing positive parenting. Over 30 home-visiting programs have been found to be evidence-based, as determined by at least two impact studies. The outcomes these home-visiting programs focus on included child health, child development and school readiness, family economic self-sufficiency, linkages and referrals, maternal health, positive parenting practices, reductions in child maltreatment and juvenile delinquency, family violence, and crime. Several of the programs' findings have been sustained over time and replicated with other samples, but we still need to ensure that these programs are lifting families and children out of poverty and setting them on a path to economic stability and life success (Avellar et al., 2016).

These birth-to-age-five programs produce the following evidence:

- starting sometime in the first five years of life is positive, especially for children from low-resourced households;
- home-visiting programs that start before or right after birth are beneficial for both children and parents across many outcomes;

- with the exception of small-scale, rigorously controlled early-intervention programs (e.g., Perry Preschool, Abecedarian), findings about the long-term impact of preschool/pre-K programs and the closing of the achievement gap have been limited and inconsistent; and
- many preschool programs show attenuation of findings over time, as early as the following year.

Various scholars have noted “fadeout” following these early experiences (Barnett, 2011). Some argue that fadeout is due to the minimal impact of early-childhood experiences (Whitehurst, 2013), while others suggest that it may represent a “catching up” of those who did not experience high-quality early education, or that there may be a “sleeper effect” of persistent impact evident later in life (Barnett, 2011). For example, some have argued that the impact of early-childhood programs such as Head Start may not be sustained because of the low-quality schools that Head Start children are likely to transition into (Currie & Thomas, 2000; Garces, Thomas, & Currie, 2002). Another theory is that teachers are focusing on children with the lowest skills to help them catch up, and these may be children who did not experience high-quality early learning. Fadeout indicates a need for continued alignment of educational programs beyond five years (e.g., birth-to-8 initiatives), but could also indicate that the things most predictive of school and life are not appropriately captured (e.g., persistence or social-emotional learning; Heckman & Karakapula, 2019).

► Prenatal to grade 3³

Research tells us that the brain develops most rapidly in the earliest years; that enriching early-learning experiences are critical for children’s long-term success (Shonkoff et al., 2012); and that longer-term benefits and outcomes both for the child and for society are seen with multi-year, high-quality programs across the early grades, at least based on small controlled studies (Vandell et al., 2010). The National Research Council Report From Neurons to Neighborhoods (Shonkoff & Phillips, 2000) makes the compelling case that the earliest years—birth through the primary grades—are critical to the long-term educational and life success of all children. And evidence suggests that if quality interventions and programming are provided, gains in cognitive and socioemotional skills may be greatest for children who are farthest behind (Reynolds, Temple, Ou, Arteaga, & White, 2011; Shonkoff et al., 2012). As I discuss above, evaluations from early intervention programs show that starting early does matter, especially with home-visiting and high-quality early education programs. With the exception of small longitudinal studies, there have been mixed findings regarding the longer-term impact of preschool programs⁴ or birth-to-age-five programs. Thus, as a way to consolidate the impact of high-quality early experiences, especially for children placed at risk for poor

³ “PreK-3rd Grade” is used interchangeably with “P-3.” Both terms are intended to reflect the importance of aligning across birth-to-five (0-5) and K-12 classrooms and systems.

⁴ We use preschool to denote programs or services provided to children from birth to age 5. Pre-k is used to refer to programs offered to four-year-old children or a year prior to children’s entry into kindergarten.

outcomes, the field has focused on alignment between preschool and the early elementary years (Ma, Shen, Krenn, Yuan, & Hu, 2015). This has resulted in many programs, strategies, and initiatives focused on prenatal to grade 3 (P-3) to better align “education practices (teachers), education policies (principals), and education standards (curriculum, instruction, assessment, and professional development) [and] make horizontal connections within each grade level and vertical connections across different grade levels in order to create seamless logical transitions that ensure academic and social success for students” (Ma et al., p. 1069). An indication of this approach is also seen in the establishment of the National P3 Center: “[T]he vision for P-3 approaches is to improve the quality and coherence of children’s learning opportunities, from the experiences children have in early learning (including pre-K, Head Start, child care, and other early-learning opportunities before—or “pre”—formal entry into school) and extending through elementary school” (<http://depts.washington.edu/pthru3/>). The premise for P-3 is that coherent, high-quality instructional approaches across this age-and-grade span will result in positive outcomes for children throughout their early years, and an increased likelihood that children will be minimally on track by the end of third grade toward school and life success.

