Academic Achievement and the Lives of Children:
Social Determinants of Educational Inequalities

Executive Summaries

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Noncognitive Skills and the Socioeconomic Achievement Gap
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In the 1960s, early childhood education programs aimed to boost cognitive ability of economically disadvantaged children in an effort to close achievement gaps prior to school entry. However, researchers have since gained a greater appreciation for the importance of noncognitive skills in accounting for disparities in academic achievement, educational attainment and economic success. Noncognitive skills encompass a wide range of attributes and are broadly and inconsistently defined. Often, the term refers to any skills aside from cognitive ability, which is typically equated with IQ. Attributes that fall into the realm of noncognitive skills include personality traits, such as extraversion, conscientiousness, and neuroticism, and other characteristics including self-concept, locus of control, and self-esteem. In children, the definition of noncognitive skills tends to also include more explicitly behavioral traits, such as the ability to sit still and pay attention. Although socioeconomic disparities in noncognitive skills appear early in life and do not typically close, studies show that these skills are malleable through adolescence. Interventions aimed at enhancing the noncognitive skills of disadvantaged children at a young age provide a promising way to close the socioeconomic achievement gap.

Noncognitive skills and the socioeconomic achievement gap

Socioeconomic disparities in both cognitive and noncognitive skills surface as early as 4 to 6 years of age and typically persist from there on out. The greatest disparity is seen in math skills, where first graders in the lowest quintile of socioeconomic status (SES) score 1.3 standard deviations below their peers in the top quintile. As for noncognitive skills, teachers rate low-SES children two-thirds of a standard deviation lower than their high-SES peers on attention and engagement. They also rate low-SES children one-fourth of a standard deviation higher than high-SES children on measures of antisocial behavior. These gaps do not tend to close once they have appeared, but early childhood interventions have successfully decreased the size of these disparities before they are established. Because noncognitive skills contribute substantially to both achievement test scores and grades beyond the effects of cognitive skills, equalizing noncognitive skills across socioeconomic groups will, in turn, decrease the achievement gap.

Successful interventions

Historically, interventions that worked to improve skills early in life focused explicitly on improving cognitive ability. Although enhancing noncognitive ability was not a goal, the greatest effects of these programs were actually their improvement of noncognitive skills. The Perry Preschool Project, implemented in the 1960s, is a prominent early childhood intervention, which has been studied and imitated in the decades since its completion. Some current early childhood programs resemble Perry, implementing curricula that have a strong focus on language as well as the stimulation and development of skills. These programs also work to emulate an environment that middle class children are more likely to be experiencing in their homes, which greatly shapes their noncognitive skills prior to school entry.
An important way that more recent programs differ from Perry is that they serve far more children. For instance, the Boston Public School district’s pre-K program for disadvantaged children was designed to reduce socioeconomic gaps in achievement and high school completion. The program focuses specifically on improving executive function and negotiation skills, both of which economically disadvantaged children tend to lack when entering Kindergarten. Boston’s program also places a high value on hiring well-trained, qualified teachers, as did Perry.

Although there is no conclusive evidence on the long-term effects of more recent programs, the effects of Perry suggest that early childhood interventions are promising. Whereas only 45% of students who did not participate graduated from high school, 66% of students who participated in Perry received their diploma. Participants also earned higher test score, with 49% of students who participated scoring at or above the lowest 10th percentile of the California Achievement Test in comparison to only 15% of students who did not. Given the similarity of their structures and curricula, these larger scale programs that are currently in place are likely to help diminish the achievement gap as well. Early short-term evidence suggests that the Boston Pre-K program may also have positive effects, as it has already been able to close more than half of the socioeconomic achievement gap upon kindergarten entry.

Costs of interventions

In 2014 dollars, Perry had an approximate yearly cost of $11,110 per pupil. The Boston Pre-K program falls within the same range, at approximately $12,000 per student. Most of these expenses go toward paying the salaries of teachers and classroom aides, so they could not easily be decreased while maintaining a small class size. Given these costs, it may be impractical to implement such programs universally. Still, cost-benefit analyses show that there is a substantial payoff in the long run, because children who participate in these programs later have lower rates of welfare dependence and involvement with the criminal justice system.

Conclusions and Recommendations

Although early interventions were very small-scale, more recent programs suggest that interventions for boosting noncognitive skills can still succeed on a larger scale and even be implemented in the context of an urban public school district. As much as 30 to 40% of the variation in achievement scores is attributable to noncognitive, not cognitive, ability, so closing the socioeconomic gap in noncognitive skills has direct implications for narrowing socioeconomic gaps in achievement. By providing a stimulating environment resembling what more advantaged children may receive at home, these early childhood programs can help bring low-SES children up to par with their higher SES peers, closing the socioeconomic gap in skills and subsequently achievement that already exist upon kindergarten entry. Finally, noncognitive skills are more malleable than cognitive skills and the effects of interventions are more permanent. Investments in noncognitive skills, especially early in life, may thus have greater payoffs for narrowing the socioeconomic achievement gap than investments in cognitive skills.
Inequality Under the Skin:  
How Stress Inhibits Children’s Development and Academic Achievement

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Although stress is a natural and sometimes beneficial physiological response, regular exposure to stressful situations and interactions can have long- and short-term consequences. Stress can inhibit performance on cognitive tasks and affect mood and behavior, and prolonged exposure to stress can affect neurobiological development, resulting in maladaptive stress response and abnormal brain growth. Although the research base on the relationship between stress and achievement gaps is small but progressing, available evidence suggests that equalizing stress for all children could reduce the high-low parental education gap in children’s grade by up to 55% and could reduce the reading achievement gap by up to 23%.

Stress contributes to educational inequalities based on race and socioeconomic background from birth through the educational career. It should come as no surprise that due to background differences based on economic resources, abuse and neglect, human capital, family instability, discrimination, and neighborhood and school safety, disadvantaged children are exposed to stressful situations more frequently and have fewer support structures in place to cope with adverse life events.

Because stress affects child development, it follows that exposure to stressful events impacts children’s readiness for school and their subsequent academic achievement. Evidence from pediatrics, psychology, neurobiology, and sociology point to some of the causes, consequences, and mechanisms through which prolonged stress affects children’s development and academic trajectories (Figure 1). While there is ample evidence to support the negative impact of abuse and neglect on school performance, we know less about the general impact of stress on achievement gaps between high- and low- SES students, and almost nothing about the impact of stress on black-white achievement gaps.

