

INVESTING IN EQUAL OPPORTUNITY

WHAT WOULD IT TAKE TO BUILD THE BALANCE WHEEL?

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INVESTING IN EQUAL OPPORTUNITY: WHAT WOULD IT TAKE TO BUILD THE BALANCE WHEEL?

Jennifer King Rice, University of Maryland

Education then, beyond all other devices of human origin, is the great equalizer of the conditions of men, the balance wheel of the social machinery.

Horace Mann, 1848

Executive Summary

More than 150 years ago Horace Mann persuasively reasoned that education is the "balance wheel" of the social structure. He argued that education should be free and universal. While much progress has been made in establishing a universal education system since Mann spoke those words, substantial disparities in educational resources, opportunities, and outcomes continue to undermine his vision—and ultimately our society.

This brief revisits Mann's vision of education as the balance wheel of society. The purpose is to identify resources and supporting policies that would be required if we fully committed our schools to the goal of equal opportunity. The brief recognizes that the opportunity gap is grounded in a range of social and economic factors well beyond the control of schools and that serious efforts to promote equal opportunity must include a broader set of services. However, in the absence of policies to address those factors, it seems reasonable to consider what an education system fully committed to equal opportunity might look like.

The brief describes resources and services that are within the traditional education sphere as well as provisions and necessary resources that would expand the role of education to address student needs in ways that, in many cases, are already expected of schools. The paper concludes by discussing the challenges of pursuing equal opportunity in the current policy context that promotes high stakes accountability, resegregation, and privatization. Recommendations for an education system that aims to realize Mann's vision of the balance wheel include the following.

- Policymakers and the general public should recognize the broad goals of
 education including civic responsibility, democratic values, economic
 self-sufficiency, cultural competency and awareness, and social and
 economic opportunity. Student achievement, while important, is a single
 narrow indicator. Equal opportunity requires a broader understanding of the social
 and economic forces that undermine individuals' life chances.
- Policymakers should ensure that all schools have the fundamental educational resources they need to promote student success: effective teachers and principals, appropriate class size, challenging and culturally relevant curriculum and supportive instructional resources, sufficient quality time for learning and development, and up-to-date facilities and a safe environment. The adequacy standards used by the courts is a legal floor, but equal opportunity will require a much greater commitment to ensuring that students from disadvantaged backgrounds have the highest quality educational resources.
- Policymakers should expand the scope of schools in high-poverty neighborhoods to provide wrap around services including nutritional supports, health clinics, parental education, extended learning time, recreational programs, and other services needed to meet the social, physical, cognitive, and economic needs of both students and families. Expanding the services and resources offered by schools has the potential to dramatically increase their impact. While schools account for less than a quarter of the variance in student achievement, public investment in a more comprehensive approach that addresses the multiple sources of disadvantage may position schools to have greater impact and more effectively promote equal opportunity.
- Policymakers should promote a policy context that is supportive of equal opportunity: use achievement testing for formative rather than high-stakes purposes, avoid policies that allow for school resegregation, and renew the public commitment to public education. The resources and services detailed in this brief are based on the best available research evidence, but to have significant impact they must be supported by policies sensitive to local circumstances, well supported by public resources, and carefully designed to avoid the many unintended consequences that so often result.

INVESTING IN EQUAL OPPORTUNITY: WHAT WOULD IT TAKE TO BUILD THE BALANCE WHEEL?

Introduction

Amidst the flurry of education policy debates about ESEA reauthorization, the expansion of charter schools, the adoption of the Common Core standards, teacher evaluation and compensation reforms, and other contemporary issues, stakeholders in partisan discussions often seem to have lost sight of the traditional and widely held assumption that universal public education is a social good, one worth significant public investment at local, state, and national levels. In fact, Horace Mann, the 19th century champion of publically funded universal education, persuasively reasoned that education is the "balance wheel" of the social structure. He argued that education should be "universal, non-sectarian, free, and that its aims should be social efficiency, civic virtue, and character, rather than mere learning or the advancement of sectarian ends." Build schools," Mann argued, "... and you will make the happiness and greatness of the nation through the prosperity and morality of each of its citizens." His assertion that our collective well-being as a nation depends on an educated citizenry has important implications for equal educational opportunity. Mann viewed education as the "great equalizer of the conditions of men," and his vision is reflected at least in part in today's heavy reliance on K-12 schooling as a substitute for a robust set of welfare programs.

While much progress has been made in establishing a universal education system since Mann spoke those words over 150 years ago, substantial disparities in educational resources, opportunities, and outcomes continue to undermine his vision—and ultimately our society. These persistent disparities, strongly correlated with race and class, have prompted decades of research aimed at defining equity in education and determining the collection of resources necessary to realize equitable educational opportunities for all children. Questions about such topics have been at the center of many policy debates, including how to identify appropriate educational aims, how to assess student mastery of them, and how to hold schools accountable for student learning. For example, the bipartisan NCLB legislation of 2001 prioritized educational opportunity by holding schools accountable for the performance of students in various subgroups. Grounded in the erroneous assumption that schools alone can close the achievement gap, NCLB and the policies in its wake have emphasized high-stakes test-based accountability, school choice, school reconstitution, and other largely punitive strategies to prompt school improvement. While some evidence suggests that progress has been made, the policy has not realized its stated goals and many disproportionately poor and minority children are still left behind.

This brief revisits Mann's vision of education as the balance wheel of society. The purpose is to identify resources and supporting policies that would be required if we as a nation fully committed our schools to the goal of equal opportunity. Education clearly plays a critical role in creating later life opportunity, and schools have not only endured a great deal of blame for the achievement gap but also have been assigned the responsibility of closing it and correcting the social and economic disparities linked with race and class. However, since the Coleman report was released in 1966, we have known that schools account for less than a quarter of the variance in student achievement. So, while excellent schools staffed by capable and committed educators can certainly make a difference in reducing disparities, conventional educational services alone are not likely to close the gap. ⁵ The most sensible approach would inventory a range of social and economic policies to address the multiple factors well beyond school systems that contribute to the enduring opportunity gap—providing, for example, fair housing policies, investments in distressed neighborhoods, and policies that increase the income of poor families. In the absence of such policies, however, we might at least consider what an education system fully committed to equal opportunity would look like.

The next section of this brief documents the broken social machinery in the U.S. and establishes education as a critical factor in ensuring equal opportunity to participate in society's civic, social, and economic institutions. The following section draws on existing empirical evidence to identify fundamental educational resources needed to support equal opportunity. It details resources and services within the traditional education sphere as well as others that would be required to expand the role of education and allow schools to address student needs in ways that, although often already expected, have not been formally recognized and funded. The paper concludes by discussing the challenges of pursuing equal opportunity in the current education policy context and by outlining a set of policy recommendations that are not only within reach but essential if we are committed to realizing the potential of education as the balance wheel of America's social machinery.

The Broken Machine and the Education Imperative

The central idea behind Mann's balance wheel metaphor is that equal opportunity to acquire a quality education is a prerequisite for equal opportunity to participate in the political, civic, and economic institutions of society—and that the well-being of a democratic society depends on broad participation in those institutions. An appropriate starting point for a discussion of how to provide equal educational opportunity is to ask What is equal opportunity with respect to education, and how do we measure it?

Much of the discourse around equal educational opportunity has focused squarely on the achievement gap. However: while the gap in student test scores is an important indicator of disparities, it offers only a glimpse into the problem. Offering an alternative perspective, Welner and Carter suggest that a more appropriate indicator is what they call "the opportunity gap," which, in contrast, shifts our attention from outcomes to inputs—to the deficiencies in the foundational components of societies, schools, and communities that produce significant differences in educational—and ultimately socioeconomic—

outcomes." An additional weakness of relying on student test scores as an indicator of equality is that they are a single and arguably narrow measure of what we as a society expect our schools to teach. What about civic responsibility, democratic values, cultural competency and awareness, economic self-sufficiency, and social and economic mobility? Attention to those more abstract or distant outcomes typically extends beyond the domain of existing research and requires a broader social consensus on the fundamental goals of public education. While it's important to recognize that narrow measures like student achievement may illustrate the problem, they may also distort the solution. For example, the narrow focus on the achievement gap may point to solutions aiming only to improve student test scores rather than to broader interventions addressing the underlying social, economic, and educational conditions required for students to thrive in school and beyond.