► **Quality rating and improvement systems**

The fact that most children are likely to be in community-based programs, especially home-based and informal settings, suggests a need to establish early-learning systems that systematically address the structural determinants of early-learning inequities and disparities. The desire to ensure that all early learning programs are of high quality by operating under the same standards and expectations has led to the implementation of quality rating and improvement systems (QRISs). In developing these systems, state and local policymakers have used research linking high-quality early childhood education and children’s outcomes in developing QRISs. The idea is to ensure that all children, especially disadvantaged children, are attending high-quality education programs during their early years. Nearly all state QRISs measure staff training and education and assess the classroom or learning environment. States differ on whether and to what extent they include parent-involvement activities, business practices, child-staff ratios, or national-accreditation status. QRISs serve multiple purposes, one of which is to provide a standard way to rate program quality based on multiple criteria and make that information available to parents. The assumption underlying this function of a QRIS is that parents often lack good information about program quality and that if such information were available, they would be more likely to choose higher-rated programs. As a result, lower-quality providers would have an incentive to either improve the quality of their program or to leave the market (Zellman & Perlman, 2008). Also, QRISs represent a systematic approach to providing a range of technical assistance, resources, and incentives for programs to improve quality. Such efforts include consultation around quality improvement, increased investments for professional development scholarships, microgrants for other targeted quality-improvement efforts, and in some instances higher levels of subsidy payments for more highly rated programs. The goal is to foster and support providers’ efforts to improve the quality of care they provide. Thus, QRISs attempt to improve quality by affecting both the demand for high-quality care and the supply of such care.

Of course, their success rests on their ability to accurately identify and measure key aspects of quality and on the willingness of providers to participate in a rating system (Zellman & Perlman, 2008).

The evidence that QRISs lead to better program quality, child growth, and school readiness is mixed. A recent compilation of validation studies from 10 states found the following (Tout et al., 2017):

- (a) levels of quality in the medium range;
- (b) significant, albeit small associations between ratings and observed quality in center-based programs, with differences in the areas of environments, interactions, and activities in ECE programs at different rating levels;
- (c) ratings generally distinguish between lower and higher quality, but no support for the idea that each level of a QRIS reflects a meaningful difference in quality from other levels; and
- (d) inconsistent evidence of small positive associations between QRIS measures and child outcomes, mostly for ratings of social-emotional development and assessment of executive function.

The differences in system designs across states make it difficult to draw general conclusions from the eclectic validation studies. Furthermore, most of the states have few programs in the highest level of quality, resulting in two categories of quality, low and high, that may impact the links to child outcomes. Other limitations include the focus on three- and four-year-old children compared to infants and toddlers within a small time frame of about six months; the need for other measures of children's learning and development; limitations of quality measures that may need more calibration and refinement of area; and use of classrooms to indicate center-level quality.

QRISs have the potential to be a conduit for early learning, family support, and health and well-being to ensure that children of color, children from low-income households, and children from other marginalized communities have equitable opportunities to thrive and be successful. But many QRISs are voluntary, indicating that most programs serving children with high needs may not participate unless mandated (e.g., as part of a subsidy system). Programs with the highest standards and best workforces may not participate in a system that is accessible by many families of color or low-income families. Last, the standards in QRISs have not been considered with the SDoEL framework in mind. For example, how are the standards ensuring that these systems are not privileging certain groups and penalizing others? Are programs serving children who have the greatest needs and who are in the neediest communities being provided with resources to meet their needs? To what extent is segregation being addressed to ensure that families have diverse high-quality choices to meet their needs and ensure their children are excelling?

SETTING A RESEARCH PRACTICE-POLICY AGENDA FOR ECE PROGRAMS AND SYSTEMS TO DELIVER ON THE PROMISE TO PROVIDE EQUITABLE OPPORTUNITIES USING THE SDOEL FRAMEWORK