Given the effects of stress on young children, it is crucial to address the needs of all children at risk, regardless of their status. While it is clear that stress affects brain development, evidence suggests that, with treatment, these deficiencies in brain development are actually reversible; children’s brains remain malleable over time and might be capable of normal growth and development with appropriate interventions. Researchers and advocacy organizations argue that interventions targeted at traumatized children are most effective when the focus is on parent-child interactions, since this relationship is the most likely to affect children’s processing and coping capacities.

Two promising evidence-based clinical intervention strategies can potentially accomplish this: child-parent psychotherapy (CPP) and cognitive-behavioral therapy (CBT). In the absence of parent participation, biofeedback interventions, which record physiological activity and produce output to which the patient can respond, offer a promising child-centered approach to reducing stress.

But how can policy levers be used to effectively target children in need? The American Academy of Child and Adolescent Psychiatry recommends that children referred for mental
health services should always be screened for exposure to prolonged stressful environments and repeated traumatic stressful events. Often, children are referred for behavior problems or after single events, but unless structured interviews are initiated by trained professionals, the true nature of these children’s histories might never come to light. Regular and deliberate use of standardized instruments by community and school mental health professionals, coupled with timely intervention, can serve as a key entry point for identifying and treating children at risk of developing long-term stress-related deficiencies.

Partnerships between child mental health and welfare professionals, pediatric physicians, law enforcement and courts, elected representatives, advocates in public and private institutions, and school staff can help establish routine protocols for proper referral, screening and treatment of children at risk of high environmental stress. Limitations to the effectiveness of policy interventions include attrition from clinical interventions, limited funding sources for access to treatment by disadvantaged families, and scarcity of qualified mental health professionals to treat young children.

While interventions might be used across-the-board for all students at risk of experiencing high levels of stress, it is crucial to know how stress interacts with disadvantage to understand whether interventions can help alleviate gaps in academic achievement and behavioral problems, especially given differential access to treatment for disadvantaged youth. Although it is advantageous to intervene from birth to age five, school-based mental health services can effectively identify and treat at-risk children in preschool, early elementary school, and even later. Disadvantaged children have greater exposure to stressful events and environments and fewer resources to help them cope with those experiences, and are therefore likely to benefit disproportionately from targeted clinical and policy interventions.

Figure 1: From Shonkoff and Garner (2012)
Breastfeeding and the Black-White Education Gap
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The educational attainment gap between blacks and whites is a persistent challenge in the United States and incurs tremendous social and economic costs. In addition to representing a societal failure to uphold the American value of equal opportunity, the gap has sizeable economic opportunity costs. The Center for American Progress estimates that closing the education gap would contribute $551 billion annually to the U.S. GDP. Yet, closing the gap is not straightforward because a variety of factors, ranging from parental involvement to school quality, contribute to differential levels of attainment. Successful public policies aimed at reducing this gap must be multifaceted and may require unconventional or indirect interventions. In my analysis, I examine the association of breastfeeding with educational attainment.

Background

Breastfeeding may contribute to neurological development, and in turn, cognitive development in infants. Fatty acids that are found in human breast milk, but typically not in infant formula, seem to be involved with neurogenesis, neurotransmission and gene expression. Given the apparent biological pathway by which breast milk might impact neurodevelopment, epidemiologic and social scientific studies have sought to understand whether breastfeeding plays a role in cognitive development and educational outcomes.

Relatively large disparities in breastfeeding rates exist between black and whites and this disparity may account for some portion of the black-white education gap. According to the 2008 National Immunization Survey, 58.9% of black children were ever breastfed compared to 75.2% of white children. Further, only 30.1% of black children were breastfed for at least 6 months, the duration recommended by the American Academy of Pediatrics, compared to 46.6% of white children.

There also exist disparities in cognitive ability and education between blacks and whites. Blacks typically score one standard deviation (SD) lower than whites on cognitive IQ tests, which equates to an approximately 15-point differential. A commonly cited statistic from the Early Childhood Longitudinal Study-Kindergarten Cohort places the educational achievement gap at 0.75 SD in math and 0.5 SD in reading in kindergarten, and by fifth grade these gaps widen to 1.0 SD for math and 0.75 SD for reading.

Main Findings

Various studies point to positive and significant associations between breastfeeding and cognitive ability and educational attainment. The studies typically find that any breastfeeding has a benefit compared to no breastfeeding, breastfeeding benefits increase with duration, and exclusive breastfeeding is more beneficial than breastfeeding with food supplementation. For instance, one study examines whether exclusive breastfeeding duration is associated with changes in verbal and performance IQ per the Wechsler Abbreviated Scales of Intelligence (a type of intelligence test) in children 6.5 years of age. Verbal IQ measures things such as
vocabulary, arithmetic and comprehension whereas performance IQ is a measure non-verbal aptitude in such things as organizational ability, concentration, and analytic thinking. Compared with exclusive breastfeeding for less than 3 months, the authors found that between 3 and 6 months of exclusive breastfeeding was associated with a 4.7-point increase in verbal IQ (0.31 SD) and a 1.2-point increase in performance IQ (0.08 SD). Exclusive breastfeeding for 6 months or more was associated with a 5.2-point verbal IQ (0.35 SD) increase and a 2.1-point performance IQ (0.14 SD) increase.

In terms of educational achievement, breastfeeding for 6 months or more is associated with higher teacher ratings of academic performance on reading, writing and mathematics at age 6.5, with high school GPA increases of between 0.373 to 0.454 points, and with a reduction in the percentage of students leaving school without qualifications (a high school degree). One study suggests that as much as 17% of the black-white gap in reading and 9% of the black-white gap in math can be explained by differences in breast feeding. Because rates of breastfeeding are lower among blacks as compared to whites across all breastfeeding durations, blacks may be less likely to gain from the potential benefits conferred by breastfeeding.

On the other hand, some recent scholarship calls into question the positive association between breastfeeding and IQ/educational attainment. Maternal IQ, omitted from many earlier analyses, confounds the relationship between breast feeding and educational outcomes and explains the association. However, maternal IQ does not consistently account for the relationship across studies.

Evidence on a gene-environment effect may suggest that all of these findings could be correct. One study finds that some people have genes that process fatty acids in breast milk differently than others. People with particular variants of these genes develop a cognitive advantage when breast milk is present, but develop a comparative cognitive disadvantage when it is not. Those without these gene variants do not appear to gain a cognitive advantage from breast milk. Thus, depending on the genetic make-up of the population under study, IQ and education gains may or may not be observed. But to further confuse matters, a second gene study shows that breastfeeding led to an equivalent increase in IQ regardless of gene variants.