However we measure the opportunity gap, it is clear that inequality in America is growing. Trends in labor market outcomes demonstrate that disparities in American family incomes have been increasing over the past five decades. ¹⁰ The income gap between families in the top and bottom 20 percent of the income distribution has increased in 2011 dollars from \$59,324 in 1947 to \$177,844 in 2010—an increase of nearly 300 percent. Disparities in income associated with various levels of educational attainment have also been growing

However we measure the opportunity gap, it is clear that inequality in America is growing.

over time, suggesting that educational attainment is important in predicting labor market outcomes.¹¹ This is not good news for people with the least, or weakest, education. Perhaps even more troubling is that the income-achievement gap has been growing for at least the past 50 years; the achievement disparity between students

from families in the top half of the income distribution versus those in the bottom half has increased by 30-60 percent since the 1970s. ¹² This growing achievement gap is, in part, a function of a stronger relationship between family income and rising achievement levels among students in wealthier families. The causal relationships here are complex, but the cycle is clear: poor educational opportunities lead to poor educational outcomes, which are associated with poor labor market outcomes, which in turn, lead to poor educational opportunities for the next generation. ¹³

While labor market outcomes are relatively straightforward to measure, many other social outcomes that are more difficult to quantify are nevertheless similarly related to educational opportunity. For example, evidence shows an association between education levels and multiple benefits to both individuals and society, including better health outcomes, greater civic participation, reduced crime and incarceration, and reduced reliance on public assistance programs. ¹⁴ These social benefits not only contribute to a better functioning society, but they also have clear economic returns. Accounting for both the social benefits and costs, Belfield and Levin estimate the total social impact associated with an individual completing a high school degree compared to dropping out is \$490,560. The comparable impact of earning a bachelor's degree is almost \$1.8 million. ¹⁵ Holzer and

colleagues estimate that the annual aggregate costs of child poverty amount to about \$500 billion, or 4 percent of the GDP.¹⁶ The estimated returns on investing in education—and the estimated costs of not doing so—provide evidence supporting Mann's theory of social efficiency resulting from public investment in universal education. Perhaps even more compelling than the economic justification for investing in equal opportunity are the implications for democracy—and the moral and ethical imperatives of a just society.

Fundamental Educational Resources Required for Equal Opportunity

This section of the paper focuses on fundamental educational resources that are necessary—but not necessarily sufficient—for equal opportunity. It outlines what must be provided through an education system truly committed to and designed for ensuring equal opportunity for all students. Some of these resources are clearly within the bounds of the current education system; others require schools to take on expanded responsibilities. This discussion also considers how recent reform efforts promoted as means to equity and accountability have, in some cases, made matters worse for students in poverty and students of color.

Ensuring Fundamental Resources within the Current School System

While there is no single recipe for success in all school communities, recent research has identified components of an *adequate* education—a first step toward equal educational opportunity. An adequate education is one that provides resources sufficient to ensure that all students, regardless of background or residential district, have the opportunity to realize a clearly defined set of goals. Before further exploring the concept of adequacy, however, it is important to note that current measures of how well students might be meeting goals are problematic. First, while the stated goals of education may be broad (as in developing student interest in civic life, or their problem solving abilities), schools' success is typically measured using standardized test scores and graduation rates—crude and narrow measures, to be sure, that offer little or no insight into many important goals. Further, since proficiency standards vary across states and, given the high-stakes environment introduced by NCLB, many states endorse standards substantially lower than national NAEP proficiency standards. Reproficiency standards.

To return to the topic of adequacy itself: it is important to note that the term is conceptually distinct from equality. Adequacy is a floor; it is the minimum level of resources needed to realize the stated goals of education. Equality, on the other hand, is "necessarily comparative or relational." Of course, these concepts could be closely connected if, for example, we were to assess the degree to which individuals have equal opportunity to realize defined outcomes, or if civic equality were considered an essential outcome of an adequate education. Generally, however, equal opportunity tends to be the higher standard when the reference is to broader educational, social, and economic outcomes.

Taken together adequacy studies suggest, almost without exception, that additional resources are needed in poor school districts to provide all students the opportunity to realize specified educational outcomes. 21 The Campaign for Fiscal Equity v. the State of New York offers an illustration of how courts have used the concept of adequacy to identify a comprehensive and essential array of resources. In this lawsuit, plaintiffs successfully argued that the state's school finance system under-funded New York City public schools and, in so doing, denied its students their constitutional right. The case created a new constitutional standard for a "sound basic education," which NY State Supreme Court Justice DeGrasse, writing for the majority, defined as the "foundational skills that students need to become productive citizens capable of civic engagement and sustaining competitive employment." To ensure a sound basic education, the court held that the state must provide at least the following resources: (1) sufficient numbers of qualified teachers, principals, and other personnel; (2) appropriate class sizes; (3) adequate and accessible school buildings; (4) sufficient and up-to-date books, technology, and learning materials; (5) suitable curricula, including an expanded platform of programs to help at-risk students by giving them more time on task; (6) adequate resources for students with extraordinary needs; and (7) a safe orderly environment.²²

Note that by citing this example I don't intend to suggest that other resources may not be essential to adequacy or equal opportunity; instead, in this discussion I mean to emphasize those resources well documented by research and, in many cases, supported by the courts. They include:

- Effective teachers and principals
- Appropriate class size
- Challenging and culturally relevant curriculum and supportive instructional resources
- Sufficient quality time for learning and development
- Up-to-date facilities and a safe environment.

While these broad sets of resources are not particularly contentious, the policies needed to support them often are. Equal opportunity requires smart, carefully crafted policies designed to guarantee that these fundamental resources are available to all students, especially those from disadvantaged backgrounds.

Effective Teachers and Principals

Every student needs good teachers. Empirical evidence is clear that teachers are the most important school resource required to produce high-quality educational opportunities for all students.²³ However, many schools and classrooms lack high-quality teachers, and the problem is most pronounced in urban schools serving large concentrations of high-poverty students. These schools experience higher rates of

turnover than their non-urban counterparts; the teachers they lose tend to have better qualifications than those who stay; and, the teachers hired to fill the vacancies tend to be less experienced and less qualified than those they are replacing.²⁴ In the end, these schools find themselves serving some of the highest need students with many of the least-qualified teachers.

While education policy over the past several decades has focused heavily on teachers, policymakers continue to wrestle with the concurrent challenges of how to expand the pool of qualified teacher candidates, recruit teachers to the schools where they are needed

Teachers are the most important school resource required to produce high-quality educational opportunities for all students. most, and retain qualified and effective teachers over time.²⁵ Some policies in the name of equity have had perverse effects on equitable staffing practices. For example, NCLB and other high-stakes accountability policies that publically indict educators for low student performance often have the effect of driving the best teachers away

from the schools that need them the most. A recent review of school reconstitution as a mechanism for turning around low-performing schools found that newly hired staffs were often less equipped to handle their responsibilities than the educators they replaced. The study concluded that this strategy can exacerbate the challenges of staffing chronically low-performing schools if policies are not carefully designed to support the work of educators in those settings.²⁶ High-stakes accountability policies also have impacted the quality and preparation of individuals entering the teaching profession in unanticipated and sometimes perverse ways. NCLB's "highly qualified teacher" (HOT) requirement spurred an unprecedented emergence of alternative teacher certification programs. While research shows that the nature of the preparation matters (for example, pre-service pedagogical coursework and clinical training are associated with teacher effectiveness²⁷), the wide variability in requirements across certification programs has largely distorted the meaning and value of that credential. The HQT requirement has also blurred the distinction between teacher quality and teacher qualifications.²⁸ Research has found that districts and schools with a surplus of "highly qualified" teachers have the luxury of considering other quality-related traits in their hiring practices, while those with a shortage are forced to focus on qualifications for compliance purposes.²⁹