(1) ECE research must consider racism and discrimination using the SDoEL framework. For too long, most ECE research has indicated that many children of color and children from low-income households are not prepared for school and need early care and education programs. Unfortunately, most of the research, especially about children of color and their families, has been done with a deficit perspective, without consideration for the social determinants that lead to the disparities witnessed even after interventions. The results have often shamed and blamed children, families, and communities for low scores on language and cognitive assessments without considering the historical legacy of racism and discrimination and white supremacy that couches all aspects of early learning. Not even minimal consideration has been given to the resilience and perseverance of children of color and their families, who continue to thrive even when they are subjected to systems and institutions that limit their opportunities and don't consider their assets. When it comes to minoritized populations, are we asking and answering the right questions in the right way? Are there areas in which children of color and other marginalized groups are overperforming that are not considered or addressed (e.g., oral language and storytelling, or bilingualism and biculturalism)? For instance, one would assume that children who have to learn to operate one way at home and another way at school must have strong cognitive skills, but these skills are not captured in discrete assessments, nor is credit given for children who have a home language or dialect and then have to switch to another dialect and language in other settings. Thus, in addition to examining how ECE can help minoritized and marginalized children, research needs to examine how structures and policies promote or hinder families' and communities' ability to thrive and promote children's learning. Research can also help determine what standards can ensure that all children equitably thrive, rather as opposed to standards based solely on Eurocentric ideals of what is good and appropriate. A sole focus on what occurs in the classroom without an understanding of how macrosystems and policies impact it does not help increase ECE's impact—hence the importance of the SDoEL framework to guide research studies.

(2) Engage in cross-sector collaboration with the SDoEL framework. Inequities and disparities are not created because parents are “lazy” or “uncaring.” Rather, structural features work in concert to impinge on the abilities and processes of families and communities; these features include policies that increase poverty and reduce economic mobility, housing and education patterns that maintain low-income segregation, and limited transportation options that restrict the ability to find and maintain employment. Thus, while parents may be able to support their child's healthy development and learning, factors beyond their control (e.g., economic stress, community safety, environmental toxins, or unstable and non-standard unemployment) may limit this ability. As with health disparities, similar structural and process determinants

lead to early-learning disparities and inequities. The root causes of these disparities and inequities often lie in historical and contemporary policies and structures (e.g., education, housing, employment, health systems, public safety, income, and wealth), and some of them are vestiges of U.S. institutional racism. These root causes have not been focused on or studied in ECE research. Although early-learning programs and systems have been shown to mitigate some challenges in the home environment by providing children with consistent, sensitive, and cognitively enriching learning opportunities, such opportunities are not always accessible or of high quality, especially for low-income and minoritized groups, and especially for Black children. Thus, we need to examine how supports can be effective for children and their families, for example, by understanding how health systems and family systems interact with ECE systems to promote positive and optimal child development and learning.

Potential steps for engaging in cross-sector collaboration:

- build a coalition with multiple agencies and organizations that intersect with the SDoEL (e.g., family support, early learning, education, housing, workforce, child welfare, and criminal justice)
- identify coalition leaders and potential ways to integrate work into current funding or organization infrastructure
- determine collective impact outputs (e.g., healthy and safe early childhood, kindergarten readiness, third-grade reading, family stability, diverse schools, livable wages, and affordable housing)
- develop a data process and system to monitor challenges and changes
- develop a continuous quality improvement process at multiple levels
- develop policy changes aligned with communication strategy and resource needs

(3) Using the SDoEL framework for ECE systems and workforce. The bulk of this chapter focuses on the social determinants experienced by families. But we need to recognize that the ECE workforce is also impacted by the same systems that lead to early-learning disparities. Studies have shown that many ECE professionals, particularly those working in community-based programs, are living at or below the poverty level and seek social benefits and services similar to those sought by the families they serve. Thus, they are likely experiencing economic stress and poverty, which affect the quality of their interactions with children and the instruction they provide in the classroom, as well as turnover (i.e., instability), which has also been associated with quality. Poverty and stress are more likely to impact ECE professionals who are members of historically marginalized groups and, by extension, children of color and those from low-income households. Furthermore, these programs and providers may have less access to resources. Rather than focusing solely on the challenges experienced by children in programs and schools, we also need to pay attention to the challenges experienced by ECE professionals.

This means that ECE programs and systems may need to examine the demographic makeup not only of children and families, but also of educators and leaders. It may also mean advocating for more resources for programs, as well as economic resources for ECE professionals, to ensure that social determinants are not being perpetuated throughout the system. For example, the Early Childhood Workforce Index (Whitebook et al., 2018) indicates that teacher assistants and teacher aides closely mirror the children they serve in race, ethnicity, and language, in comparison to lead teachers and education leaders. These lower-level positions, while important for children’s experiences, also maintain a status quo that preserves inequities in families and communities of color. Thus, we should pay attention to leadership opportunities in ECE programs, schools, and systems, for many reasons. One is the need to have diversity of minds and experiences to strengthen programs and schools, and to create a different narrative about the value of people of color; another is to ensure that upward mobility is equitably available.