**Education Gap Implications**

If the relationship between breastfeeding and cognition is in fact causal, breastfeeding may play an important role in reducing the black-white education gap. As an upper bound estimate, if all black children were exclusively breastfed for at least 6 months, IQ would change from 85 to 90.18, or ~0.35 SD and the IQ gap would narrow from 15 to 9.82 IQ points. Black GPAs could increase from 2.69 to 2.97, which could reduce the black-white GPA gap from 0.4 points to 0.12 points, bringing blacks within 96.1% of whites’ GPA scores. In the City of Madison, high school graduation rates might increase from 50.1% to 68.5% with 8 or more months of breastfeeding.

**Public Policy Implications**

Although some studies question the contribution of breastfeeding to educational achievement and attainment, other studies point to a causal relationship. No studies suggest that breastfeeding harms children. Breastfeeding promotion and intervention programs look like
potentially cost-effective mechanisms to reduce the black-white educational attainment gap. Such programs could be tailored toward black mothers to promote education of the benefits of breastfeeding as well as to address barriers to breastfeeding, such as lactation issues, work demands, and social environment. One promising intervention provides the individualized services of a professional lactation consultant for multiple sessions. The cost of a consultant is approximately $400 for 5 sessions, which for the estimated 600 infants born to black mothers in Dane County each year, would amount to a total annual cost of $240,000, the bulk of which would be made up in savings from health care costs associated with formula-fed infants. Additional research into the relationship between breastfeeding and educational attainment is warranted before large amounts of public dollars are spent.
Parents and policymakers look to early child care programs as a starting point for a child’s long-term academic success. This growing recognition of the importance of early education, paired with the rising demands for early child care in recent decades, motivated policymakers to allocate more resources to low-income parents’ child care needs. The development of child care subsidies and public preschool education programs were specifically designed to increase low-income parents’ access to high-quality early child care. Despite these efforts, however, low-income children are still less likely to use center-based child care arrangements and rely more on relative caregivers than higher-income families (Forry, Tout, Rothenberg, Sandstrom & Vesely, 2013). Center-based care is generally higher-quality and more developmentally enhancing than informal care types; consequently, the segregation of disadvantaged children into less formal care arrangements may contribute to the gap in achievement between high- and low-income children (Barnett, 2008). The inequities in center-based enrollment between high- and low-income children are driven by two factors: (1) center-based care arrangements rarely may be incompatible with the financial, employment and family demands of low-income parents and (2) there are marked differences in child care preferences between high- and low-income parents. Increasing our understanding of the mechanisms that drive parental child care choices will help policymakers create high-quality child care programs that better fit with parents’ needs.

Drawing from Meyers and Jordan’s (2006) accommodation model, this paper provides a comprehensive review of the types of child care low-income parents choose for their preschoolers (age 3 to 5 years). The paper is divided into five sections. The first section reviews literature that examines the association between academic achievement at kindergarten entry and early child care arrangements. The second section describes national trends in child care use by subgroups and child care arrangements. The third section examines the match between parental childcare arrangements and parent preferences. The fourth section identifies the individual, family and neighborhood factors that influence parental choice. The fifth section provides information on the types of barriers low-income parents face to accessing high-quality child care centers. Policy recommendations and implications are discussed.

Key Findings:
*Participation in high-quality early education programs can mitigate the impacts of poverty on school readiness*

While the magnitude of the effects of center-based early child care arrangements varies considerably, center-based care is linked to better cognitive outcomes on average than non-center-based care (Barnett, 2008). This is largely due to the positive impacts of classroom instruction on cognitive development (Barnett, 2006).
**Low-income parents are less likely to use center-based care than high-income parents**

In the United States, the number of children, ages 3 to 6 years, enrolled in early child care education (ECCE) programs increased from 55% in 1995 to 62% in 2012. The overall enrollment did not change for children living below the federal poverty line (FPL), however. Children living below the FPL are more likely to be cared for by relatives than children who live above the FPL (Child Trends, 2012). Bainbridge, Meyers, Tanaka and Waldfogel (2005) found similar trends in the relationship between center-based enrollment and income among 3- and 4-year olds. The largest disparities in enrollment lie between the bottom income quartile and the third and fourth quartiles, with enrollments gaps nearing 23 percentage points. These differences remained after controlling for race, maternal employment, family structure and parental education, although the magnitude of these relationships diminished. These findings suggest a direct association between income and child care arrangement.

Overall, preschoolers are more likely to be enrolled in center-based care than infants and toddlers, regardless of family income (Early & Burchinal, 2002; Goodson & Layzer, 2010; Leibowitz, Waite & Witsberger, 1988). The use of center-based care decreases as the number of children in the household increases (Burnstein & Layzer, 2001; Kim & Fram, 2009; Wolfe & Scrivner, 2004) and as maternal education increases (Huston, Chang & Gennetian, 2002). Black children have the highest rates of center-based enrollment and Hispanic children, children of immigrants and English learners are less likely to use center-based care arrangements (Adams 2007; Brandon, 20014; Karoly & Gonzalez, 2011).

**Parents’ child care choices reflect the options they perceive to be feasible**

Many studies have found that low-income parents understand the benefits of center-based care and place high value on their children’s education; however low-income parents have fewer child care options that meet their financial and employment needs compared to higher-income parents. Low-income parents often choose care arrangements in shorter time periods (usually 1-2 days) and with fewer perceived available options (Layzer et al., 2007). Consequently, parents end up using child care arrangements that were not their first choice. A study conducted by Buriel and Hurtado (2000) found that, on average, mothers’ descriptions of their ideal care arrangement differ significantly from their current care arrangement.

Low-income parents generally favor low parent:teacher ratios and educational and training experiences for their children (Shlay, Tran, Weinraub & Harmon, 2005; Van Horn, Ramey, Mulvihill & Newell, 2001). Some studies show that low-income parents place higher value on learning environments than higher-income parents (NHES, 2012). The value placed on educational environments is negatively associated with maternal education (Leslie, Ettenson & Cumsille, 2000; Van horn, Ramey, Mulvihill & Newell, 2001).

Alternatively, low-income parents’ child care choices are most influenced by cost, location and hours of operation (Gamble, Ewing & Wilhem, 2009; Leslie, Ettenson & Cumsille, 2000; Peyton, Jacobs, O’Brien & Roy, 2001). The demand for center-based care is more sensitive to price than in-home care is. A reduction in price increases the substitution of informal care for formal care operations among low-income parents (Blau, 2001; Meyers & Jordan, 2006). High-income parents place less emphasis on convenience factors (Gamble, Ewing & Wilhem,
2009; Peyton, Jacobs, O’Brien & Roy, 2001). This may be due to the correlation between income and standard work hours and transportation access. Health and safety are equally important across income groups; however, low-income parents prioritize safety more than high-income parents do when their children are infants or toddlers (Kimmel & Powell, 2001; Leach et al., 2006). Parents who value provider warmth and cultural similarities are more likely to choose family-based care and parents who value education qualities are more likely to choose center-based care (Raikes et al., 2005). The differences in provider-warmth do not vary across the income distribution for parents of 3-4 year olds (Schlay, 2010).