Targeted policies that address school capacity and working conditions have the potential to contribute to more equitable staffing. Promising policies that could be targeted to difficult-to-staff schools include induction programs, mentoring, and site-specific professional development;³⁰ more planning time with colleagues to coordinate curriculum and discuss the needs of individual students;³¹ and, higher pay for more challenging assignments.³² Rewards for high performance in difficult settings might also be helpful—but they would require first the ability to measure teacher performance in ways that meet validity and reliability standards, an issue not yet resolved. In addition, improved working conditions related to planning time, workload, influence over school policy, administrative support, class size, instructional materials, and school resources have been found to be

associated with teacher retention.³³ While more research is needed on the effects of targeting such policies to difficult-to-staff schools, existing evidence on working conditions and teacher efficacy suggests that efforts to create more supportive and productive environments have the potential to improve the capacity and performance of educators in difficult-to-staff and chronically low-performing schools.

Every school needs good leaders. One of the most important factors in attracting, developing, and retaining good teachers is having high-quality, stable school leadership.³⁴ We know from existing research that "effective principals influence a variety of school outcomes, including student achievement, through their recruitment and motivation of quality teachers, their ability to identify and articulate school vision and goals, their effective allocation of resources, and their development of organizational structures to support instruction and learning."35 The principal's job is complex and multidimensional, and the effectiveness of principals depends, in part, on their sense of efficacy on particular kinds of tasks and on their ability to allocate their time appropriately across daily responsibilities. In particular, time spent on organizational management is associated with positive school outcomes measured by test score gains as well as by teacher and parent assessments of school climate.³⁶ Further, principals must be prepared to evaluate teachers and to use multiple sources of data to guide teacher and school improvement. Research shows that principals' subjective evaluations of teachers may offer valuable information on teacher performance beyond what student test scores alone can capture, including contributions to the school's culture, the development of other teachers, and student outcomes like enthusiasm and persistence.³⁷

Research has also shown that principal quality is most important in high-poverty and low-performing schools, but quality principals are inequitably distributed across schools.³⁸ Low-income students, students of color, and low-performing students are more likely to attend a school that has a "first-year principal, a principal with less average experience, a temporary or interim principal, a principal without at least a master's degree, and a principal that went to a less selective college as compared to their more advantaged counterparts."³⁹ There is, however, some good news among the findings on the distribution of principals. Evidence suggests that effective principals are likely to remain in their schools, even if those schools are characterized by high poverty or low achievement. So, "the common view that the best [principals] leave the most needy schools is not supported" by the evidence.⁴⁰ While high-poverty and low-achieving schools may be most likely to have inexperienced principals, if the principals are effective they are likely to remain. These findings underscore the importance of policies that create conditions and target resources for recruiting effective principals and helping them succeed in high-poverty and low-performing schools.

Appropriate Class Size

In addition to high-quality educators, students need to be in classes that are structured to support their learning. Studies have shown that small classes can have a substantial effect on student performance, that the effects are greatest for low-income and minority students

in the early grades, and that the effects persist over time.⁴¹ Evidence also suggests that more years in small classes are important for sustaining long-term effects.⁴² Critics of small classes argue that across-the-board class size reduction can be a costly intervention with modest effect sizes.⁴³ However, to the extent that class size reductions are targeted to the students, grades, and subjects where they have the greatest impact, the costs decrease and the effects increase.⁴⁴ While some analyses have positioned teacher quality and small classes as alternative investments, with most favoring investing in teacher quality,⁴⁵ both teacher quality and smaller classes are necessary provisions in disadvantaged schools. Small classes have been shown to provide an environment for effective teachers to work with individuals and small groups, to experiment with innovative instructional practices, and to engage students in whole group discourse.⁴⁶ Small classes are also associated with more instructional time and less time spent on discipline, with the effects most pronounced in classes of lower-performing students.⁴⁷

While smaller classes provide an environment conducive to classroom instruction that can result in higher achievement for poor and minority students, they also presumably create conditions for greater connections with teachers. To the extent that these teachers operate within an ethic of caring, these interactions may result in broader outcomes related to motivation, confidence, and persistence.⁴⁸

Challenging and Culturally Relevant Curriculum and Instructional Resources

All students need to be exposed to curriculum that is challenging and culturally relevant, and they need to have access to instructional resources that support their learning. In order to ensure a solid foundation for learning, students need strong, individualized reading and math interventions in the early grades. According to Slavin, Karweit, and Wasik, "success in the early grades does not guarantee success throughout the school years and beyond, but failure in the early grades does virtually guarantee failure in later schooling." Key factors for early success include effective teachers and high-quality individual tutoring for students experiencing difficulties. ⁵⁰

As students move through school, tracking and variable access to advanced courses contribute to unequal opportunity. Too often students from poor and minority families are placed in unchallenging courses that are unlikely to provide access to future educational opportunities enjoyed by their more affluent peers. These differences in course taking can have profound effects on student outcomes. In fact, one study of high school tracking found that "the difference in achievement between tracks [within schools] exceeds the difference in achievement between students and dropouts, suggesting that cognitive skill development is affected more by where one is in school than by whether or not one is in school." In many cases, this sorting occurs through formal tracking that sometimes begins at young ages and that grants access to more advanced courses as students progress through middle and high school. ⁵² In other cases, schools serving less advantaged students simply have fewer advanced course offerings for students to take. ⁵³ Schools that are smaller, that are located in more rural areas, and that serve higher concentrations of low-income and minority students are less likely to offer AP courses, for

example, compared to other schools.⁵⁴ While overall advanced course-taking rates have increased for all demographic groups, increases have been most pronounced for females, whites, Asians, and students from middle and higher income families. As a result, demographic disparities in advanced course taking have actually increased.⁵⁵

Students also must have access to culturally relevant curriculum and culturally responsive teaching in order to have equal opportunity. Carter explains that "educators would be remiss in ignoring the sociocultural aspects of schooling and thus assuming that a one-size-fits-all model works for all students. If we want to understand why the experiments with equality of opportunity policies have not produced certain anticipated returns, we must comprehend why 'access' alone is not enough and why the social and cultural 'stuff' matter." The content of the curriculum should be affirming and relatable for all students, and teachers should be prepared to engage in culturally-responsive teaching practices that account for the language, culture, and socio-emotional perspectives of their students. However, these principles have been undermined by state testing requirements that have narrowed the curriculum and by centralized curriculum standards that have shifted curricular decisions away from local communities.

Further, instructional resources like textbooks, materials and technology are necessary to ensure equal opportunity. In the current information-based society, technology is a key competency for social and economic participation, and an essential ingredient in an education designed to realize equal opportunity. 59 Technology—including laptops, tablets, and software—as well as professional development designed to teach teachers how to effectively implement it is critical. As Warschauer describes, "New technologies are widely viewed as having the potential to either alleviate or exacerbate existing inequalities." 60 Evidence suggests that even when student-computer ratios are similar, low-SES schools tend to have educators who are less equipped to use technology in productive ways, and differences in how technology is used can translate into unequal opportunities. For example, research has found that schools serving low SES students are more likely to use technology to drill basic skills related to standardized tests, while schools serving higher SES students are more likely to use technology to support interdisciplinary research projects and other activities that develop problem solving skills and creative capacities.⁶¹ Further, to the extent that online access is provided to the most advanced students as a privilege or reward, inequities are increased.⁶²

Sufficient School Time for Learning and Development

While the amount of allocated school time is largely standardized across the nation, the amount of *quality learning time* varies considerably. Poor children tend to receive disproportionately less instructional time in core subjects and advanced courses, and they are often enrolled in schools where poor educational resources and organizational conditions undermine the quality of learning time. Data from the Program for International Student Assessment (PISA) reveal inequities in learning time among different categories of U.S. students. Compared to students from the highest quartile of the economic, social and cultural status (SES) index, students from the lowest quartile spend

an average of 1.45 (19 percent) fewer hours on mathematics each week.⁶⁴ This deficit of learning time cannot be explained by higher allocations to other subjects. These students also spend less time learning science and language. Students in the lowest SES quartile spend an average of 1.98 (28 percent) fewer hours learning science each week, and an average of 1.76 (23 percent) fewer hours learning language. The most significant source of the disparity in average learning time is regular school lessons. Compared to students in the highest SES quartile, students in the lowest quartile receive 26 percent less regular school lesson time in math, 32 percent less time in science, and 29 percent less time in language.