(4) Integrating CRT and culturally responsive pedagogy (CRP) in early-learning systems and programs.

Because economic and racial disparities are part of the social and educational challenges of our lifetime, we need to understand how early-learning systems and programs could help alleviate some of the root causes that maintain inequities. Because the lives and learning styles of children of color are often marginalized, early learning program leaders and educators could fruitfully examine the extent to which programs, schools, and systems can better incorporate CRT and CRP in their standards, assessments, curricula, learning-environment structures, policies, accountability systems, quality indicators, etc. It is critical that early-education systems, programs, and educators eliminate racism and inequities in structures and processes. Important questions include: Whose standards are we using, and what is the evidence and relevance for underserved and marginalized children? For example, does emotional support look the same across different communities? How does bias look in observational assessments?

Early learning is viewed as a potential strategy to mitigate gaps by income and race/ethnicity. But at the rate we are going, it would take about 100 years to eliminate the achievement gap, and even that is not guaranteed. Racism, discrimination, and inequities are complex issues. As more children are living in low-income homes, especially among minoritized populations, the challenges of living in low-resourced and historically segregated communities affect children’s early learning and eventually their later development. With minoritized children becoming the majority, early-learning programs and systems need to consider whether and how ECE programs and systems are integrating a culturally responsive perspective that rejects bias. This perspective is particularly important when studies continue to show that links between classroom quality and child outcomes are minimal—possibly because we have paid too little attention to how individual children—especially underserved and marginalized children whose culture and lived experiences are often not considered in ECE programs’ and schools’ curriculum—are experiencing the learning environment. For example, how is the lived experience of a Black boy in the rural South considered in the

implementation of curricula, activities, literacy tools, interactions, and assessments? Or is it assumed that all children just require the same amount and type of sensitive and cognitively enriching interactions and instructions, without acknowledging their health, family and home condition, community environment, or narrative about their race or neighborhood? Even more important, what roles do racism and discrimination play in the lives and early-learning experiences of minoritized children, and their later outcomes? Understanding and clarifying the empirical links between racism and discrimination could set the course toward ensuring that programming and practices consider these issues in all aspects, in the same way that trauma-informed care addresses toxic stress. One can't address what one does not fully acknowledge.

With this perspective in mind, Brown-Jeffy and Cooper (2011) propose a culturally relevant pedagogy that ECE professionals should consider in all aspects of their work. The model comprises five themes: (1) Identity and Achievement, (2) Student Teacher Relationships, (3) Equity and Excellence, (4) Developmental Appropriateness, and (5) Teaching the Whole Child. It requires teachers to understand cultural differences between them and their students, as well as their own potential biases and stereotypes about their students.

In the Identity and Achievement area, the authors stress the notion that everyone has a multicultural identity; however, race plays a central role in many people's identities. Thus, we have to recognize the stereotype or bias about individuals from an ethnic minority group and how that may impact the quality of instruction and interaction; we also need to recognize the importance and value of affirming different cultures and lived experiences.

The Student Teacher Relationship is the mechanism that supports children's active engagement in a classroom or program, especially when children spend many hours per day over months and years with the same teacher or teachers. These relationships create a classroom culture that extends into children's lives, shaping how they view and interpret the world, others, and themselves. Equity and Excellence focuses on the notion that teachers (and systems) have to provide what children and families need in multiple forms, rather than focusing solely on equality.

Developmental Appropriateness emphasizes children's learning zones (what they have mastered and are on the verge of mastering) and considers the assets children bring as well as an understanding of how the remnants of racism may impact and influence children's learning and development (e.g., viewing children's home language, such as African American English vernacular, as evidence of unintelligence). Teaching styles should be integrated with children's learning styles, and teachers should be aware that some children's learning styles may not be viewed favorably from a noninclusive white, Eurocentric perspective.

Last, *Teaching the Whole Child* emphasizes the importance of recognizing that culture in all aspects of children’s systems—from the home to the community to society—causes them to receive, respond, perceive, and prioritize meaning and behavior in different ways. In essence, “teaching the whole child will require not only that teachers recognize, understand, and intentionally acknowledge cultural group behaviors, but also observe and interact with students as individuals” (p. 77). With this framework in mind, research can help ascertain the extent to which these five themes enhance minoritized children’s educational experience.