**Increasing the availability of affordable wrap around services can help facilitate center-based enrollment**

Cost and schedule flexibility largely influence parent child care choices. Increasing the number of center-based programs that offer care during nonstandard working hours will help facilitate enrollment in center-based care programs. Wraparound care arrangements are “arrangements that wrap around a primary arrangement so as to accommodate parents’ work schedules” (Chaudry, 2004, p.xix). There is little empirical research that examines the association between the availability of wraparound care and rates of center-based enrollment. Research does show that the use of full day preschool programs with wrap-around care increases maternal employment and earnings (Child Care State Systems Specialist Network, 2011). Currently, 11 states have implemented mandatory wrap-around services for PreK programs and many other states have coordination initiatives between community providers and local school districts. While these initiatives seem promising, further research is needed to assess the costs and The hours of operation offered by many center-based education programs do not meet the needs of working mothers (Davis & Connelly, 2005). Mothers with nonstandard or unstable work hours are also more likely to use informal care options, suggesting that in-home and relative care better accommodates the employment demands of mothers (Davis & Connelly, 2005; Kimmel & Powell, 2001; Presser, 2005).

While the use of child care subsidies has been shown to facilitate enrollment in center-based programs, state billing cycles may not align with the care center’s payment options (Forry, 2009). For example, many ECCE programs (other than Head Start and PreK) charge families by day or week, rather than by hours. Conversely, state subsidies provide hour-by-hour coverage. Preliminary findings from a study of 4K and parent employment in Dane County documented instances where parents’ subsidy receipt decreased when their child started a 4K program. Payment receipt declined because the hours a child spends in 4K are not billable; nevertheless, the child care centers’ rates for wraparound care did not change. Therefore, some parents had higher out-of-pocket expenses. Further efforts must be made to ensure that the billing cycles between child care subsidy providers and local care providers are the same.
Access to Quality Early Care and Education
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Children from low-income families have significantly lower academic skills than their more affluent peers at the entry of kindergarten. Early care and education (ECE) is shown to enhance children’s school readiness as well as social and behavioral skills with low-income children enjoying greater benefits of quality ECE than their more advantaged peers. However, program quality varies widely. While the majority of 3- and 4-year-old children participate in ECE, disparities in enrollment and the average quality of the programs in which more and less affluent children enroll might exacerbate achievement gaps. Nationally, rates of center-care enrollment for children at age 4 in the bottom and top income quartiles differ by 20 percentage points. In terms of the access to quality programs, only 18% of poor 4-year-olds enrolled in good quality preschools, compared with 29% of non-poor children. Inequality also exists across racial and ethnic groups. Although Black children are more likely to receive center-based care than White children, only 20% of them attend quality preschools, compared with 25% of White children.

Impacts of Quality Early Care and Education

Abundant evidence suggests that higher quality ECE has positive impacts on child’s cognitive and behavioral outcomes. Two key dimensions of program quality are structure and process. Structure quality concerns program design, including group size, staff-child ratio, space, teacher qualifications, and curriculum. Process quality refers to teacher’s instruction and interaction with children. Although research on the impact of these dimensions of quality on child outcomes is mixed, structural quality is viewed as the foundation for process quality. Most states currently regulate group size and staffing ratios, and many are now exploring regulations related to teacher qualifications and curriculum.

The strongest evidence linking the quality of ECE programs to child outcomes comes from model programs like the Abecedarian Program. This program had low a low staff-child ratio, provided individualized educational activities, and used a curriculum focused on language, cognitive and behavioral development. Abecedarian improved the participants’ IQ scores from one standard deviation below the mean to close to the national average at age 5. Less intensive but larger scale programs such as public pre-K demonstrate modest but still significant effects. Quality of care is more strongly associated with the outcomes of poor children than those of non-poor children. The effect of participating in quality center care on achievement for 3- to 4-year-olds ranges from about a fifth to a third of a standard deviation. One study on public pre-K found that the overall classroom quality is associated with better language skills but not with other outcomes. The quality of teacher-child interactions is associated with better language, academic achievement, and social competence as well as fewer problem behaviors.

Teacher qualifications have emerged as a key criterion in the measurement of program quality. However, teachers with baccalaureate degree are not significantly more effective on average than teachers without degree in increasing child language or achievement outcomes. Research on the community child care centers found that teacher’s BA degree and training workshops predict better classroom quality which is further related to higher language comprehension score. Moreover, one project analyzed data from 7 different studies, including Head Start, public pre-K, and private center care, to determine whether teacher’s BA degree matters for classroom quality and child’s outcomes. Only two studies (in Early Head Start and Head Start) found a positive association between teacher’s degree and overall classroom quality but not child’s achievement scores. The other two studies involving both public and private programs found the association between teacher’s degree and child’s reading and math scores.
In sum, evidence is mixed regarding what components of program quality contribute to classroom quality and children’s outcomes, but it seems that teacher qualifications may matter more in community child care setting than in public pre-K where the training requirements for teachers are higher.

Quality Rating and Improvement System

In 2011 the State of Wisconsin implemented the Quality Rating and Improvement System (QRIS), YoungStar, with the goals of improving the quality of ECE programs and making the rating information transparent to help parents choose high quality care. Providers are evaluated on several quality measures (staff qualifications, learning environment and curriculum, professional and business practices, and child health and well-being practices) and receive a rating from one to five stars. YoungStar uses multiple rating mechanisms that allow some providers to bypass the rating and receive an automatic star level of two or five (the latter are only offered to accredited providers).

While many providers have improved their ratings, many children still receive poor quality care. Analyses of YoungStar show significant variation among programs on quality measures within the same star level. For 2-star programs, staff education and training appear to be the biggest obstacle to moving up the scale. A QRIS study from North Carolina shows that staff education is associated with overall classroom quality, teacher’s instruction, and interaction. Some positive relations are also found between star level and child’s social-emotional outcomes. Another study from Missouri shows large gains in social-emotional skills and vocabulary (standard scores gain between 1.7 to 5.5) from high quality programs for low-income children. However, whether or not the rating system is a good predictor of children’s outcomes, the scarcity of extant empirical studies suggests that it might be too soon to determine its effectiveness of the system.