The disparities in learning time despite relatively uniform allocations of time to schooling may be related to a variety of contextual factors that disadvantage schools serving relatively large concentrations of poor and minority students. For instance, schools that have more skilled administrators may have more efficient scheduling and, consequently, better within school allocations of learning time. Likewise, schools that are staffed by more effective teachers are likely to make the best use of class time for high-quality instruction. As discussed above in the section on teachers and principals, these factors associated with more and better learning time tend to favor students from more advantaged backgrounds.

Up-to-Date Facilities and Safe Environments

In his 1991 book, *Savage Inequalities*, as well as several books since then, Jonathon Kozol documented the severe and troubling disparities that continue to exist in the quality of schools attended by students in poor communities compared to those in wealthier neighborhoods. The schools in his book were segregated and unequal, and Kozol's indepth analysis revealed a bleak picture illustrating how stark differences in school facilities sent messages to children about their worth and potential. More recent evidence indicates that poor facilities are related to lower test scores, lower productivity and retention of teachers, and unhealthy environments that affect children's heath, motivation, and performance. Facilities are also essential complementary resources for other provisions described in this brief. For example, up-to-date and safe environments are needed to attract and retain educators, to accommodate smaller classes, and to provide the infrastructure required for instructional technologies.

Expanding the Scope of Education

Fully addressing and providing public resources to amend the inequities discussed in the previous section would be a good start, but policies and resources that expand the role of schools are needed to help equalize out-of-school disparities and enhance equal opportunity. Additional public investments must be made to support the growth and development of children in ways that prepare students to be successful in school and in life.

Extended Time for Learning and Development

The disparities in out-of-school learning opportunities that are "off-the-record" further disadvantage students who are already disadvantaged by deficient learning time in school. More advantaged students receive significantly more structured educational activities outside of school time (such as science camps, family vacations, and high-quality after-school programs); they typically have better educated parents able to more actively participate in their education—to develop their reading and vocabulary skills at a younger age, for example, and to extend their learning time into the evenings by providing homework help. These supplemental learning opportunities have been shown to exacerbate the achievement gap. The most poignant illustration is the well-documented summer learning gap. Low-income students experience greater amounts of summer learning loss in reading and mathematics as a result of slower learning rates in the summer.⁷⁰

Not surprisingly, children from different SES groups spend unequal amounts of out-of-school time on academic work. PISA data show that the amount of time dedicated to individual study is directly correlated with SES. Compared to students in the lowest quartile, those in the highest SES quartile spend an average of 36 more minutes each week studying math, 41 more minutes each week studying science, and 42 more minutes each week studying language. The greater time dedicated to individual study among high SES students more than offsets the average additional time offered to low SES students in out-of-school programs.

In addition to these disparities in the quantity of out-of-school learning time, the quality of that out-of-school time also varies. Students from more affluent backgrounds are exposed to learning resources including books, computers, museum visits, and other social, cultural, and academic experiences that are better aligned with the skills and experiences most valued in most public schools. These children are from families who have the resources to provide costly supplemental instruction through high-quality private tutoring programs and subject-interest camps and courses. Further, they have constant access to greater stocks of human, cultural, and social capital; simply being around educated adults like their parents and peers from educated families during out-of-school time may affect a student's academic performance. High-quality extended day and year programs must be part of a broader reform agenda to improve equal opportunity.

High Quality Early Childhood Education and Services

High-quality early childhood education is a necessary factor in the equal opportunity equation. Research demonstrates that the income-achievement gap is large when children enter kindergarten and persists as students progress through school. Consequently, efforts must be made to ensure that all students are ready to learn when they begin their formal education. While the evidence on the effects of early childhood education has been uneven, longitudinal studies (the Perry Preschool Study, the Abecedarian Study, and the Chicago Longitudinal Study) of *high-quality* early childhood education programs reveal

positive effects on academic achievement, attitudes, social behaviors, high school graduation, and later adult economic outcomes, health, and social behaviors. High-quality early childhood programs include a wide range of services to support children and their families, including: high standards; capable, committed and well-paid teachers; onsite supervision and professional development; an engaging curriculum that attends to students' social, emotional, and cognitive development; and small classes. While these sorts of programs can be expensive, they have been shown to have financial returns that far exceed their costs.

Equal opportunity requires substantial investments in young children. Universal, publically-funded high-quality preschool is a first step. In addition, prenatal care, early nutrition, health supports, parental education, and paid parental leave have the potential to support the healthy cognitive, social, and emotional development of children so they are positioned to benefit from K-12 schooling.

Community Schools and Wrap-around Services

Since the opportunity gap is grounded in a range of social and economic factors, serious efforts to promote equal opportunity must include a broader set of services than schools have typically provided. School-based programs that offer medical and dental care, psychological support, recreational activities, and social services for all children have long been shown to significantly impact students' ability to benefit from educational offerings. Hese wrap-around services are a hallmark of a community schools, defined as both a place and a set of partnerships between the school and other community resources. Its integrated focus on academics, health and social services, youth and community development and community engagement leads to improved student learning, stronger families, and healthier communities. By aligning school and community resources, these locally-based initiatives have become a promising strategy for improving student outcomes by providing wraparound services that meet the social, physical, cognitive, and economic needs of both students and families.

The Harlem Children's Zone (HCZ) is perhaps the most touted example of a holistic, neighborhood-based community school. The HCZ components include: early childhood programs with parenting classes; academic advisors and afterschool sessions; fitness, health and nutrition programs; family counseling; community center; and an employment and technology center that teaches job-related skills to teens and adults. While the philosophy behind community schools and wrap-around services is compelling, evidence on the impact of the HCZ has been mixed. A more recent, in-depth study of one district's community schools shows more positive effects, including high participation rates among the most socioeconomically disadvantaged students, gains in English language development scores among program participants, and positive attitudes about school among middle school students. Family engagement and extended learning programs were associated with increases in students' perceptions of their school as a supportive environment—which were, in turn, linked to students' motivation and academic confidence, both of which were related to gains in achievement. Findings from these

programs suggest that wrap-around services targeting the needs of the local community may have a range of positive effects.

Realizing Equal Opportunity in a Challenging Policy Context: Conclusions and Recommendations

For too long, America has been the "land of opportunity" for only a subset of its population. Economic and social opportunities are largely limited to those who come from economically and socially privileged classes—those who have had access to excellent educational opportunities by virtue not necessarily of their ability, but of the circumstances they were born into. This situation is far from Mann's vision of universal education as the balance wheel of the social machinery, and the result is a far cry from the "social efficiency" and "civic virtue" promised.