(5) Implementation should consider the quality of inputs and structures. Due to their various root causes, early-learning disparities are complex. They require a complementary, cohesive system and approach that asks the right questions, conducts the right research, and implements the evidence in a cohesive way. At present, advantaged families can access programs and schools that provide high-quality, personalized instruction with highly educated, stable, and cognitively stimulating educators. These families can also create separate learning systems, schools, and programs that maintain privilege and the status quo. For example, Montessori and Reggio-inspired programs are often found in highly-affluent communities, though these pedagogical approaches were created for children from low-income and challenged families. In these programs, teachers are expected to be fully credentialed, with at least a bachelor’s degree, and go through several years of preservice practicums with continued in-service work to maintain their credentials. Most teachers stay for decades, and their leaders often embrace the autonomous nature of teaching and create an affirming and comfortable work environment. A level of standards is expected regardless of state, city, or locality, and families are willing to pay the necessary amount for such an educational experience. Alternately, publicly funded programs and schools are subject to federal and local policies and funding, as well as standards that may not take into account the needs of communities and families or the available resources or capacities. Most early learning programs cannot afford the highest quality staff, or the resources needed to ensure that quality is sustained over time, especially with their relatively high turnover rates. Although we have evidence-based curricula, we have no general pedagogy about how best to teach and support young children, especially children with diverse needs, learning styles, and experiences. Early-learning standards and expectations vary across and within states, creating further challenges about what it takes to create and maintain a high-quality early learning system and program. Even the measures and systems created don’t provide precision about the actual quality of a program and how to increase it.

Rather than focusing on points and ratings—although they may be helpful for communicating with families, educators, and policymakers—we need to focus on the quality and capacity of the workforce to provide equitable learning opportunities. We need national standards about what early learning should and can be expected to provide across diverse settings and groups. We need to gauge the cost per child of providing quality early-learning experiences and ensuring that equity rather than equality is the approach taken with funding and resources. We need to encourage systems to align workforce, resources, and data to meet the needs of children’s learning and development. Implementation of high-quality early learning

should focus not only on classroom instruction, but also on the infrastructure that supports processes, including leadership, funding, standards and regulation, data, and partnerships across programs. We should pay attention to how these factors create barriers to or disincentives for equitable early-learning opportunities. For example, do licensing or standards ban blended classrooms or mixed ages, which may be beneficial for some groups of children and have implications for the types of programs that would be allowable? Should these programs be expected to prevent or reduce learning disparities prior to formal school entry in isolation?

CONCLUSION

Early learning is a promising approach, but it is impacted by social determinants that maintain inequities and thus ensure disparities. These structural factors limit resources and supports that directly impact children's outcomes, especially for low-income and minoritized children and their families. The return on investment and effectiveness of early-learning programs were primarily established with Black children; however, Black children are still likely to perform more poorly on almost every marker of learning and optimal development than their White peers. Furthermore, they are likely to experience an intractable cycle of racism and discrimination that has not been fully fleshed out and examined in ECE research. To truly ameliorate early learning inequities and disparities, we must recognize systems that invisibly maintain and perpetuate inequities from housing to education; build cross-sector collaboration and partnership through a racial equity–research lens; and develop a collective birth-through-elementary school (if not, arguably, birth-through-career) strategy to ensure that all children, regardless of race, ethnicity, language, gender, or community, have the opportunity to reach their potential. Early-learning programs and systems are the first formalized institutions that children and their families likely experience; thus, they should take charge in creating a culture that ensures racism and inequities are considered and addressed, in coordination with other sectors.

For ECE programs to meet these expectations, the ECE field has to engage in more thoughtful, meaningful, and racially responsive research focused on understanding the causes and solutions for learning disparities and gaps. This will require the ECE research community to take an equity perspective that includes diverse voices and perspectives—especially those from minoritized communities—to examine how social and structural determinants impact children's outcomes. Although researchers may be interested in microlevel factors, such as classrooms and families, we need a critical examination of how macrostructures and policies may impact such microlevel systems and thus children's outcomes. The “color-blind” approach to research by “controlling” for race, ethnicity, language, and gender must be minimized because it undermines experiences based on these social markers. Furthermore, scholars must undertake interdisciplinary ECE research that engages multiple sectors (e.g., education, health, social work, and workforce development) and disciplines (neurobiology, public health, urban planning, economics, medicine, and implementation science). The solution to pernicious disparities and inequities must be thoughtful, with attention to history and with collaboration from multiple disciplines. All children deserve to start off right and have an equitable opportunity to learn and thrive.