Recommendations for Policy

- **Target low quality programs, particularly in communities where low-income and/or racial minority children live or receive care, for quality improvement.**
  While disadvantaged children benefit from higher quality ECE programs the most, many of them still receive low quality care. Targeting programs where disadvantaged children attend by offering technical assistance, micro grants, and professional training to help improve quality would increase access to quality care for these children.

- **Focus on staff professional development, not just their educational degree.**
  Teachers with effective teaching skills acquired through professional training enhance the quality of their classrooms regardless of their educational degree. Providing resources such as T.E.A.C.H. for teachers to obtain credentials and ongoing training would help them improve their skills.

- **Link QRIS validation research to children’s outcomes.**
  As QRIS is the main strategy for the state to improve ECE quality, it is critical to know the system measures the right quality components: those associated with children’s learning. Currently, only a few states include child outcomes in their validation studies. QRIS should also measure child’s cognitive and social-emotional outcomes in order to improve the rating system.


Neighborhood effects on educational disparities

Compared to non-Hispanic whites and those more affluent, minority and low-income families predominantly tend to live in central-city and high-poverty neighborhoods. Differences in the natural environment, educational opportunities, community resources, employment opportunities, and safety are embedded in segregated residential patterns. While empirical evidence of neighborhood effects on educational outcomes is mixed, several studies show that living in disadvantaged neighborhoods is associated with an increased high school dropout rate, fewer years of schooling, and lower college attendance compared with living in affluent neighborhoods. Given its experimental design, evidence from Moving to Opportunities (MTO) has been the focus of particularly important in recent debates about neighborhood effect. In Chicago, the effect of moving out of a poor neighborhood on children’s reading scores was estimated at about a quarter of a standard deviation. Effects were similar in Baltimore but appreciably smaller in New York City, Los Angeles and Boston. Researchers speculate that these mixed results might reflect the more extreme poverty of neighborhoods of origin in Chicago and Baltimore compared to other sites.

Place-based policies that address residential disparities

Place-based neighborhood strategies in the past focused on developing public housings in high poverty neighborhoods. The deficiency of past place-based strategies lies in their inability to provide better resources other than housing and the centralized top-down approach. In order to effectively address the issue of residential segregation and education disparities, new strategies are moving toward integrated bottom-up programs that combine increased accessibility of resources with improvements in neighborhood conditions. New strategies should connect needy people with resources and opportunities across various spatial definitions. The policies we consider in this review include colocation of social and/or health services, service collaboration, community-school partnerships, and comprehensive neighborhood development policy. We define these as follows:

- Colocation: Placement of several services in a single location
- Service collaboration: Connecting services by coordinating with other organizations
- Community-school partnership: Schools building partnership with community organizations to serve the needs of the children and families.
- Comprehensive neighborhood development: Strengthening the community infrastructure as to improve children and families’ development and school improvement

In our project, we propose four policies by providing examples and evidence from those examples.
Colocation: School-based health centers

• **Description:** School-based health centers (SBHCs) locate independently operated health services in schools. Services are available during the normal school hours, and some also open after school hours. SBHCs provide students and their families with primary medical care, mental and behavioral health care, dental/oral health care, health education and promotion, substance abuse counseling, case management services, and nutrition education. SBHCs are not only involved in the health care services, but also provide other services to the larger school community that may enhance academic achievement. For example, teachers could get supports to develop health-related curriculum, and have access to immediate health assistance with students in the classroom.

• **Evidence:** Previous studies have examined the relationship between SBHCs and academic achievement by linking improved health outcome. One research on evaluation of children with asthma found that students attending schools with SBHCs had fewer hospitalization days and school absences than students at schools without SBHCs. In addition, students in schools with SBHCs had higher academic expectations, communication, school engagement, GPAs, and graduation rate than students in schools without SBHCs. In terms of the effect of SBHCs on teachers and parents, teachers getting support from SBHCs tend to have higher job satisfaction and parents tend to have higher school connectedness at school. However, there are fairly few studies examining the effectiveness of SBHCs on academic achievement, and findings are limited in providing causal relationship of SBHCs and educational achievement.

Service collaboration: Adopting a model from health navigator

• **Description:** Health navigators guide families to access to available resources and link services on behalf of clients. They are introduced to reduce disparities in cancer prevention, diagnosis and treatment. Since racial, cultural, and socioeconomic disparities are associated with disparities in access to services which consequently affect negative health outcomes, patient navigator plays an active role in reducing barriers to care and improve outcomes.

• **Evidence:** Previous studies found that racial/ethnic minorities who receive help from navigators tend to have increased likelihood of getting treatment and being insured. In order to reduce academic achievement gaps, policy-makers could adopt health navigator model into educational sector. As what health navigator does, “education navigator” might build bridge between parent and school and facilitate two-way communication. They could also coordinate community services, such as tutoring, for children and their families.

Community-school partnership: Harlem Children’s Zone

• **Description:** Harlem Children’s Zone aims to improve children’s academic achievement, educational attainment and preparation for work by offering a basket of health, social and academic services including financial counseling for parents, health and nutritional information classes; and community-support programs. Collectively, these programs support children, families, and communities.
• **Evidence:** Previous studies have examined the effects of Harlem Children’s Zone on children’s academic achievement. The findings suggest that the Promise Academy School was successful in increasing academic achievements, but this effect was driven by high quality school not through the community programs provided by HCZ. However, some researchers argued that these academies were, in fact, full service community schools themselves, providing free medical services, dental and mental-health services, nutritional meals, incentives for achievement, and food and transportation support for parents.

**Neighborhood development plan with federal support: Promise Zone**

• **Description:** Promise Zones are Obama Administration endorsed place-based initiatives for which federal agencies collaborate with local government and organizations of designated sites in comprehensive neighborhood development. The federal government aims to support local innovations that integrate creating jobs, increasing economic activities, improving educational opportunities, and reducing violent crime. Compared to local neighborhood development plans without federal endorsement, there are three major ways of how Promise Zone designation could uniquely benefit the sites; through AmeriCorps VISTA volunteers support, preference for consideration of various federal funding, and potential tax credits.

• **Evidence:** It is too early to know if the federal endorsed Promise Zones are successful in reducing education disparity. Some early evidence seems promising, however, there needs to be more evaluation studies. In the San Antonio, with the support of the Department of Education Promise Neighborhoods grant, the graduation rate at east side high schools increased from 46 percent of 2009, to 86 percent of 2014. Student enrollment and attendance have increased, while absenteeism has decreased. Practices of other sites have not shown conclusive evidences yet, and they have focused more on streamlining the relationship between education and career.

