

Article

The Impact of Economic Inequality on Children's Development and Achievement

Mary E. Walsh* and Maria D. Theodorakakis

Department of Counseling, Developmental, and Educational Psychology, Boston College, Campion Hall 305C, 140 Commonwealth Avenue, Chestnut Hill, MA 02467-0123, USA; theodomc@bc.edu

*Correspondence: walshhur@bc.edu; Tel.: +1-617-552-8973

Academic Editors: Kenneth Himes and Kate Ward

Received: 13 February 2017; Accepted: 7 April 2017; Published: 14 April 2017

Abstract: Child poverty leads to many challenges at both societal and individual levels, and the two levels are interrelated. It is critical to recognize the complex implications of poverty, including short-term and long-term effects for children and families. After reviewing both the societal (e.g., economic costs, segregation, and unequal opportunity) and individual (e.g., effects on children's health, development, learning, and academic achievement) implications of poverty, this paper will describe a framework for action that incorporates multiple existing approaches, and offer an example of one intervention that aims to address the challenges associated with economic inequality for children in the United States in a comprehensive, multifaceted manner.

Keywords: child poverty; academic achievement gap; educational disparity; City Connects; school-based intervention

1. Introduction

Child poverty is a significant problem in the United States. Children who experience poverty are at risk for a multitude of adverse developmental outcomes throughout the lifespan. Rates of child poverty are higher in the United States than in other countries with equivalent resources (American Academy of Pediatrics 2016), and the numbers have risen steadily since the 1980s (Reardon 2011). Currently, more than 16 million children in the United States are impacted by poverty, with approximately twenty-one percent of the nation's children living in a family that is defined as "poor," based on a family income that is below 100% of the federal poverty threshold (National Center for Children in Poverty 2016). In fact, recent statistics suggest that economic disadvantage now affects the *majority* of the nation's children, with 52% of all public school students qualifying for free or reduced-priced school lunch (Southern Education Foundation 2015; U.S. Department of Education 2016). Economic disparity, which has historically been deeply tied to race in the United States, is even greater for African American, Hispanic, and Native American children, who are three times more likely to experience poverty than their White and Asian counterparts (American Academy of Pediatrics 2016). In light of these staggering statistics, the challenge of educating and caring for low-income children can no longer be considered a "side issue" in our nation, and should instead be conceptualized as "the central mission of American public schools and, by extension, a central responsibility of the American public" (Tough 2016, p. 6).

2. Societal Implications of Poverty

According to the United Nations Educational, Scientific and Cultural Organization, poverty can be defined in either absolute or relative terms. "Absolute" poverty measures poverty in relation to the amount of money necessary to meet basic needs (e.g., food, clothing, shelter) and is not directly

concerned with broader “quality of life issues” or overall level of inequality and human suffering; in contrast, the concept of “relative” poverty defines poverty in relation to the economic status of other members in the society in which they live—including how individuals’ life chances are impacted (United Nations Educational, Scientific and Cultural Organization 2017). For purposes of this paper, both conceptualizations of poverty will be considered.

The societal implications of poverty lead to heavy economic and social costs. The economic cost of poverty is high, as children who grow up in poverty and do not complete high school are more likely to become teenage parents, to be unemployed, or to be incarcerated, which eventually leads to lost productivity and increased social expenditure (American Academy of Pediatrics 2016). In addition to reduced productivity and monetary output, the economic costs of poverty can include increased propensity to commit crimes and lower quality of health later in life (Holzer et al. 2008, p. 41). When the costs of the conditions associated with poverty are aggregated, including all forms of societal intervention initiatives, it is estimated that they total about five hundred billion dollars per year; this is “the equivalent of nearly 4% of gross domestic product” (Holzer et al. 2008, p. 41).

Poverty also results in significant social costs. It has undoubtedly led to disparity and segregation in our society. Though race-based neighborhood segregation has been slowly declining overall, socioeconomic segregation has steadily increased (Kirsch et al. 2016, p. 37), and serves as one important example of the societal implications of poverty (see the essay by Himes in this volume and his comment on Secession of the Successful). Arguably, the biggest threat to national cohesion is not income inequality itself but the social segregation that inequality helped to create because this segregation dictates where individuals live, the quality of education to which they have access, and the support services and enrichment opportunities that are readily available (Putnam 2015).

Low-income families are most vulnerable to the deleterious effects of segregation, as articulated by a recent article in the Boston Globe daily newspaper: “One thing is being layered over another. It’s not just that you’re growing up in a poor neighborhood; you’re growing up in a neighborhood with unhealthy conditions and high exposure to violence” (Scharfenberg 2016). Kirsch and colleagues (2016) echo this sentiment, explaining that neighborhoods “either nurture or crush opportunity” and that “education, employment, housing, and a host of other variables—including police protection, health care, and libraries, to name a few—are largely determined in the United States by where one resides” (Kirsch et al. 2016, p. 37).