In many cases, trends in the current education policy environment undermine progress toward equal opportunity. For example, the climate of high-stakes accountability and the national focus on achievement testing as the primary measure of student and school performance have had a number of perverse effects. These policy emphases have narrowed the curriculum, intensified the challenges of staffing schools serving high concentrations of students in poverty with high-quality educators, and centralized decision-making about curriculum and instruction. These effects are most damaging in low-SES schools. Another troubling trend is the continued racial segregation of schools. Failure to enforce desegregation policies coupled with policies like school choice and tracking that have allowed (and perhaps promoted) racial segregation hamper efforts to equalize opportunities and promote democratic education.⁸⁴ Another concerning trend is the current policy emphasis on the privatization of education—whether through supplemental educational services, charter schools, or vouchers. While some carefully constructed and well-resourced approaches may be acceptable on equity grounds, 85 many of these policies create conditions that allow for resegregration and unequal opportunities, undermining the democratic purposes of public education. A serious commitment to Mann's vision of education as the balance wheel would require serious reconsideration of these policy directions.

An essential first step involves recognizing the broad goals of public education and identifying the fundamental resources—within education systems and beyond—required to meet those goals. The goals should go beyond student achievement to include broad outcomes like civic responsibility, democratic values, economic self-sufficiency, cultural competency and awareness, and social and economic mobility. Taken together, these outcomes contribute to Mann's vision of a functional democracy and social efficiency. While schools alone cannot close the opportunity gap, this brief explores what it would take if we really tried to realize Mann's view of education as the great equalizer. It argues for a greater commitment to the education resources that matter most, an expanded scope of services to support poor children, and a more supportive policy context to promote goals of equal opportunity, democracy, and social efficiency.

While the resources and services outlined in this brief may come with a significant price tag, if the interventions are effective they could easily pay for themselves in the economic returns they ultimately generate. However, the real justification for these investments is our nation's commitment to equity, and the recognition that our public education system is a key mechanism for leveling the playing field so that every child, regardless of background, has a fair opportunity to participate in our social, political, and economic institutions. Not only it is our moral obligation, but the health of our democracy and the prosperity of our society depend on it. Specific recommendations follow.

- Policymakers and the general public should recognize the broad goals of education including civic responsibility, democratic values, economic self-sufficiency, cultural competency and awareness, and social and economic opportunity. Student achievement, while important, is a single narrow indicator. Equal opportunity requires a broader understanding of the social and economic forces that undermine individuals' life chances.
- Policymakers should ensure that *all* schools have the fundamental school resources they need to promote student success: effective teachers and principals, appropriate class size, challenging and culturally relevant curriculum and supportive instructional resources, sufficient quality time for learning and development, and up-to-date facilities and a safe environment. The adequacy standards used by the courts is a legal floor, but equal opportunity will require a much greater commitment to ensuring that students from disadvantaged backgrounds have the highest quality educational resources.
- Policymakers should expand the scope of schools in high-poverty neighborhoods to provide wrap around services including nutritional supports, health clinics, parental education, extended learning time, recreational programs, and other services needed to meet the social, physical, cognitive, and economic needs of both students and families. Expanding the services and resources offered by schools has the potential to dramatically increase their impact. While schools account for less than a quarter of the variance in student achievement, public investment in a more comprehensive approach that addresses the multiple sources of disadvantage may position schools to have greater impact and more effectively promote equal opportunity.
- Policymakers should promote a policy context that is supportive of equal opportunity: use achievement testing for formative rather than high-stakes purposes, avoid policies that allow for school resegregation, and renew the public commitment to public education. The resources and services detailed in this brief are based on the best available research evidence, but to have significant impact they must be supported by policies sensitive to local circumstances, well supported by public resources, and carefully designed to avoid the many unintended consequences that so often result.

Notes and References

- While the current policy debates include strong voices advocating the privatization of education, even those policies recognize that education is an important social good that requires public investment. Even Milton Friedman, the father of school choice, recognized the importance of public financing of education for the purpose of democratic participation. See Friedman, M. (1962). *Capitalism and freedom*. Chicago, IL: University of Chicago Press.
- 2 Cubberly, E. (1919). *Public education in the United States: a study and interpretation of the American educational history*. Houghton Mifflin, 167.
- Comparye, G. & Frost, M. (1907). Horace Mann and the public school in the United States (2002 reprint). New York, NY: Thomas Y Crowell and Co. Publishers, 26.
- 4 Mann, H. & Pecant, F. (1891). Life and works of Horace Mann, Volume 4. Boston: Lee and Shepard Publishers, 251.
- Putnam, R.D. (2015). *Our kids: The American dream in crisis*. New York, NY: Simon and Schuster, 243.

 Rothstein, R. (2004). Class and schools: Using social, economic, and educational reform to close the black—white achievement gap. Washington, DC: Economic Policy Institute and Teachers College Press.
- Research shows that the outcomes of poor children whose families move to a better neighborhood improve in proportion to the time they spend growing up in that area. See Chetty, R. & Hendren, N. (2015). The Impacts of Neighborhoods on Intergenerational Mobility: Childhood Exposure Effects and County-Level Estimates. More fair housing policies include eliminating the barriers that block poor families from finding affordable places to live and using federal housing subsidies to help poor families move to safe neighborhoods with effective public schools. See Orfield, G. (2013). Housing segregation produces unequal schools: Causes and solutions. In *Closing the opportunity gap: What America must do to give every child a chance*, ed. P.L. Carter & K.G. Welner, 40-60. New York, NY: Oxford University Press.
- opportunities for poor families within their communities to address the issue of intergenerational poverty. While these programs often focus on training and employment opportunities for adults, many also attend to the needs of children with efforts to reduce crime and violence, provide health and nutritional services, promote and support social networks, and expand access to training and job opportunities for young adults. See Turner, M.A., Edelman, P., Peothig, E.C., Aron, L.Y., & Rogers, M.A. (2014). Tackling persistent poverty in distressed urban neighborhoods. Washington DC: The Urban Institute.
- Such policies include expanding the earned income tax credit, expanding the child tax credit, maintain anti-poverty programs like food stamps and child care support, and increasing minimum wage. Summarizing the empirical research on the impact of family income on student performance, Putnam notes that "an increase in family income by \$3,000 during a child's first five years of life seems to be associated with an improvement on academic achievement tests equivalent to 20 SAT points and nearly 20 percent higher income later in life." See Putnam, R.D. (2015). Our kids: The American dream in crisis. New York, NY: Simon and Schuster, 246.
- Welner, K.G. & Carter, P.L. (2013). Achievement gaps arise from opportunity gaps. In *Closing the opportunity* gap: What America must do to give every child a chance, ed. P.L. Carter & K.G. Welner, 1-10. New York, NY: Oxford University Press.
- 10 Mishell, L., Bivens, J., Gould, E., & Shieerholz, H. (2012). *The state of working American, 12th edition*. Ithaca, NY: Cornell University Press.