**Current neighborhood-based programs in Madison**

Local neighborhood development practices are not new in Madison. South Madison Promise Zone is a non-profit organization funded by a local philanthropist. It partners with residents and community stakeholders to design a holistic, place-based, cradle-to-career system of education, human service, health and wellness, employment and community building opportunities. In addition, Neighborhood Resource Teams (NRTs) has been addressing the needs of struggling neighborhoods since 1992. The NRTs engage residents, other government agencies, and non-profits in an effort to deliver comprehensive services that covers transportation, health, housing, quality childcare, education and job training. Moreover, Madison Out-of-School Time (MOST) Initiative involves over 40 community-based youth-serving organizations, and Youth Internships Plan provides high school age youth internship in City offices. However, there is not much evidence of how effective these programs are in reducing education disparity.

In conclusion, most of the place-based policies have collective goals, ranging from reducing poverty, increasing employment, health, to education. However, it is not clear whether and to what degree those elements interact with each other and contribute to reducing educational disparities. This project suggests local leaders and policy-makers to be flexible with spatial scopes and try to integrate various models to address local needs.
Parents are involved in various ways in their children’s education, from helping with homework to meeting teachers and volunteering at school, from kindergarten to high school. Though some are more involved than others, many parents report taking part in school or school-related activities and all want to see their children succeed. This understanding is acknowledged by the No Child Left Behind Act, Title I, that formally defines and promotes parent involvement (PI) in schools as part of the efforts to close the achievement gap.

This is partly driven by the wide consensus regarding the overall positive effect PI has on children’s educational outcomes. However, because PI and achievements can be measured in various ways the findings are mixed. Also, some PI behaviors, like helping with homework, are often a reaction to the child’s needs therefore challenging a causal interpretation of the PI-achievement association. Nonetheless, recent findings show that PI explains 13% to 30% of the racial achievement gap in math and reading scores, depending on the racial groups being compared. In addition, some studies suggest that PI is more strongly related to children’s behaviors which later lead to benefits in educational outcomes. Hence, though it may not be the main contributing factor to achievements, it is a worthy issue to explore.

There are two primary mechanisms underlying the PI-achievement association. First, by being involved in their child’s education, parents create opportunities to pass on knowledge, develop the child’s cognitive and non-cognitive skills, signal that school and education are important and, perhaps most importantly, instill in the child a belief in their ability to succeed in school. Second, when parents participate in school activities they form social ties with teachers, administrative staff and other parents. These ties help parents monitor and if they need to address their children’s behavior in school.

Participation in PI activities and the type of PI behaviors parents take part in vary by SES and race. Overall, White educated middle-class parents are more involved at school than minority low-SES parents, but there don’t seem to be differences regarding PI at home, especially helping with homework. It also seems that advantaged parents are more involved in active behaviors such as contacting the school regarding academic programs and volunteering in the PTO than disadvantaged parents are more involved in a passive way that is restricted to the regularly scheduled events initiated by the school.

In addition, numerous studies find that not all types of PI behaviors benefit all children the same. Empirical evidence suggests for example that PI has a stronger positive effect on low-SES students’ behavior in elementary school; PTO involvement has a stronger effect for Black students and Hispanics than for white students; and helping with homework benefits Hispanic (and Black) more than White students. Unfortunately, there is no formula to determine which PI will maximize students’ achievement based on their origin or SES as these results are mixed. However, should educators actively encourage PI among disadvantaged parents, they should be mindful to these findings as they imply that when it comes to PI in schools as a means to reduce the achievement gap there is no one-size-fits-all.
Why do disadvantaged parents participate less in some forms of PI than more advantaged parents? The literature describes numerous barriers to PI. First, there are logistic barriers that prevent access of minority low-SES parents to schools, such as lack of time to attend events due to long and rigid work schedules and financial difficulties to pay for transportation and childcare arrangements for their other children while participating in school activities. Second, some disadvantaged parents might feel less able to help and for immigrants, language is a barrier to effective communication. Also, parents don’t always know how to become involved unless explicitly invited. Moreover, studies show that minority and low-SES parents often don’t feel welcome to participate and report feelings of marginalization and dismissal when trying to be active in promoting their child’s academic interest.

There are several intervention programs that facilitate PI as means to promote children’s well-being, academic performance and reduce behavioral problems. Those programs differ by the targeted population, type of intervention and PI behavior they seek to promote. Here too, the results of empirical evaluations are mixed. Nonetheless, there are several consistent findings. First, when disadvantaged parents are invited and encouraged to participate and receive tools to be effectively involved in their children’s learning they are willing and able to do so successfully. Interventions aimed at improving reading during the pre-K and early elementary years seem particularly effective. The PI intervention programs that are evidence-based, conduct the most rigorous evaluations and show overall positive results (though mixed), specifically for children’s behavior are Families and Schools Together (FAST) and ParentCorps. For example, by the fourth year of implementation, reading achievement in kindergarten had increased 50th percentile to 69th percentile, and findings show medium to high effect sizes for externalizing behaviors, aggressive behaviors withdrawal among FAST participants with strong sustaining effect one year later.

Finally, the vast majority of PI literature focuses on traditional PI that is defined according to parental behaviors that are more prevalent among White middle-class parents but also behaviors that are school-centered and in which parents follow the school’s agenda. An alternative approach redefines PI as Parental Engagement, and links it to ideas of advocacy, leadership and community organizing. Though not new by itself, the idea of mobilizing parents to become politically active and advocate for educational equity is innovative in the sense that it encourages parents to take action that will benefit all children, rather than just their own, by improving the school and the education system. This involves empowering parents and providing them with knowledge on the educational system, distribution of resources and their rights as parents, as well as training them to be active agents of social change in their schools and communities with the cooperation of community organizations and other parent leadership training programs such as Commonwealth Institute for Parent Leadership. Since this approach is relatively new in PI literature, most of the research is descriptive and done by foundations. Yet, preliminary findings suggest that including parents in decision making leads to positive changes in local policies and inspire educational projects that benefit both the children and the school as a whole.
Exclusionary school discipline, specifically suspension and expulsion, affects a significant portion of American children. In the 2011-2012 school year, 3.5 million children received an in-school suspension and 1.9 million children received an out-of-school suspension. While suspension and expulsion rates have been rising for all demographic groups over the past forty years, the increase has been particularly pronounced for African-Americans. For the 2011-2012 school year, 20% of African-American boys received an out-of-school suspension compared to 6% of white boys or 2% of white girls, the demographic group with the lowest suspension rate. Excluding children, especially the most vulnerable children, from education opposes our democratic values, yet large numbers of children become enmeshed in exclusionary discipline. By definition, excluded students miss class time, and opportunities for keeping up with schoolwork during the sentence are often limited. Less time in school appears to be associated with worse academic performance. In addition to the direct impact of missed instruction, school exclusion may increase the punished child’s sense of alienation from school or erode their trust in their teacher. Hence the importance of taking a closer look at the school discipline system. This report focuses on school discipline as a possible contributor to the black-white achievement gap.