It is imperative to remember that the economic disparity in America today is “not simply the result of forces beyond our control” (Kirsch et al. 2016, p. 39). While economic disparity is in part due to the nature of capitalism and innovation (e.g., globalization and rapid technological advancements), the “stratified nature of opportunity, with access that varies based on economic status, geographic location, and race and ethnicity, has been strongly impacted by a range of choices made over time by policy makers at all levels of government, as well as by corporations and individuals” (see the essay by Schlozman on the impact of political choices in this volume) (Kirsch et al. 2016, p. 39). For example, Kirsch and colleagues believe that residential segregation by race and class has been driven by “weak enforcement of antidiscrimination policies” and “exclusionary zoning practices that allow affluent areas to prevent any incursion of affordable-housing units into their neighborhoods” (Kirsch et al. 2016, p. 39).

3. Implications of Poverty for Individual Children

Poverty leads to significant individual suffering and has been identified as the single greatest threat to children’s health and wellbeing; it negatively impacts multiple dimensions of child development simultaneously, including physical health, mental health, executive functioning, and learning (American Academy of Pediatrics 2016). We will highlight two aspects of the multiple and cumulative effects of poverty on individual children: its impact on health and development and its subsequent effect on learning and academic achievement.

3.1. *Impact on Health and Development*

Poverty directly impacts children's health and development by increasing the likelihood of language delays, poor nutrition, chronic illness, and, most critically, by leading to toxic stress and compromising brain development (American Academy of Pediatrics 2016; National Center for Children in Poverty 2016; Noble et al. 2015). In the context of child poverty, adversity and stress shape neural development and dictate adaptations in behavioral patterns and mental states (Blaire and Raver 2012, p. 312). Toxic stress is defined by Garner and colleagues (2012) as: "excessive or prolonged activation of the physiologic stress response systems in the absence of the buffering protection afforded by stable, responsive relationships" (Garner et al. 2012, p. 225). Toxic stress is associated with lifelong hardship, and can result in difficulties with self-regulation (e.g., inattention, impulsivity, and defiance), executive function, learning, and memory (American Academy of Pediatrics 2016; Anda et al. 2006). It can also increase susceptibility to "physical illness (such as cardiovascular disease, hypertension, obesity, diabetes, and stroke)" and "mental health problems (such as depression, anxiety disorders, and substance abuse)" (National Scientific Council on the Developing Child and National Forum on Early Childhood Policy and Programs 2011, p. 9).

The primary mechanism through which children's environments affect their development is stress (National Scientific Council on the Developing Child 2014). Adverse experiences in childhood (such as those related to poverty) can undermine the development of adaptive processes and coping skills and negatively impact the development of the stress response system, which aims to predict life patterns and detect threats via environmental cues (Garner et al. 2012; Tough 2016). When children learn to expect that life will be difficult or chaotic, the stress-response system is constantly on high-alert, which manifests in the form of elevated cortisol levels and other stress-related reactions (Blaire and Raver 2012). While this can serve as a protective factor in the short term, it also results in long-term psychological and physical "costs" to the organism related to alterations to stress and immune system functioning (Blaire and Raver 2012, p. 312).

The emotional repercussions of toxic stress include difficulty with navigating disappointments and provocations, and the cognitive repercussions can include disruption in the development of executive functioning skills (National Scientific Council on the Developing Child and National Forum on Early Childhood Policy and Programs 2011; Tough, 2016). Executive functions serve as building blocks for the successful development of important cognitive and social capacities, and underlie a broad range of life skills, competencies, and behaviors such as working memory, inhibitory control, and cognitive flexibility (National Scientific Council on the Developing Child and National Forum on Early Childhood Policy and Programs 2011, p. 3). Toxic stress, adversity, and trauma ultimately compromise children's development and ability to learn and grow in a healthy manner. There is, therefore, a high emotional cost associated with poverty, as well as a significant overall cost to an individual's wellbeing and human experience. In order to counteract and mitigate the effects of toxic stress, it is critical to foster children's strengths and promote resilience; this can be done through targeted prevention and intervention programming across the course of a child's development.

3.2. *Poverty Limits Learning and Academic Achievement*

It has been established that up to two-thirds of the academic achievement gap is attributable to societal inequality (e.g., poverty) and contexts beyond school (Noguera and Morell 2011; Rothstein 2010). The academic achievement gap between high- and low-income children in the United States has grown by forty percent in a generation (Reardon 2011). For example, the gap in SAT scores between wealthy and poor high school seniors has increased by 35 points on an 800-point scale over the last thirty years (Reardon 2011). This leads to disparity in the college graduation rate between wealthy and poor students, which has also risen steadily in recent decades; without a college degree, economic mobility becomes next to impossible for children from families in the lowest socioeconomic brackets (Reardon 2011).

The academic achievement gap between students from affluent and low-income families is large when children enter kindergarten and does not appear to grow or narrow significantly as children

progress through school (Reardon 2011). Thus, the timing of opportunities and supports is critical with respect to gaps in achievement because “the earlier we intervene to reduce them, the more effective we will be at eliminating them in the long run” (Reardon 2013, p. 15). In other words, without deliberate intervention, income-related achievement gaps will likely persist for the entirety of children’s school careers.