- 11 Krueger, A.B. (2003). Inequality, too much of a good thing. *Inequality in America: What role for human capital policies?* ed. B.M. Friedman, 1-76. Cambridge, MA: MIT Press.
- 12 Reardon, S.F. (2011). The widening academic achievement gap between the rich and poor: New evidence and possible explanations. *Whither opportunity: Rising inequality, schools, and children's life chances*, ed. G.J. Duncan & R. J. Murnane, 91-116. New York, NY: Russell Sage Foundation.
 - Reardon, S.F. & Robinson, J.P. (2008). Patterns and trends in racial/ethnic and socioeconomic academic achievement gaps. *Handbook on research in education finance and policy*, ed. H. Ladd & E. Fiske, 497-516. New York, NY: Lawrence Erlbaum Associates, Inc.
- 13 Duncan, G. J. & Murnane (2011). Introduction: The American dream, then and now. *Whither opportunity:* Rising inequality, schools, and children's life chances, ed. G.J. Duncan & R. J. Murnane, 3-26. New York, NY: Russell Sage Foundation.
- 14 Baum, S., Ma, J., Payea, K. (2013). Education pays 2013: The benefits of higher education for individuals and society. The College Board.
 - Belfield, C. & Levin, H.M. (Eds.) (2007). *The price we pay: Economic and social consequences of inadequate education*. Washington DC: Brookings Institution.
- 15 Belfield, C. & Levin, H.M. (2013). The cumulative cost of the opportunity gap. In *Closing the opportunity gap:* What America must do to give every child a chance, ed. P.L. Carter & K.G. Welner, 195-206. New York, NY: Oxford University Press.
- 16 Holzer, H. J., Schanzenbach, D.W., Duncan, G. & Ludwig, J. (2008). The economic costs of childhood poverty in the United States. *Journal of Children in Poverty*, *14*, 41-61.
- Baker, B. D., Green, P. C. (2009) Conceptions, measurement and application of educational adequacy standards. In D.N. Plank (Ed.) *AERA Handbook on Education Policy*. New York: Routledge.
 - Baker, B., & Green, P. (2014). Conceptions of equity and adequacy in school finance. *Handbook of research in education finance and policy*, ed. H. Ladd & E. Fiske, 203-221. New York, NY: Lawrence Erlbaum Associates, Inc.
- 18 Lee, J. (2010). Dual standards of school performance and funding? Empirical searches of school funding adequacy in Kentucky and Maine. *Education Economics*, 18(2), 207-228.
- 19 Reich, R. (2008) Introduction to the symposium on equity. Education Finance and Policy, 3(4), 399-401.
- 20 Satz, D. (2008). Equality, adequacy, and educational policy. Education Finance and Policy, 3(4), 424-443.
- 21 In most cases, these studies call for substantial increases in state funding. For example, an adequacy cost study in Pennsylvania estimated the need for an additional \$4.38 billion in state spending. Likewise, studies estimated additional costs of adequacy at \$3.45 billion in Washington, \$1.3 billion in Nevada, and \$6-8 billion in New York State. Information retrieved on July 20, 2015 from http://www.schoolfunding.info/policy/CostingOut/factsheetslist.php3.
- 22 CFE v. State, 295 A.D. 2d at 9-10.
- 23 Darling Hammond, L. & Post, L. (2000). Inequality in teaching and schooling: Supporting high quality teaching and leadership in low-income schools. In Kahlenberg, R.D. (Ed.). *A Notion at Risk: Preserving Public Education as an Engine for Social Mobility*. The Century Foundation Press: New York. 127-168.
 - Ehrenberg, R.G. & Brewer, D.J. (1995). Did teachers' verbal ability and race matter in the 1960s? *Coleman* revisited. *Economics of Education Review*, 14(1), 1-21.

- Ferguson, R.F. (1998). Can schools narrow the black-white test score gap? In C. Jencks and M. Phillips (eds.) *The black-white test score gap* (318-374). Washington, D.C.: Brookings.
- Ferguson, R. F. (1991). Paying for public education: New evidence on how and why money matters. *Harvard Journal of Legislation*, *28*, 465-498.
- Phillips, M., Crouse, J., & Ralph, J. (1998). Does the black-white test score gap widen after children enter school? In M. Phillips & J. Crouse (eds.), *The Black-White Test Score Gap*. Washington, D.C.: Brookings Institution Press.
- Sanders, W.L. & Rivers, J.C. (1996). *Cumulative and residual effects of teachers on future academic achievement*. University of Tennessee. Value-Added Research and Assessment Center.
- 24 Ingersoll, R. M. (2001). Teacher turnover and teacher shortages: An organizational analysis. *American Educational Research Journal*, *38*(3), 499-534.
 - Lankford, H., Loeb, S., & Wyckoff, J. (2002). Teacher sorting and the plight of urban schools. A descriptive analysis. *Educational Evaluation and Policy Analysis* 24(1), 37-62.
- 25 Rice, J.K., Roellke, C.F., Sparks, D., & Kolbe, T. (2009). Piecing together the teacher policy landscape: A policy-problem typology. *Teachers College Record*, 111(2), 511-546.
- 26 Malen, B. & Rice, J.K. (in press). School reconstitution as a turnaround strategy: An analysis of the evidence, ed. W.J. Mathis & T. Trujillo, *The Neo-liberal education reforms: Lessons from a failed agenda*. Greenwich, CT: Information Age Publishing.
 - See also, Malen, B. & Rice, J.K. (2004). A framework for assessing the impact of education reform on school capacity: Insights from studies of high stakes accountability initiatives. *Educational Policy*, 18(5), 631-660.
- 27 Corcoran, S. & Jennings, J. (2009). Review of "An evaluation of teachers trained through different routes to certification," Boulder, CO: National Education Policy Center.
 - Boyd, D. J., Grossman, P.L., Lankford, H., Loeb, S. & Wyckoff, J.H.. (2009). "Teacher preparation and student achievement." *Educational Evaluation and Policy Analysis*, 31(4), 416-440.
- 28 Rice, J.K. (2008). From highly qualified to high quality: An imperative for policy and research to recast the teacher mold. *Education Finance and Policy*, *3*(2), 151-165.
- 29 Rice, J.K., Roellke, C. F., & Sparks, D. (2006). *Hitting the target? A multi-level case study analysis of teacher policy in three states*. Economic Policy Institute, Washington, D.C.
- 30 Desimone, L. M., Porter, A. C, Garet, M. S., Yoon, K. S., & Birman, B. R (2002). Effects of professional development on teachers' instruction: Results from a three-year longitudinal study. *Educational Evaluation and Policy Analysis*, 24, 81-112.
 - Glazerman, S. M., Dolfin, S., Bleeker, M., Johnson, A., Isenberg, E., Lugo-Gil, J., Grider, M., & Britton, E. (2008). *Impacts of comprehensive teacher induction: results from the first year of a randomized controlled study*. NCEE 2009-4034. Washington, DC: U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance.
 - Ingersoll, R. & Smith, T.M. (2004) Do teacher induction and mentoring matter? Retrieved on August 2, 2015 from http://repository.upenn.edu/gse_pubs/13400.
- 31 Ingersoll, R. & Smith, T.M. (2004) Do teacher induction and mentoring matter? Retrieved on August 2, 2015 from http://repository.upenn.edu/gse_pubs/13400.
- 32 Empirical evidence indicates that salary and benefit levels can be a key factor in teachers' decisions to stay or leave teaching or to move between districts or schools. See, for example:

Baugh, W. H., & Stone, J. A. (1982). Mobility and wage equilibration in the educator labor market. *Economics of Education Review*, 2(3), 253-274.

Brewer, D. (1996). Career paths and quit decisions: Evidence from teaching. *Journal Labor Economics*, 14(2), 3113-339.

Gritz, R. M., & Theobald, N.D. (1996). The effects of school district spending priorities on length of stay in teaching. *Journal of Human Resources*, 31(3), 477-512.

Hanushek, E. A., Kain, J. F., & Rivkin, S. G. (2004). Why public schools lose teachers. *Journal of Human Resources*, 39, 326-354.

Ingersoll, R. M. (2001). Teacher turnover and teacher shortages: An organizational analysis. *American Educational Research Journal*, *38*(3), 499-534.

Lankford, H., Loeb, S., & Wyckoff, J. (2002). Teacher sorting and the plight of urban schools. A descriptive analysis. *Educational Evaluation and Policy Analysis* 24(1), 37-62.

Theobald, N. D. (1990). An examination of the influences of personal, professional, and school district characteristics on public school teacher retention. *Economics of Education Review*, 9(3), 241-250.

Weiss, E. (1999). Perceived workplace conditions and first-year teachers' morale, career choice commitment, and planned retention: A secondary analysis. *Teacher and Teacher Education*, 15, 861-879.

33 Johnson, S. M., & Birkeland, S. E. (2003). Pursuing a 'sense of success': New teachers explain their career decisions. *American Educational Research Journal*, *40*(3), 581-617.

Mont, D., & Rees, D. I. (1996). The influence of classroom characteristics on high school teacher turnover. *Economic Inquiry*, 34, 152-167.

Shen, J. (1997). Has the alternative certification policy materialized its promise? A comparison between traditionally and alternatively certified teachers in public schools. *Educational Evaluation and Policy Analysis*, 19(3), 276-283.