Socioeconomic differences by race/ethnicity do little to account for these disparate patterns of disciplinary exclusion, but the role of different rates of misbehavior on the gap proves more difficult to parse. Some studies adjust for differences among students in self-reports or teacher-reports of misbehavior, but neither of those measures perfectly matches a student’s true behavior. Even if we use these imperfect measures, evidence is thin but suggests that differential behavior cannot fully account for disparate school discipline. The racial variation in the types of offenses leading most frequently to exclusionary discipline bolsters the argument against differential rates of misbehavior explaining the full divergence in school discipline. African-American students tend to be disciplined for subjective offenses like disrespect or excessive noise while white students are more likely to be disciplined for objective offenses such as smoking or leaving school grounds without permission. There is some evidence that racial disparities in suspension and expulsion come more from between-school variation than within-school variation: schools with large African-American populations are more likely to use exclusionary discipline on all students than schools with smaller proportions of African-Americans.

Suspension and expulsion affect both the disciplined student and the wider school environment. Advocates of tough discipline policies view them as tools to improve the disciplined student’s behavior, deter other students from misbehaving, and improve the quality of the learning environment by removing disruptive students. Critics suggest that disciplinary exclusion accomplishes none of those goals, merely temporarily removing vulnerable children from school and permanently alienating them without dealing with the root of their misbehavior. Evidence on the effects of exclusionary discipline is riddled with issues of endogeneity: excluded
students likely differ from other students on a host of unobserved factors, as do schools with high rates of suspensions and expulsions from those with low rates. Nonetheless, there is no convincing evidence that suspensions and expulsions work to change the behavior of the disciplined student. Being suspended is a strong predictor of future suspensions.

While the consequences of exclusionary discipline for the disciplined student are difficult to separate from the contributing factors, suspended students fare poorly in school. Exposure to exclusionary discipline is associated with poor performance in school, repeating grades, and failing to graduate. Two possible mechanisms could be behind these effects: the direct consequence of missed schooling and the psychological consequences of alienation from the school. Research on things like school absences suggests that time spent in class is an important factor in school performance. Psychological factors may play a greater role in the consequences of school discipline. Punitive discipline measures have the potential to create a sense of alienation from school and distrust of school authorities. In addition, students who have been suspended or expelled often face high barriers to reentering their school and may be pushed away from their desired academic path. While this report focuses on the academic consequences of school discipline, it cannot ignore how exclusionary practices feed into the school-to-prison pipeline. The exclusionary discipline gap appears to contribute to the disproportionate representation of African-Americans in the juvenile justice system.

The ill effects of suspension and expulsion on the disciplined child are not necessarily a sufficient argument against its use if the remaining students benefit from an improved learning environment. Evidence on the school-wide effects of harsher school discipline policies is again hampered by issues of endogeneity. After controlling for the observable characteristics of schools, higher rates of suspension and expulsion are associated with worse performance on standardized tests. Clearly both high rates of exclusionary discipline and poor performance on standardized tests could be driven by unobserved factors. Survey-based studies have suggested stricter discipline policies are associated with higher rates of misbehavior. While the evidence that exclusionary discipline hurts the classroom environment fails to convince, the evidence that it improves the learning environment is virtually non-existent.

Punitive school discipline is not the only option for maintaining order in school. Restorative justice seeks to bring the offending student back into the school community. While restorative justice encompasses a wide range of practices, it generally involves a mediated interaction between the victim(s), the offender, and representatives of the broader community. There is relatively little evidence on the effectiveness of restorative justice in schools, but there is very promising evidence in the realm of juvenile justice. In juvenile justice, restorative justice has been shown to reduce recidivism and increase victim and offender satisfaction relative to conventional justice in trials with random assignment. Rigorous studies should be undertaken to look at how restorative justice works in schools, but the theory provides ample reason for optimism as restorative justice should function especially well in closely-tied communities.

School-wide positive behavior support (SWPBS) provides another alternative to current discipline practices. SWPBS entails a broad change to the school climate including clarifying behavioral standards, encouraging positive behavior, and early intervention for students at risk of problem behavior. Studies of SWPBS, including randomized controlled trials, show promise in
bringing down the rates of exclusionary discipline and perhaps improving school performance. Importantly, SWPBS incorporates a strong emphasis on data collection, which has already begun to be leveraged for studying school discipline.

The evidence that high rates of suspension and expulsion harm schools or even the disciplined student fails to overcome questions of endogeneity, but the evidence of the benefits of exclusionary discipline is much less convincing or non-existent. Generally, the evidentiary onus rests on advocates of change, but excluding the most vulnerable students from school runs counter to our vision of public education. Therefore, perhaps suspensions and expulsions should only be used if they can be shown to be necessary for maintaining a good learning environment or ensuring the safety of students.
Despite inequalities both within and among schools, schools tend to reduce class inequalities among students in learning. The class inequalities among students’ home environments are substantially greater than those students encounter at school. As a result, disparities in learning rates and achievement scores by income grow during the summer vacation. These disparities build over the school career, accounting for over half of the cumulative score gap in reading comprehension up to the ninth year of schooling between high- and low-SES groups (Alexander et al 2007). Differences across SES groups in literacy skills are generally more salient than in mathematics skills (Ready 2011). The racial-ethnic achievement gaps are less consistent than those for different social classes. Compared to whites, the achievement advantage of Asian students grows primarily during the summer whereas the school year seems less favorable to Asians, as seen from first grade (Downey et al 2004). Unlike the SES achievement gap or that between Asians and Whites, the black-white achievement gap exacerbates in the school year and shrinks during the summer, with school racial segregation being suggested as the culprit (Condron 2009).

These seasonal patterns in rates of growth have led educators and policy makers to experiment with two broad categories of policy interventions. The first category modifies the existing school calendar by extending the school day or the school year, whereas the second category mainly consists of voluntary summer schools or other summer learning programs.