One major factor impacting poor children’s ability to learn and achieve academically is the disparity in quality and quantity of learning supports available (Reardon 2011). While wealthier families are able to purchase materials, experiences, and services to invest in their children (e.g., books, computers, educational outings to museums, or tutoring) (Garrett et al. 1994), children from families with limited resources may not have access to these investments. Furthermore, these families’ housing conditions may not be conducive to learning (e.g., poor lighting, limited space, or high noise levels) (Dearing and Taylor 2007; Evans 2004).

It is clear that children living in impoverished neighborhoods have inadequate access to support services and enrichment opportunities, as well as heightened stress response systems that interfere with the learning process. Because children who grow up in high-stress, high-poverty environments are “constantly on the lookout for threats,” they can enter behavioral patterns in school that are “self-defeating” and directly hinder their ability to learn (e.g., fighting, talking back, acting out in class, etc.); they may also have increased difficulty following complicated directions or be easily distracted, leading to frustration and learned helplessness in the classroom (Tough 2016, p. 21).

As a result of limited resources and opportunities, as well as the detrimental impact of stress on brain development and neurological functioning, it can be concluded that poverty limits learning. Poverty has therefore become one of the most salient factors impacting students’ academic achievement, and has infiltrated the national discussion on education reform. In fact, Berliner (2013) has identified poverty as the single most critical factor to address in educational reform (Berliner 2013).

Beginning in the 1960s with the Coleman Report, there has been increasing recognition that life outside of school has considerable consequences for achievement in school, and this is especially true for students from low-income families (Coleman et al. 1966; Dearing 2008). In 1983, “A Nation at Risk” was published, clearly articulating these concerns and describing the American education system as a “rising tide of mediocrity.” In response to the concerns that have been repeatedly raised about income-based inequality in American education throughout the last several decades, the No Child Left Behind legislation was passed in 2002. Considered the most comprehensive educational reform legislation ever implemented in the United States, No Child Left Behind targeted underperforming schools and measured school improvement via high-stakes standardized assessments. The vast majority of these underperforming schools were located in high-poverty urban centers or remote rural areas. More recently, President Obama’s Race to the Top program continued to place an emphasis on closing the achievement gap and providing higher-quality education to the nation’s children. In spite of ample attention and significant improvements in curriculum and instruction introduced by the No Child Left Behind legislation and Race to the Top program, the academic achievement gap in the United States has remained steadfastly stubborn.

The academic achievement gap was originally conceptualized as a discrepancy in standardized assessment scores between students of different racial groups, but recent data highlights a more nuanced understanding that includes the connection between poverty and racially minoritized groups. While the academic achievement gaps between racial groups continue to warrant attention, standardized assessment results demonstrate that they have narrowed since the 1970s; in contrast, income-related academic achievement gaps have grown substantially (Kirsch et al. 2016). In fact, the gap between children from high- and low-income families is now more than twice as large as the Black-White achievement gap (Kirsch et al. 2016). This highlights the inextricable link between poverty and race in our nation, and identifies economic segregation, inadequate resources, and lack of opportunities as major contributors to the persistent academic achievement gap. As a result, it is critical to acknowledge the complex role of identity-based intersectionality (e.g., students of Color who are also from low-income families) on the nation’s achievement gap.

In an attempt to highlight the impact of systemic barriers and inequality many schoolchildren face, the persistent gap in students' academic achievement has also been referred to as an "opportunity gap" (Darling-Hammond 2010; Darling-Hammond 2014; Milner 2013). The rationale behind this term is a clear understanding of how important it is to create opportunities that compound economic and social advantages for children from marginalized groups.

It thus becomes imperative to provide children with opportunities and recognize the importance of "human and social capital," which "impacts the transmission of opportunity from one generation to the next" (Kirsch et al. 2016, p. 26). Reardon (2011) asserts: "We tend to think of the relationship between socioeconomic status and children's academic achievement as a sociological necessity, rather than as the product of a set of social conditions, policy choices, and educational practices" (Reardon 2011, p. 92). If we operate from this perspective, it becomes even more logical to conceptualize disparities in academic achievement as an "opportunity gap" that we can actively work toward closing.

4. Framework for Action

There is a paradox inherent in the cutting-edge research on poverty and children's learning and achievement: "while the problems that accompany poverty may be best understood on the molecular level, the solutions are not" (Tough 2016, p. 22). In other words, even though it is important to cultivate a deeper understanding of the intricate scientific impact of poverty on brain development, this does not provide sufficient information about how to help children or bring about change.