References

- Atkinson, L., Beitchman, J., Gonzalez, A., Young, A., Wilson, B., Escobar, M., . . . Villani, V. (2015). Cumulative risk, cumulative outcome: A 20-year longitudinal study. *PLoS ONE*, 10(6), e0127650. doi: 10.1371/journal.pone.0127650
- Aud, S., Fox, M.A., & KewalRamani, A. (2010). *Status and trends in the education of racial and ethnic groups (NCES 2010-015)*. U.S. Department of Education, National Center for Education Statistics. Washington, DC: U.S. Department of Education, National Center for Education Statistics.
- Avellar, S., Paulsell, D., Sama-Miller, E., Grosso, P.D., Akers, L., & Kleinman, R. (2016). *Home visiting evidence of effectiveness review: executive summary*. Washington, DC: U.S. Department of Health and Human Services, Administration for Children and Families, Office of Planning, Research and Evaluation.
- Barnett, W.S. (2011). Effectiveness of early educational intervention. *Science*, 333(6045), 975-978. doi: 10.1126/science.1204534
- Barnett, W.S., Carolan, M., & Johns, D. (2013). *Equity and excellence: African-American children's access to quality preschool*. New Brunswick, NJ: Rutgers University, National Institute for Early Education Research, Center on Enhancing Early Learning Outcomes.
- Barnett, W. S., Hustedt, J.T., Friedman, A.H., Boyd, J.S., & Ainsworth, P. (2007). *The state of preschool: 2007 state preschool yearbook*. New Brunswick, NJ: Rutgers University, National Institute for Early Education and Research.
- Barnett, W.S., Jung, K., Friedman-Krauss, A., Frede, E.C., Nores, M., Hustedt, J.T., ... & Daniel-Echols, M. (2018). State Prekindergarten Effects on Early Learning at Kindergarten Entry: An Analysis of Eight State Programs. *AERA Open*, 4(2), 2332858418766291. doi: 10.1177/2332858418766291
- Bronfenbrenner, U., & Morris, P.A. (2007). The bioecological model of human development. In R.M. Lerner (Ed.), *Handbook of Child Psychology* (pp. 793-828). New York, NY: Wiley.
- Brown-Jeffy, S., & Cooper, J.E. (2011). Toward a Conceptual Framework of Culturally Relevant Pedagogy: An Overview of the Conceptual and Theoretical Literature. *Teacher Education Quarterly*, 38(1), 65-84.
- Camilli, G., Vargas, S., Ryan, S., & Barnett, W.S. (2010). Meta-analysis of the effect of early education interventions on cognitive and social development. *Teachers College Record*, 112(3), 579-620.
- Cunha, F., & Heckman, J.J. (2008). Formulating, identifying and estimating the technology of cognitive and noncognitive skill formation. *Journal of Human Resources*, 43(4), 738-782.
- Currie, J., & Thomas, D. (2000). School quality and the longer-term effects of Head Start. *Journal of Human Resources*, 35(4), 755-774.
- DeNavas-Walt, C., Proctor, B.D., & Lee, C.H. (2006). *Current population reports: Income, poverty, and health insurance coverage in the United States: 2005*. Washington, DC: U.S. Census Bureau.
- Dupéré, V., Leventhal, T., Crosnoe, R., & Dion, É. (2010). Understanding the positive role of neighborhood socioeconomic advantage in achievement: the contribution of the home, child care and school environments. *Developmental Psychology*, 46(5), 1227-1244. doi: 10.1037/a0020211
- Early, D.M., Iruka, I.U., Ritchie, S., Barbarin, O.A., Winn, D.-M. C., Crawford, G.M., ... & Pianta, R.C. (2010). How do pre-kindergarteners spend their time? Gender, ethnicity, and income as predictors of experiences in pre-kindergarten classrooms. *Early Childhood Research Quarterly*, 25(2), 177-193. doi: 10.1016/j.ecresq.2009.10.003
- Edelstein, S., Hahn, H., Isaacs, J., Steele, E., & Steuerle, C.E. (2016). *Kids' Share 2016: Federal Expenditures on Children Through 2015 and Future Projections*. Washington, DC: Urban Institute.
- Friedman-Krauss, A.H., Barnett, W.S., Weisenfield, G.G., Kasmin, R., DiCrecchio, N., & Horowitz, M. (2018). *The State of Preschool 2017: State Preschool Yearbook*. New Brunswick, NJ: Rutgers University, National Institute for Early Education and Research.