Evaluations on extending time in school calendar no consistent evidence that lengthening either the school day or school year leads to significant benefits (Pattal et al 2010). While Wheeler (1987) suggests the most disadvantaged students may benefit more, the meta-analysis by Cooper et al (2000) find just the opposite, with the effect size for middle-class students ranging from 0.44 to 0.56 standard deviations and that for disadvantaged students ranging from 0.20 to 0.24 standard deviations. Cooper et al (2003) find the average effect of modified school calendar for 39 school districts is merely 0.09 standard deviations. However, these studies constitute relatively poor evidence of weak remedial effects primarily from correlational analysis, case studies and treatment-control comparisons with confounding factors (Pattal et al 2010). Time use also matters, because extension of the school calendar does not necessarily imply extension of utilized study time; prolonged school hours and days may on the contrary lower students’ learning efficiency by increasing fatigue.

On the other hand, the evaluations of summer schools for which participants are randomly assigned suggest an average effect size of 0.14 standard deviations, with potential increase in effect size from small-group or individual instruction (Cooper et al 2000). Most summer schools focus on literacy skills, yielding small benefits for some populations while failing to replicate on others (Kim et al 2010).

In general, the evidence on the efficacy of extending the school year for reducing achievement gaps is relatively poor. We need more rigorous quasi-experimental or experimental designs to gain a clearer understanding of how to reduce seasonal learning disparities. Instead of aiming at the whole student body, the interventions could turn out more cost-effective by targeting certain subpopulations, using small-group instruction, making parents involved and starting at their earliest stages of schooling.
Inter-Organizational Collaboration and the Achievement Gap
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The diverse set of policy interventions seeking to address gaps in academic achievement reflects the difficult and tangled set of causal factors underlying the problem. The “achievement gap” represents a classic example of a “wicked problem”, a problem for which resolution is often temporary and imperfect. The resources, knowledge, and skills necessary to successfully implement the full range of possible interventions are distributed across a number of different sectors and organizations. The inability of any one organization, be it a government agency or a community non-profit, to provide the full range of interventions drives the logic behind my focus on collaboration as an important strategy for organizations seeking to reduce the achievement gap.

While the inability to achieve the desired policy outcome through the action of a single organization may be the first necessary condition for collaboration to emerge, it is not sufficient. One of the more important factors for the evolution of effective collaborations is the emergence of a real consensus on the definition, nature, and extent of the policy problem to be addressed. Collaboration is more likely to emerge in the presence of a lead or primary organization that can serve to galvanize collective action on the part of other agencies and organizations. A final factor is the existence of a history of prior working relationships. Past episodes of cooperation and less formal collaboration can ensure the presence of trust necessary to begin a collaborative relationship.

I view inter-organizational collaboration as a strategy through which organizations seek to improve performance outcomes in policy areas of interest. In evaluating the role that collaboration might play in reducing the achievement gap, my metric is the ability of formal inter-organizational collaborative relationships to reduce the size of the achievement gap. Collaboration is posited to have a number of potential benefits to those pursuing it, but those benefits are only relevant in this paper in so far as they help reduce the achievement gap.

There are many avenues for structuring and governing these network relationships, and these forms can play a determinative role in overall network effectiveness. A self-governing network may form amongst a number of equally sized and resourced organizations seeking more informal relationships. Governance of network relations occurs in an informal and ad hoc basis as issues arise. In a network governed by a lead organization, a dominant organization or agency takes on the role of administering relationship between network members. This arrangement gives significant power and the ability to determine network priorities to the lead organization. A final form of governance is that of the network administrative organization, an independent organization established by network members, with the responsibility to administer and direct the activities of member organizations.

There are several proposed benefits for performance expected with increased collaboration. Centrally, collaboration helps align the goals of organizations whose individual goals may overlap, but still occur amongst a constellation of competing goals and priorities.
Collaboration reduces the information asymmetries between organizations, improving information flow and encouraging the free flow of resources and expertise. Perhaps most intriguingly, the ability of network relationships to lead to any number of emergent outcomes is seen as one of the largest benefits of networks. However, collaboration also comes with a fair number of costs and challenges for successful completion. Collaboration incurs transaction costs of time and resources. These costs might be significant in the beginning, as governance, problem definition, and goal alignment consume a significant portion of time and energy in the early days of collaboration within a network. Organizations may experience challenges achieving the necessary goal alignment, as organizational goals not tied to network activities compete for resources and time. A pattern of negative prior interactions and a lack of trust across organizations can serve as a significant barrier to network effectiveness.

Cross-sector and inter-organizational collaboration in the context of community efforts to reduce the achievement gap present a unique set of potential barriers. The agencies and organizations with expertise and interest in reducing the achievement gap all pursue a set of goals, with reducing academic achievement disparities one of several concurrent goals, and multiple metrics used to judge organizational success. For example, community organizations pursuing work on the achievement gap may be also pursuing reforms in criminal justice and economic opportunity, and may be wary to devote the full resources needed to address what is one of many priorities. Perhaps more importantly, the goal orientation of certain organizations, such as the focus on education in schools or the focus on health from a community clinic, can present cultural obstacles, as elements outside of organizational expertise are considered beyond the scope of action of the organization. The barriers may not be operating at the organizational level, as collaboration may also face obstacles in the face of legal or regulatory checks on the sharing of information, particularly educational records and individual health records.

The extensive theoretical foundations found in the organizational theory, social work and public management literatures do not have the commensurate evidentiary basis one might expect given the long standing guidance from government and other funders for organizations to pursue collaboration in their service delivery efforts. In general, there are only a handful of studies that look at the relationship between inter-organizational collaboration and outcome improvements. The evidence paints a more nuanced picture of the potential for gains from collaboration. Two studies looked at the role inter-organizational collaboration played in the delivery of human services. A study of child welfare services in Tennessee painted a negative picture of collaboration, actually linking greater inter-organizational collaboration to worse outcomes. A study of the network contexts of community mental health networks in four states demonstrated that while collaboration did lead to some positive improvements to service delivery, these benefits were not found across all networks, and were contingent on a number of factors that made clear that the mere presence of a network was not enough to lead to performance improvements.

Making a strong recommendation for next steps is difficult. Several literatures point to a strong theoretical foundation outlining potential benefits of the introduction of a service delivery
network. However, there is a paucity of evidence that once enacted, network relationships actually lead to improved service outcomes. Thus a strong recommendation for formal network creation is tempered by the existence of real costs to collaboration and largely theoretical basis for benefits. Despite the lack of evidence, collaboration may still be a worthwhile strategy in light of other values and benefits not specifically tied to performance outcome improvement.