The majority of what we know about how socioeconomic inequality leads to educational inequality is rooted in the child development literature, which has identified ways in which children's risk and protective factors interact with one another and impact a child's developmental trajectory. For children living in poverty, risk factors are present across developmental domains (e.g., cognitive, social, emotional, and behavioral) as well as across contexts (e.g., home, neighborhood, and school). Despite the innumerable risk factors children living in poverty face, it is imperative to recognize that risk factors are often counterbalanced by protective factors, as well as by children's resilience. Thus, by ameliorating the effects of poverty via coordinated intervention efforts, children's developmental trajectories can be altered (Cicchetti and Sroufe 2000; Sameroff 2009).

Due to the reality that the problem of poverty and its subsequent impact on child development and education defies simple solutions (Kirsch et al. 2016), approaches operating at both the societal level—addressed by economists and policymakers—and at the individual level—addressed by human services providers such as social workers or psychologists—are needed. The conversation, according to Tough (2016), cannot be confined to "policy makers and philanthropists"; it should also include those who are most familiar with the struggles of children experiencing adversity related to poverty—including educators, pediatricians, parents, social workers, etc. (Tough 2016, p. 8).

Examples of solutions at the societal level involve tax policies and direct financial aid such as earned income tax credit (see the essay by Quinn and Cahill in this volume), access to comprehensive healthcare provided by Medicaid and the Affordable Care Act, participation in early childhood education initiatives such as Head Start, and access to adequate nutrition support such as the Supplemental Nutrition Assistance Program (SNAP) or Women, Infants, and Children (WIC) program benefits (American Academy of Pediatrics 2016). These services and interventions are designed to be widely available to families in our nation in order to ensure that children's basic needs are met; however, universal services are often insufficient without individually tailored support and attention for every child and family.

Individual-level solutions can take on a variety of forms (e.g., in-home family therapy, tutoring, after-school enrichment programs, etc.), and can drastically range in terms of depth and breadth (i.e., targeted vs. comprehensive). With this in mind, Kirsch and colleagues (2016) offer five principles upon which individual-level solutions can be built: (1) interventions must be implemented systematically across the lifespan, (2) interventions must be systemic, drawing on all relevant stakeholders and institutions, (3) efforts must be sustainable, (4) a strategy of continuous

improvement must guide initiatives, and (5) efforts must be adaptable to local contexts. A framework for action regarding individual-level solutions should also include a long-term commitment to evidence-based interventions and policies, a focus on building coalitions among multiple institutions, and an openness to interweaving already-successful approaches with new interventions (Kirsch et al. 2016, p. 6).

It is also possible for an intervention to exist at the nexus between these two different approaches, and incorporate key elements of both individual-level and societal-level solutions. The value of such an intervention is the concurrent consideration of individual children's needs and the context or environment in which they are learning and growing. In addition to providing tailored supports to each child, these interventions can operate in a systemic manner and be connected to policy updates or other large-scale changes. One example of such an intervention that exists at the nexus between individual and societal levels is City Connects, a national organization that aims to create tailored networks of supports and opportunities for children in the United States. The City Connects intervention's practice and outcomes will be discussed in the following section of this paper.

5. The City Connects Intervention

5.1. Introduction and Rationale

The City Connects intervention began in Boston, Massachusetts in 2001 and is now implemented in 84 urban schools across the United States (in Massachusetts, New York, Ohio, Minnesota, and Connecticut). City Connects currently serves over 27,000 children, the vast majority of which come from low-income families. The mission of City Connects is to have children engage and learn in school by connecting each student with the tailored set of prevention, intervention, and enrichment services he or she needs to thrive. The authors of this paper are directly affiliated with City Connects; the first author directs the City Connects research and intervention program and the second author is an advanced graduate assistant. City Connects is housed within the Lynch School of Education at Boston College and funded via contributions from philanthropic partners as well as by individual school districts that choose to implement the intervention.

The City Connects intervention is grounded in a deep understanding of the deleterious impact of poverty on learning and academic achievement. This includes recognizing that, for all children, life outside of school affects what happens in school, and that for children living in poverty, life outside of school may include tremendous stressors such as hunger, a stay in a homeless shelter, or medical needs that are difficult to meet. Low-income families may also have less time and fewer resources to invest in supporting their children's education, and the chronic financial stress experienced by parents may negatively impact the ability to positively interact with children and with school staff.

Research shows that poverty profoundly impacts all domains of child development (e.g., academic achievement, health, family, or social-emotional), that these domains interact, and that the consequences for one domain multiply across the others (Cicchetti and Sroufe 2000; Sameroff 2009). In response, effective student support interventions should address each of these domains while strongly considering a child's context (e.g., school and neighborhood environments) and tailoring services to the particular risks and strengths of individual children (Rutter 2007; and see Dearing's essay in this volume). In order to provide this comprehensive care, effective student support interventions should concurrently operate at individual and societal levels.