Theobald, N. D. (1990). An examination of the influences of personal, professional, and school district characteristics on public school teacher retention. *Economics of Education Review*, 9(3), 241-250.

Weiss, E. (1999). Perceived workplace conditions and first-year teachers' morale, career choice commitment, and planned retention: A secondary analysis. *Teacher and Teacher Education*, *15*, 861-879.

- 34 Ladd, H. F. (2009). Teachers' perceptions of their working conditions: How predictive of policy-relevant outcomes? CALDER Working Paper 33. Washington, DC: The Urban Institute.
 - Beteille, T., Kalogrides, D. & Loeb, S. (2009). Effective schools: Managing the recruitment, development, and retention of high-quality teachers. CALDER Working Paper 37. Washington, DC: The Urban Institute.
- 35 Horng, E.L., Kalogrides, D. & Loeb, S. (2009). Principal preferences and the unequal distribution of principals across schools. CALDER Working Paper 36. Washington, DC: The Urban Institute, 1.
- 36 Horng, E.L., Kalogrides, D. & Loeb, S. (2009). Principal preferences and the unequal distribution of principals across schools. CALDER Working Paper 36. Washington, DC: The Urban Institute.
- 37 Harris, D. N. & Sass, T.R. (2009). "What makes for a good teacher and who can tell?" CALDER Working Paper 30. Washington, DC: The Urban Institute.
- 38 Branch, G. F., Hanushek, E.A. & Rivkin., S.G. (2009). Estimating principal effectiveness." CALDER Working Paper 32. Washington, DC: The Urban Institute.

- Horng, E.L., Kalogrides, D. & Loeb, S. (2009). Principal Preferences and the Unequal Distribution of Principals across Schools. CALDER Working Paper 36. Washington, DC: The Urban Institute.
- 39 Horng, E.L., Kalogrides, D. & Loeb, S. (2009). Principal Preferences and the Unequal Distribution of Principals across Schools. CALDER Working Paper 36. Washington, DC: The Urban Institute, 28.
- 40 Branch, G. F., Hanushek, E.A. & Rivkin., S.G. (2009). Estimating principal effectiveness." CALDER Working Paper 32. Washington, DC: The Urban Institute.
- 41 Finn, J.D. & Achilles, C.M. (1999). Tennessee's class size study: Findings, implications, and misconceptions. *Educational Evaluation and Policy Analysis*, *21*(2), 97-110.
 - Molnar, A., Smith, P., Zahorki, J., Palmer, A., Halbach, A., & Ehrle, K. (1999). Evaluating the SAGE program: A pilot program in targeted pupil-teacher reduction in Wisconsin. *Educational Evaluation and Policy Analysis*, *21*(2), 165-178.
 - Krueger, A.B. (1999). Experimental estimates of education production functions. *Quarterly Journal of Economics*, *CXIV*, 497-532.
 - Nye, B., Hedges, L.V., & Konstantopoulos, S. (1999). The long-term effects of small classes: A five-year follow-up of the Tennessee class size experiment. *Educational Evaluation and Policy Analysis*, 21(2), 127-142.
- 42 Nye, B., Hedges, L.V., & Konstantopoulos, S. (1999). The long-term effects of small classes: A five-year follow-up of the Tennessee class size experiment. *Educational Evaluation and Policy Analysis*, 21(2), 127-142.
- 43 Chingos, M. (2011). The false promise of class size reduction. Washington, D.C.: Center for American Progress.
 - Hanushek, E.A. (2002). Evidence, politics, and the class size debate, ed., L. Mishel & R. Rothstein. *The class size debate*, 37-66. Washington, D.C.: Economic Policy Institute.
- 44 Brewer, D., Krop, C., Gill, B.P., & Reichardt, R. (1999). Estimate the cost of national class size reductions under different policy alternatives. *Educational Evaluation and Policy Analysis*, *21*(2), 179-192.
 - Rice, J.K. (1999). Making the evidence matter: Implications of class size research debate for policymakers, ed., L. Mishel & R. Rothstein. *The class size debate*, 89-94. Washington, D.C.: Economic Policy Institute.
- 45 Belfield, C.R. & Levin, H.M. (2007). *The price we pay: Economic and social consequences of inadequate education.* Washington, DC: Brookings.
 - Chingos, M. (2011). The false promise of class size reduction. Washington, D.C.: Center for American Progress.
 - Hanushek, E.A. (2002). Evidence, politics, and the class size debate, ed., L. Mishel & R. Rothstein. *The class size debate*, 37-66. Washington, D.C.: Economic Policy Institute.
- 46 Rice, J.K. (1999). The impact of class size on instructional strategies and the use of time in high school mathematics and science courses. *Educational Evaluation and Policy Analysis*, 21(2), 215-229.
- 47 Betts, J.R. & Shkolnik, J.L. (1999). The behavioral effects of variations in class size: The case of math teachers. *Educational Evaluation and Policy Analysis*, *21*(2), 193-213.
 - Rice, J.K. (1999). The impact of class size on instructional strategies and the use of time in high school mathematics and science courses. *Educational Evaluation and Policy Analysis*, 21(2), 215-229.
- 48 Noddings, N. (1984). *Caring: A feminine approach to ethics and moral education*. Berkeley, CA: University of California Press.

- 49 Slavin, R. E., Karweit, N. L., & Wasik, B. A. (1994) *Preventing early school failure*. Boston: Allyn and Bacon, 3-4.
- 50 Slavin, R.E., Lake, C., Davis, S., & Madden, N.E. (2011). Effective programs for struggling readers: A synthesis of the evidence. *Educational Research Review*, *6*(1), 1-26.
- 51 Gameron, A. (1987). The stratification of high school learning opportunities. *Sociology of Education*, *60*(3), 135-155, 135.
- 52 Gameron, A. (1987). The stratification of high school learning opportunities. *Sociology of Education*, 60(3), 135-155, 573.
- 53 Gameron, A. (1987). The stratification of high school learning opportunities. *Sociology of Education*, *60*(3), 135-155.
 - Conger, D., Long, M. & Iatarola, P. (2009). Explaining race, poverty, and gender disparities in advanced course-taking. *Journal of Policy Analysis and Management*, 28(4), 555-576.
- 54 Klopfenstein, K. (2004). Advanced placement: Do minorities have equal opportunity? *Economics of Education Review*, 23, 115-131.
 - Planty, M. Porvasnik, S, & Daniel, B. (2007). High school coursetakings: Findings from the Condition of Education 2007. NCES 2007-065. Washington, DC: U.S. Department of Education.
- 55 Conger, D., Long, M. & Iatarola, P. (2009). Explaining race, poverty, and gender disparities in advanced course-taking. *Journal of Policy Analysis and Management*, *28*(4), 555-576.
- 56 Carter, P.L. (2013). Student and school cultures and the opportunity gap: Paying attention to academic engagement and achievement. In *Closing the opportunity gap: What America must do to give every child a chance*, ed. P.L. Carter & K.G. Welner, 143-155. New York, NY: Oxford University Press.
- 57 Lee, C.D. (2007). *Culture, literacy, and learning: Taking bloom in the midst of the whirlwind.* New York: Teachers College Press.
- 58 Howe, K.R. & Means, D.E. (2012). Democracy left behind: How recent education reforms undermine local school governance and democratic education. Boulder, CO: National Education Policy Center. Retrieved August, 3, 2015 from http://nepc.colorado.edu/publication/democracy-left-behind.
- 59 Levy, E, & Murnane, R. J. (2004). *The new division of labor: How computers are creating the next job market*. Princeton, NI: Princeton University Press.
 - Reich, R. (1991). The work of nations: Preparing ourselves for 21st century capitalism. New York: Knopf.
 - Warschauer, M., Matuchniak, T., Pinkard, N.& Gadsden, V. (2010). What counts as evidence in educational settings? Rethinking equity, diversity, and reform in the 21st Century. Review of Research in Education, 34, 179-225.
- 60 Warschauer, M. & Knobel, M. (2004). Technology and equity in schooling: Deconstructing the divide. *Educational Policy*, *18*(4), 562-588.
- 61 Warschauer, M., Matuchniak, T., Pinkard, N. & Gadsden, V. (2010). What counts as evidence in educational settings? Rethinking equity, diversity, and reform in the 21st Century. *Review of Research in Education*, 34, 179-225.
 - Warschauer, M. (2007). Information literacy in the laptop classroom. *Teachers College Record*, 109, 2511-2540.