- Garces, E., Thomas, D., & Currie, J. (2002). Longer-term effects of Head Start. *The American Economic Review*, 92(4), 999-1012.
- García Coll, C.T., Lamberty, G., Jenkins, R., McAdoo, H.P., Crnic, K., Wasik, B.H., & García, H.V. (1996). An integrative model for the study of developmental competencies in minority children. *Child Development*, 67(5), 1891-1914. doi: 10.1111/j.1467-8624.1996.tb01834.x
- Hanson, J.L., Hair, N., Shen, D.G., Shi, F., Gilmore, J.H., Wolfe, B.L., & Pollak, S.D. (2013). Family poverty affects the rate of human infant brain growth. *PLoS ONE*, 8(12), e80954. doi: 10.1371/journal.pone.0080954
- Heckman, J.J., & Karapakula, G. (2019). *The Perry Preschoolers at late midlife: A study in design-specific inference*. Chicago, IL: University of Chicago.
- Hernandez, D.J., Denton, N.A., & Macartney, S.E. (2008). Children in immigrant families: Looking to America's future. *Social Policy Report*, 22(3), 3-22.
- Humphries, M.L., & Iruka, I.U. (2017). Ring the alarm: Moving from educational gaps to educational opportunities for black students. In I.U. Iruka, S.M. Curenton, & T.R. Durden (Eds.), *African American children in early childhood education: Making the case for policy investments in families, schools, and communities* (15-34). Bingley, UK: Emerald Group Publishing Limited.
- Iruka, I.U., LaForett, D.R., & Odom, E.C. (2012). Examining the validity of the family investment and stress models and relationship to children's school readiness across five cultural groups. *Journal of Family Psychology*, 26(3), 359-370. doi: 10.1037/a0028290
- Jeon, L., Buettner, C.K., & Hur, E. (2014). Family and neighborhood disadvantage, home environment, and children's school readiness. *Journal of Family Psychology*, 28(5), 718-727. doi: 10.1037/fam0000022
- Koball, H., & Jiang, Y. (2018). *Basic Facts about Low-Income Children under 9 Years, 2016*. New York, NY: National Center for Children in Poverty.
- Luby, J., Belden, A., Botteron, K., Marrus, N., Harms, N. P., Babb, C., ... & Barch, D. (2013). The effects of poverty on childhood brain development: The mediating effect of caregiving and stressful life events. *JAMA Pediatrics*, 167(12), 1135-1142. doi: 10.1001/jamapediatrics.2013.3139
- Ma, X., Shen, J., Krenn, H.Y., Yuan, J., & Hu, S. (2015). The role of system alignment in care and education of children from birth to grade 3. *Early Child Development and Care*, 185(7), 1067-1087. doi: 10.1080/03004430.2014.978310
- Massey, D.S., Condran, G.A., & Denton, N.A. (1987). The effect of residential segregation on black social and economic well-being. *Social Forces*, 66(1), 29-56. doi: 10.1093/sf/66.1.29
- Matsuda, M., Lawrence, C., Delgado, R., & Crenshaw, K. (1993). *Words that wound: Critical race theory, assaultive speech, and the first amendment*. Boulder, CO: Westview Press.
- McFarland, J., Hussar, B., Wang, X., Zhang, J., Wang, K., Rathbun, A., ... & Mann, F.B. (2018). *The condition of education 2018 (NCES 2018-144)*. Washington, DC: Institute of Education Sciences.
- McKinsey & Company. (2009). *The economic impact of the achievement gap in America's schools*. Washington, DC: Author.
- McLoyd, V.C., & Wilson, L. (1990). Maternal behavior, social support, and economic conditions as predictors of distress in children. In V. McLoyd & C.A. Flanagan (Eds.), *Economic stress: Effects on family life and child development* (50-67). San Francisco, CA: Jossey-Bass.
- Meyers, M.J., & Jordan, L.P. (2006). Choice and accommodation in parental child care decisions. *Community Development: Journal of the Community Development Society*, 37(2), 53-70.
- Mistry, R.S., Benner, A.D., Biesanz, J.C., Clark, S.L., & Howes, C. (2010). Family and social risk, and parental investments during the early childhood years as predictors of low-income children's school readiness outcomes. *Early Childhood Research Quarterly*, 25(4), 432-449. doi: 10.1016/j.ecresq.2010.01.002