It is clear that schools provide an obvious and appropriate setting for the core functions of effective student support interventions due to the amount of time children spend in schools and their role in student's socialization (O'Connor et al. 2011). Recognizing the complexity of the challenges at hand, Reardon (2013) asserts: "U.S. schools have historically been thought of as the great equalizer—the social institution best suited to ensure that all children have equal opportunity to learn, develop, and thrive. It is unrealistic, however, to think that school-based strategies alone will eliminate stark

disparities in academic success” (Reardon 2013, p. 14). Thus, in addition to acknowledging that schools serve as a hub in which teachers, school staff, families, community partners, and policymakers can come together to support students’ learning and achievement, the City Connects intervention recognizes the value of collaborating with community partners, policymakers, and other stakeholders in order to address students’ needs in a comprehensive manner.

With respect to theoretical foundation, the City Connects intervention is rooted in the child development literature. This body of literature suggests that, while early childhood experiences impact long-term trajectories, they do not dictate absolute outcomes; this implies that developmental trajectories can be altered and highlights the innate malleability of child development as a function of children’s brain plasticity (Cicchetti 2015; Ford and Lerner 1992; Lerner 1995; Rutter 2007; Sameroff 2009; Shonkoff 2010). Therefore, change—via evidence-based intervention—is possible, as the intervention serves as the mechanism to elicit and guide a change in developmental trajectories.

5.2. Codified Practice

City Connects is a school-based intervention that provides an infrastructure for student support efforts in schools and includes a systemic and codified practice. At the heart of the City Connects intervention is a City Connects Coordinator in each school. Coordinators hold Master’s degrees in fields such as school counseling or school social work, and also receive training, professional development, coaching, and supervision from City Connects. City Connects has developed materials and guidance for the staff members who coach and supervise practitioners, referred to as Program Managers. Program Managers are also trained by City Connects, and are each responsible for supervising Coordinators in up to ten schools.

Every year, the City Connects Coordinator in each school collaborates with teachers to identify each child’s unique strengths and needs across major developmental domains. Based on this assessment, the Coordinator develops a plan for every student in order to connect him or her to a tailored set of support services and enrichment opportunities, both in the school and throughout the community. City Connects Coordinators then collaborate with the students’ family to finalize and implement the plans, providing support as needed with respect to logistics (e.g., registration forms, fees, transportation, etc.). Students identified as having intensive needs at any point during the school year receive an individual review during which a wider team of education, human services, and health professionals discuss and develop specific measureable goals and strategies for the student (City Connects 2014a). City Connects pays particular attention to children’s health and links children to health services from pediatricians and other healthcare providers.

City Connects Coordinators document, track, and follow up on the delivery of the tailored set of services for each student via a proprietary online database, which allows for secure collection of data on student reviews, individual student plans, service referrals, and providers who deliver services; it also allows Coordinators to run reports that are used to guide practice and to develop priorities.

Coordinators themselves directly provide a range of support services within the school and classrooms, consistent with the principal’s objectives and school wide curricula (e.g., social-emotional learning or healthy life skills groups with topics such as friendships, family relationships, bullying, or nutrition). Another critical aspect of the role of the City Connects Coordinator is cultivating relationships with children and families throughout the course of the school year, as well as developing partnerships with local community agencies and institutions. These partnerships collectively provide a range of prevention, early intervention, and enrichment services. Recognition of the critical role of systematic partnerships with community and school supports is a unique aspect of the City Connects intervention, which greatly impacts efficiency of matching students to resources.

With these codified practices and procedures in place, City Connects is able to implement personally tailored supports in a systemic manner—existing at the intersection between individual and societal approaches to supporting students. City Connects stands apart from similar initiatives, which are sometimes termed “wraparound” programming, because it is both theory-based and

research driven. The City Connects intervention is designed as a systemic practice, which is well-documented and learned through specific trainings and professional development initiatives. This practice is rigid and flexible at the same time; it is carried out in a similar way from school to school, with the ability to measure fidelity of implementation, but also flexible enough to adapt to each context in which it is implemented.

City Connects is grounded in theoretical principles of effective practice that emerge from the research on child development; these principles specify that a “wraparound” intervention should be: (1) *customized* to meet the needs of every single individual child within the school, (2) *comprehensive* in order to assess the needs of the “whole child” across all developmental domains (academic, social-emotional, health, and family) and provide multi-tiered supports ranging from prevention to intensive intervention, (3) *coordinated* through an intentional practice that involves organized collaboration among school staff and family members and provides a system for collecting and utilizing student-level data, and (4) *continuous* in how it is systemically integrated into the functioning of the school, allowing for regular follow-up over time, evaluation of fidelity of implementation, and measurement the intervention’s outcomes/impact (Walsh et al. 2016)

5.3. Outcomes

Over a decade of research has demonstrated that City Connects serves as an effective mechanism for changing children’s academic and non-academic outcomes, thereby increasing the life chances of children in poverty. Data show that City Connects significantly improves academic performance and thriving, and narrows the achievement gap for low-income students in participating schools (City Connects 2014a; City Connects 2014b; Walsh et al. 2014). Students enrolled in City Connects elementary schools outperform their peers who were never enrolled in a City Connects school on measures of academic achievement (i.e., standardized assessments and classroom report cards) and demonstrate improved thriving in areas such as behavior, work habits, and effort (City Connects 2014a; City Connects 2014b; Walsh et al. 2014).