- 62 Schofield, J. W., & Davidson, A. L. (2004). Achieving equality of student Internet access within schools: Theory, application, and practice, ed. A. H. Eagly, R. M. Baron, & V. L. Hamilton, *The social psychology of group identity and social conflict*, 97-109. Washington, DC: APA Books.
- 63 Rice, J.K. (2011). *Time to level the playing field: Disparities in the quantity and quality of learning time.* Paper prepared for the National Center on Time and Learning, Boston, MA.
- 64 Rice, J.K. (2011). *Time to level the playing field: Disparities in the quantity and quality of learning time.*Paper prepared for the National Center on Time and Learning, Boston, MA.
- 65 Rice, J.K. (2011). *Time to level the playing field: Disparities in the quantity and quality of learning time.*Paper prepared for the National Center on Time and Learning, Boston, MA.
- 66 Kozol, J. (1991). Savage inequalities: Children in America's schools. New York: Crown.
- 67 Schneider, M. (2003). Linking school facility conditions to teacher satisfaction and success. Washington, D.C.; National Clearinghouse on Educational Facilities.
 - Tanner, K. (2009). Effects of school design on student outcomes. *Journal of Educational Administration*, *47* (3), 376-394.
- 68 Buckley, J., Schneider, M., & Shang, Y. (2005). Fix it and they might stay: School facility quality and teacher retention in Washington D.C. *Teachers College Record*, *107*(5), 1107-1123.
 - Schneider, M. (2003). Linking school facility conditions to teacher satisfaction and success. Washington, D.C.; National Clearinghouse on Educational Facilities.
- 69 General Accounting Office. (1995). School facilities: America's schools not designed or equipped for the 21st Century. Washington, D.C.: GAO. Retrieved August 2, 2015 from http://www.gao.gov/assets/110/105957.pdf.

 Environmental Protection Agency. (2000). Indoor air quality and student performance. Washington, DC: EPA. Retrieved August 2, 2015 from http://nepis.epa.gov/Exe/ZyPDF.cgi/000002B3.PDF?Dockey=000002B3.PDF.
- Burkham, D., Readu, D.D., Lee, V., & LoGerfo, L.F. (2004). Social-class difference in summer learning between kindergarten and first grade: Model specification and estimation. Sociology of Education, 77(1), 1-31.
 Cooper, H., Nye, B., Charlton, K., Lindsay, J. & Greathouse, S. (1996). The effects of summer vacation on achievement test scores: A narrative and meta-analytic review. Review of Educational Research, 6, 227-268.
 Downey, G.D., Broh, B.A., & Hippel, P.T. (2004). Are schools the great equalizer? Cognitive inequality during the summer months and the school year. American Sociological Review, 69, 613-635.
- Rice, J.K. (2011). *Time to level the playing field: Disparities in the quantity and quality of learning time.*Paper prepared for the National Center on Time and Learning, Boston, MA.
- 72 Lareau, A. (2011). *Unequal childhoods: Class, race, and family life*. Berkeley, CA: University of California Press.
- 73 Rothstein, R. (2004). *Class and schools: Using social, economic, and educational reform to close the black-white achievement gap.* Washington, DC: Economic Policy Institute and Teachers College Press.
- 74 Barnett, W.S. & Lamy, C.E. (2013). Achievement gaps start early: Preschool can help. In *Closing the opportunity gap: What America must do to give every child a chance*, ed. P.L. Carter & K.G. Welner, 98-110. New York, NY: Oxford University Press.

- Duncan, G. J. & Magnuson, K. (2011). The nature and impact of early achievement skills, attention skills, and behavior problems. *Whither opportunity: Rising inequality, schools, and children's life chances*, ed. G.J. Duncan & R. J. Murnane, 47-70. New York, NY: Russell Sage Foundation.
- Loeb, S. & Bassok, D. (2008). Early childhood and the achievement gap. *Handbook on research in education finance and policy*, ed. H. Ladd & E. Fiske, 517-534. New York, NY: Lawrence Erlbaum Associates, Inc.
- 75 See, for examples, Heckman, J.J., Moon, S.H, Pinto, R., Savelyev, P.A. & Yavitz (2010). The rate of return to the HighScope Perry Preschool Program. *Journal of Public Economics*, 94(1-2), 114-128.
 - Barnett, S. & Masse, L.N. (2007). Early childhood program design and economic returns: Comparative benefit-cost analysis of the Abecedarian program and policy implications. *Economics of Education Review*, 26, 113-125.
 - Reynolds, A.J. (1999). Educational success in high-risk settings: Contributions of the Chicago Longitudinal Study. *Journal of School Psychology*, *37*(4), 345-354.
 - Belfield, C. & Levin, H.M. (Eds.) (2007). *The price we pay: Economic and social consequences of inadequate education*. Washington D.C.: Brookings.
- 76 Barnett, W.S. & Lamy, C.E. (2013). Achievement gaps start early: Preschool can help. In *Closing the opportunity gap: What America must do to give every child a chance*, ed. P.L. Carter & K.G. Welner, 98-110. New York, NY: Oxford University Press.
- 77 Barnett, S. & Masse, L.N. (2007). Early childhood program design and economic returns: Comparative benefit-cost analysis of the Abecedarian program and policy implications. *Economics of Education Review*, 26, 113-125.
 - Belfield, C. & Levin, H.M. (Eds.) (2007). The price we pay: Economic and social consequences of inadequate education. Washington D.C.: Brookings.
 - Heckman, J.J. (2006). Skill formation and the economics of investing in disadvantaged young children. Science, 312, 1900-1902.
- 78 Rothstein, R. (2004). *Class and schools: Using social, economic, and educational reform to close the black-white achievement gap.* Washington, DC: Economic Policy Institute and Teachers College Press.
- 79 Dryfoos, J. G. (1991). School-based social and health services for at-risk students. *Urban Education*, 26 (1), 118-37.
- 80 Coalition for Community Schools. Retrieved on August 2, 2015 from http://www.communityschools.org/aboutschools/what_is_a_community_school.aspx.
- 81 Castrechini, S. & London, R.A. (2012). Positive student outcomes in community schools. Washington, D.C.: Center for American Progress & John W. Gardner Center.
- 82 Dobbie, W. & Fryer, R. (2009). Are high quality schools enough to close the achievement gap? Evidence from a social experiment in Harlem. NBER Working Paper No. 15473.
- 83 Castrechini, S. & London, R.A. (2012). Positive Student Outcomes in Community Schools. Washington, D.C.: Center for American Progress & John W. Gardner Center.
- 84 Gutmann, A. (1987). Democratic education. Princeton, NJ: Princeton University Press.
 - Howe, K.R. & Means, D.E. (2012). Democracy left behind: How recent education reforms undermine local school governance and democratic education. Boulder, CO: National Education Policy Center. Retrieved August, 3, 2015 from http://nepc.colorado.edu/publication/democracy-left-behind.

- Orfield, G. (2013). Housing segregation produces unequal schools: Causes and solutions. In *Closing the opportunity gap: What America must do to give every child a chance*, ed. P.L. Carter & K.G. Welner, 40-60. New York, NY: Oxford University Press.
- 85 Scott, J. & Wells, A.S. (2013). A more perfect union: Reconciling school choice policy with equality of opportunity goals. In *Closing the opportunity gap: What America must do to give every child a chance*, ed. P.L. Carter & K.G. Welner, 123-142. New York, NY: Oxford University Press.