CHAPTER 3 USING A SOCIAL DETERMINANTS OF EARLY LEARNING FRAMEWORK TO ELIMINATE EDUCATIONAL DISPARITIES AND OPPORTUNITY GAPS

- Pungello, E.P., Kainz, K., Burchinal, M., Wasik, B.H., Sparling, J.J., Ramey, C.T., & Campbell, F. A. (2010). Early educational intervention, early cumulative risk, and the early home environment as predictors of young adult outcomes within a high-risk sample. *Child Development, 81*(1), 410-426. doi: 10.1111/j.1467-8624.2009.01403.x
- Raver, C.C., Gershoff, E.T., & Aber, J.L. (2007). Testing equivalence of mediating models of income, parenting, and school readiness for white, black, and Hispanic children in a national sample. *Child Development, 78*(1), 96-115. doi: 10.1111/j.1467-8624.2007.00987.x
- Reardon, S.F., & Portilla, X.A. (2016). Recent trends in income, racial, and ethnic school readiness gaps at kindergarten entry. *AERA Open, 2*(3), 1-18. doi: 10.1177/2332858416657343
- Reid, J.L., Kagan, S.L., Hilton, M., & Potter, H. (2015). *A better start: Why classroom diversity matters in early education*. Washington, DC: Poverty & Race Research Action Council and The Century Foundation. Retrieved from <https://files.eric.ed.gov/fulltext/ED571023.pdf>
- Reynolds, A.J., Temple, J.A., Ou, S.-R., Arteaga, I.A., & White, B.A.B. (2011). School-based early childhood education and age-28 well-being: Effects by timing, dosage, and subgroups. *Science, 333*(6040). doi: 10.1126/science.1203618
- Shonkoff, J. P., Garner, A. S., The Committee on Psychosocial Aspects of Child Family Health, C. o. E. C., Adoption, Dependent Care, Section on Developmental Behavioral Pediatrics, Siegel, B. S., Dobbins, M. I., Earls, M. F., . . . Wood, D. L. (2012). The lifelong effects of early childhood adversity and toxic stress. *Pediatrics, 129*(1), e232-e246. doi:10.1542/peds.2011-2663
- Shonkoff, J. P., & Phillips, D. (2000). *From neurons to neighborhoods: The science of early childhood development*. Washington, DC: National Academy Press.
- Smith, I. E. (2016). *Minority vs. minoritized: Why the noun just don't cut it*. Retrieved November 16, 2019 from <https://www.theodysseyonline.com/minority-vs-minoritize>.
- Tout, K., Magnuson, K., Lipscomb, S., Karoly, L., Starr, R., Quick, H., ... & Wenner, J. (2017). *Validation of the quality ratings used in quality rating and improvement systems (QRIS): A synthesis of state studies*. OPRE Report #2017-92. Washington, DC: U.S. Department of Health and Human Services, Administration for Children and Families, Office of Planning, Research and Evaluation.
- U.S. Department of Health and Human Services. (2010). *Head Start impact study. Final Report*. Washington, DC: Author.
- Urban Institute. (2019). *Segregated from the start: Comparing segregation in early childhood and K-12 education*. Washington, DC: Author.
- Vandell, D.L., Belsky, J., Burchinal, M., Steinberg, L., Vandergrift, N., & NICHD Early Child Care Research Network. (2010). Do effects of early child care extend to age 15 years? Results from the NICHD Study of Early Child Care and Youth Development. *Child Development, 81*(3), 737-756. doi: 10.1111/j.1467-8624.2010.01431.x
- Whitebook, M., McLean, C., Austin, L.J.E., & Edwards, B. (2018). *Early Childhood Workforce Index*. Berkeley, CA: University of California, Berkeley, Center for the Study of Child Care Employment.
- Whitehurst, G. J. (January 16, 2013). Can we be hard-headed about preschool? A look at Head Start. Brown Center Chalkboard Series. Retrieved from <https://www.brookings.edu/research/can-we-be-hard-headed-about-preschool-a-look-at-head-start/>
- Zellman, G.L., & Perlman, M. (2008). *Child-care quality rating and improvement systems in five pioneer states*. Santa Monica, CA: RAND Corporation.