After students leave City Connects schools in the fifth grade, they continue to thrive and outperform their counterparts. For example, relative to the Massachusetts state average, the achievement gap for students in City Connects schools is closed by half in English Language Arts and by two-thirds in Mathematics. Students who participated in the City Connects intervention in elementary school also earn higher grades on middle school report cards, have lower rates of being held back, are less likely to be chronically absent, and drop out of high school at only half the rate of their peers who were never enrolled in a City Connects school (City Connects 2014a; City Connects 2014b). This is important because in the United States, children’s opportunities and life chances are notably enhanced by receiving a high school diploma. City Connects student outcomes are also consistent across important subgroups of students. For example, the City Connects intervention considerably narrowed academic achievement gaps between English language learners and immigrant children who were proficient in English (Dearing et al. 2016).

In addition to leading to positive outcomes for individual students, the City Connects intervention is cost-effective. Economists at the Center for Benefit-Cost Studies of Education at Columbia University concluded that City Connects provides a societal return on investment of 11:1 and a return on investment of 3:1 including the costs of the intervention and all services to which children and families may be connected (Bowden et al. 2015). This means that society will save three dollars for every dollar invested in the City Connects model and the associated support services and enrichment opportunities, saving a minimum of a third of societal costs (Bowden et al. 2015). In other words, the short-and long-term outcomes of City Connects demonstrate that the economic costs of poverty are ameliorated by the intervention. To the extent that the intervention is cost-effective, it is rendered more valuable to a larger number of children in poverty and more able to relieve human suffering.

The impact of City Connects has been recognized by Child Trends, a non-profit, non-partisan research center. Following a national review of prominent systemic student support interventions,

City Connects was designated as one of three interventions that meets the Child Trends standards for rigorous research; these interventions are described by Child Trends as “a promising approach for helping more disadvantaged children and youth improve in school and have a brighter path to life,” and it is asserted that their salutary effects may be cumulative (Moore and Emig 2014, p. 8).

6. Conclusions

It is widely asserted that the system that currently exists in this country to support children living in poverty is “profoundly broken,” and the problems most of these children face are “relentless and pervasive” (Tough 2016, p. 127). Statistically, children who grow up in low-income families are “likely to live in chaotic disrupted families, in neighborhoods or regions of concentrated poverty where there are few resources to nurture children and countless perils to wound them, physically or psychologically or both”—furthermore, “the schools they attend are likely to be segregated by race and class and to have less money to spend on instruction than the schools well-off students attend, and their teachers are likely to be less experienced and less well-trained than teachers at other schools” (Tough 2016, p. 128).

In spite of the daunting challenges associated with child poverty in the United States, it is critical to acknowledge that the course of a child’s development can be altered via intervention and that—with sufficient supports, opportunities, and resources—every child can thrive. In other words, the deleterious effects of poverty and inequality can be mitigated. This can be done by assessing students’ individual strengths and needs and subsequently ensuring children are connected to the supports they need to be successful both at school and at home.

City Connects is one example of an evidence-based, theoretically-grounded intervention that can provide these necessary supports, opportunities, and resources in a sustainable, cost-effective manner. Due to its underlying mission and philosophy, the City Connects intervention also serves as an example of an approach that exists at the nexus between individual and societal solutions. By improving academic outcomes and student thriving, decreasing rates of chronic absenteeism and high school dropout, and connecting students to critical social-emotional, behavioral, health, and family-related supports, we assert that City Connects improves children’s life chances and alleviates some of the burdens associated with poverty for children and families. As Kirsch and colleagues (2016) suggest: “America’s future will depend not only on the choices we make, but also the urgency and persistence with which we work together to take the actions consistent with those choices” (Kirsch et al. 2016, p. 45).

In order to implement effective interventions that can bring about the change needed to combat the effects of poverty on children’s achievement, it is clear that we must reach beyond simply weaving programs together, and engage in comprehensive cross-sector collaboration (including health, mental health, education, family systems, etc.). Furthermore, if change is to occur at both individual and societal levels, we must expand our definition of “community” and increase our sense of reciprocity and obligation to one another. This includes both our immediate community (e.g., neighborhood, local schools, etc.) and a broader definition of community at a societal level (e.g., country and world) (on this last point, see the essay by Garcia in this volume). Only when communities unite can the problems associated with child poverty and education be addressed. Continuing to build the human community is both the challenge and the solution.

Acknowledgements: We would like to thank the funders of this research, including the Barr Foundation, the Better Way Foundation, the Charles Hayden Foundation, and the Mathile Family Foundation. We also would like to thank the staff of the Center for Optimized Student Support at Boston College and at all schools in which the City Connects intervention is implemented.

Author Contributions: Mary Walsh and Maria Theodorakakis contributed equally to this paper. Mary Walsh led the design and development of the City Connects intervention. Maria Theodorakakis has participated in multiple phases of the evaluation of the intervention.

Conflicts of Interest: The authors declare no conflict of interest.

References

- American Academy of Pediatrics. 2016. Poverty and child health in the United States. *Pediatrics* 137: 1–16.
- Anda, Rorbert, Vincent Felitti, J. Douglas Bremner, John Walker, Charles Whitfield, Bruce Perry, Shanta R. Dube, and Wayne H. Giles. 2006. The enduring effects of abuse and related adverse experiences in childhood. *European Archives of Psychiatry and Clinical Neuroscience* 256: 174–86.
- Berliner, David. 2013. Effects of inequality and poverty vs. teachers and schooling on America's youth. *Teacher's College Record* 115: 1–26.
- Blaire, Clancy, and Cybele Raver. 2012. Child development and the context of adversity: Experimental canalization of brain and behavior. *American Psychologist* 67: 309–18.
- Bowden, A. Brooks, Clive R. Belfield, Henry M. Levin, Robert Shand, Anyi Wang, and Melisa Morales. 2015. A benefit-cost analysis of City Connects. Available online: <http://cbcse.org/wordpress/wp-content/uploads/2015/08/CityConnects.pdf> (accessed on 10 April 2017).
- Cicchetti, Dante. 2015. Neural plasticity, sensitive periods, and psychopathology. *Development and Psychopathology* 27: 319–20.
- Cicchetti, Dante, and L. Alan Sroufe. 2000. The past as prologue to the future: The times, they've been a-changin'. *Reflecting on the Past and Planning for the Future of Developmental Psychopathology* 12: 255–64.
- City Connects. 2014. *The Impact of City Connects: Progress Report 2014*. Available online: http://www.bc.edu/content/dam/files/schools/lsoe/cityconnects/pdf/CityConnects_ProgressReport_2014.pdf (accessed on 10 April 2017).
- City Connects. 2014. City Connects: The lasting impact of optimized student support. Available online: <http://www.bc.edu/content/dam/files/schools/lsoe/cityconnects/pdf/City%20Connects%20Impact%20Winter%202014.pdf> (accessed on 10 April 2017).
- Coleman, James S., Ernest Q. Campbell, Carol. J. Hobson, James McPartland, Alexander M. Mood, Frederic D. Weinfeld, and Robert L. York. 1966. *Equality of Educational Opportunity*. Washington: Office of Education, U.S. Department of Health, Education, and Welfare.
- Darling-Hammond, Linda. 2010. *The Flat World and Education: How America's Commitment to Equity will Determine our Future*. New York: Teachers College Press.
- Darling-Hammond, Linda. 2014. Closing the achievement gap: A systemic view. In *Closing the Achievement Gap from an International Perspective*. Springer: Dordrecht, pp. 7–20.
- Dearing, Eric 2008. The psychological costs of growing up poor. *Annals of the New York Science Academy of Sciences* 1136: 324–32.
- Dearing, Eric, and Beck A. Taylor. 2007. Home improvements: Within-family associations between income and the quality of children's home environments. *Journal of Applied Developmental Psychology* 28: 427–44.
- Dearing, Eric, Mary E. Walsh, Erin Sibley, Terrence Lee-St John, Claire Foley, and Anastasia Raczek. 2016. Can Community and School-Based Supports Improve the Achievement of First-Generation Immigrant Children Attending High-Poverty Schools? *Child Development* 87: 883–97.
- Evans, Gary W. 2004. The environment of childhood poverty. *American Psychologist* 59: 77–92.
- Ford, Donald H., and Richard M. Lerner. 1992. *Developmental Systems Theory: An Integrative Approach*. Newbury Park: Sage.
- Garrett, Patricia, Nicholas Ng'andu, and John Ferron. 1994. Poverty experience of young children and the quality of their home environments. *Child Development* 65: 331–45.
- Garner, Andrew S., Jack P. Shonkoff, Benjamin S. Siegel., Mary I. Dobbins, Marion F. Earls, Laura McGuinn, John Pascoe, and David L. Wood. 2012. Early childhood adversity, toxic stress, and the role of the pediatrician: Translating developmental science into lifelong health. *Pediatrics* 129: 224–31.
- Holzer, Harry J., Diane W. Schanzenbach, Greg J. Duncan, and Jens Ludwig. 2008. The economic costs of childhood poverty in the United States. *Journal of Children and Poverty* 14: 41–61.
- Kirsch, I., H. Braun, M. L. Lennon, and A. Sands. 2016. *Choosing Our Future: A Story of Opportunity in America*. Princeton: Educational Testing Service Project.
- Lerner, Richard M. 1995. Developing individuals within changing contexts: Implications of developmental contextualism for human development research, policy, and programs. In *Development of Person-Context Relations*. Edited by Thomas A. Kindermann and Jaan Valsiner. Hillsdale: Lawrence Erlbaum.
- Milner, H. Richard 2013. Rethinking achievement gap talk in urban education. *Urban Education* 48: 3–8.

- Moore, Kristin A., and Carol Emig. 2014. Integrated student supports: A summary of the evidence base for policymakers. Available online: <http://www.childtrends.org/wp-content/uploads/2014/02/2014-05ISSWhitePaper1.pdf> (accessed on 10 April 2017).
- National Center for Children in Poverty. 2016. Child Poverty. Available online: <http://www.nccp.org/topics/child-poverty.html> (accessed on 10 April 2017).
- National Scientific Council on the Developing Child. 2014. Excessive Stress Disrupts the Architecture of the Developing Brain. Working Paper 3. Harvard University, Cambridge, MA, USA.
- National Scientific Council on the Developing Child and National Forum on Early Childhood Policy and Programs. 2011. Building the Brain's "Air Traffic Control" System: How Early Experiences Shape the Development of Executive Function. Working Paper No. 11. Center on the Developing Child, Harvard University, Cambridge, MA, USA.
- Noble, Kimberly G., Susan M. Houston, Natalie H. Brito, Hauke Bartsch, Eric Kan, Joshua M. Kuperman, Natacha Akshoomoff, David G. Amaral, Cinnamon S. Bloss, Ondrej Libiger, and et al. 2015. Family income, parental education and brain structure in children and adolescents. *Natural Neuroscience* 18: 773–78.
- Noguera, Peter and Ernest Morrell. 2011. A Framework for Change: A Broader and Bolder Approach to School Reform. *Teachers College Record*, August 4. Available online: <http://www.tcrecord.org> (accessed on 10 April 2017).
- O'Connor, Erin E., Eric Dearing, and Brian A. Collins. 2011. Teacher-child relationship and behavior problem trajectories in elementary school. *American Educational Research Journal* 48: 120–62.
- Putnam, Robert. 2015. *Our Kids: The American Dream in Crisis*. New York: Simon and Schuster.
- Reardon, Sean. 2011. The widening academic achievement gap between the rich and the poor: New evidence and possible explanations. In *Whither Opportunity?: Rising Inequality, Schools, and Children's Life Chances*. Edited by Greg J. Duncan and Richard J. Murnane. New York: Russell Sage Foundation.
- Reardon, Sean. 2013. The widening income achievement gap. *Educational Leadership* 70: 10–16.
- Rothstein, Richard 2010. How to fix our schools. Washington: Economic Policy Institute, October 14. Available online: www.epi.org (accessed on 10 April 2017)
- Rutter, Michael 2007. Gene-environment interdependence. *Developmental Science* 10: 12–18.
- Sameroff, Arnold 2009. *The Transactional Model*. Washington: American Psychological Association.
- Scharfenberg, David. 2016. Boston's struggle with income segregation. *The Boston Globe*, 6 March. Available online: <https://www.bostonglobe.com/metro/2016/03/05/segregation/NiQBy000TZsGgLnAT0tHsL/story.html> (accessed 6 March 2017).
- Shonkoff, Jack P. 2010. Building a new biodevelopmental framework to guide the future of early childhood policy. *Child Development* 81: 357–67.
- Southern Education Foundation. 2015. A new majority: Low income students now a majority in the nation's public schools (Research Bulletin). Available online: <http://www.southern-education.org/getattachment/4ac62e27-5260-47a5-9d02-14896ec3a531/A-New-Majority-2015-Update-Low-Income-Students-Now.aspx> (accessed on 10 April 2017).
- Tough, Paul. 2016. Helping children succeed: What works and why. Available online: paultough.com/helping (accessed on 10 April 2017).
- U.S. Department of Education. 2016. *Public Elementary/Secondary School Universe Survey 2013–14*. Washington: National Center for Education Statistics, Common Core of Data (CCD). Available online: https://nces.ed.gov/programs/digest/d15/tables/dt15_204.10.asp?current=yes (accessed on 10 April 2017).
- United Nations Educational, Scientific and Cultural Organization. 2017. Poverty. Available online: <http://www.unesco.org/new/en/social-and-human-sciences/themes/international-migration/glossary/poverty> (accessed on 30 March 2017).
- Walsh, Mary E., George F. Madaus, Anastasia E. Raczek, Eric Dearing, Claire Foley, Chen An, and Albert Beaton. 2014. A New Model for Student Support in High-Poverty Urban Elementary Schools Effects on Elementary and Middle School Academic Outcomes. *American Educational Research Journal* 51: 704–37.

Walsh, Mary E., Joan Wasser Gish, Claire Foley, Maria Theodorakakis, and Kirsten Rene. 2016. Policy Brief: Principles of Effective Practice for Integrated Student Support. Available online: <http://www.bcc.edu/content/dam/files/schools/lsoe/cityconnects/pdf/Policy%20Brief%20%20Building%20Sustainable%20Interventions%20web.pdf> (accessed on 10 April 2017).



© 2017 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open-access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<http://creativecommons.org/licenses/by/4.0/>).