



GETTING DOWN — TO FACTS II —

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Education Equity in California

A Review of *Getting Down to Facts II* Findings

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About: The Getting Down to Facts project seeks to create a common evidence base for understanding the current state of California school systems. It seeks to lay the foundation for substantive conversations about what education policies should be sustained and what might be improved to ensure increased opportunity and success for all students in California in the decades ahead. *Getting Down to Facts II* follows approximately a decade after the first Getting Down to Facts effort in 2007. This research brief is one of 19 that summarize 36 research studies covering four main areas related to state education policy: student success, governance, personnel, and funding.

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Education Equity in California

A Review of GDTFII Findings¹

KEY FINDINGS

- Equity incorporates ideas of access, opportunity, and need. A commitment to education equity entails concern about group disparities in important inputs or outcomes.
- Ten years after the initial Getting Down to Facts studies, California has made only limited progress in reducing achievement and opportunity gaps. Students who are Black, Latino, low-income, and/or English language learners continue to have low academic outcomes and the disparities with White and Asian students is a major reason state outcomes remain significantly below national averages.

Segregation

- Latino, Black, and Native American students are more likely to be economically disadvantaged and to be concentrated in schools with other poor children. Latino students typically attend schools with the highest rate of children eligible for free lunch (more than 60 percent); for White children the rate is the lowest (30 percent).

Challenges for Rural Schools

- On average and adjusting for socio-economic status, students at rural schools lag behind urban and suburban peers.
- Rural schools have proportionately fewer fully credentialed teachers compared to urban and suburban schools.
- Early learning programs are scarcer in rural communities, so children are more likely to enter kindergarten less prepared. Rural counties usually have the highest percentages of children whose families are income-eligible—but are not served—by publicly funded early education programs.
- Rural districts have typically been more underfunded even with an allowance awarded to small districts. Under LCFF, rural districts received just 2 percent more on a per pupil basis than their urban counterparts and continue to have a harder time supplementing state aid with local revenues or federal grants.

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KEY FINDINGS, continued

Teacher Pipeline and Distribution

- The number of teachers with substandard credentials—having met neither testing nor preparation requirements—has jumped by 260 percent since the 2012–2013 school year.
- In high-poverty schools, teachers are twice as likely to be teaching on an emergency-style permit than in low-poverty schools. In high-minority schools, teachers are three times more likely to have emergency-style permits than in low-minority schools.
- Districts serving the most English language learners are nearly 20 percent more likely to report teacher shortages, compared to districts with the least number of English language learners.
- Two thirds of new California special education teachers are on substandard credentials.

Early Childhood

- California does not fund enough early childhood and preschool programs. In 2014, at least 42 percent of children eligible for state-funded preschool were not served.
- Black and Latino children are underrepresented in early intervention and preschool special education programs, then overrepresented in K–12 special education.

English Learners

- The diversity and individual needs of English learners (ELs) are not matched by the realities of policy structure and implementation.
- For ELs with disabilities, schools struggle with identification and response, with varying degrees of validity and reliability across districts.
- In some of the highest need locations and subjects, there are not enough qualified and competent EL teachers or school leaders who feel adequately prepared to address EL needs.

Funding Adequacy

- In 2016–17, California needed \$16,800 per pupil versus the current \$12,750 for all students even to have the opportunity to meet the goals set by the State Board. That higher amount is *still* less than spending by Connecticut, New Jersey, New York, and Massachusetts—states where salaries and other costs are similarly high.
- Recent improved funding for disadvantaged students often serves merely to restore what the recession’s austerity budgets took away.

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KEY FINDINGS, continued

Pensions

- Pension debt will have major equity implications in the short and long term as pension obligations affect district solvency, funding adequacy, and the teacher labor market.
- Districts already anticipate that ballooning pension costs will outpace revenue and lead to budget cuts likely to affect classroom level spending.

School Construction and Capital Projects

- California’s facilities funding formula remains inequitable and regressive.
- The greatest needs are in districts with increasing enrollment and older buildings. Those districts typically have more lower income and non-White households, and are usually less able to raise local revenue.

Accountability

- LCFF as implemented “continuous improvement” but without a measurement system to gauge whether an improvement strategy is working, or what it means to be on track. Decision-makers and stakeholders have no practical equity indicator system providing guidance on what resources, staffing, and data a district needs to address root causes.
- Schools can get high overall ratings even if they are failing to support subgroups. Data do not associate improvement projects with specific goals, or enable administrators and teachers to monitor progress and make timely interventions. The data do not allow comparisons between local indicators across schools.
- Parents and other stakeholders do not have enough information to make informed choices or push for change.
- The hypothesis that devolved politics reduces inequity has no clear evidentiary support, yet. There is some encouraging evidence associating LCFF funding increases with improved achievement and graduation rates.

Meaningful Engagement: Participation and Politics

- Districts that prioritize the participation of historically underserved families, and develop participants’ capacity for two-way conversations that specifically address racial bias, created conditions that more intentionally reflect the LCFF’s underlying assumptions of local control.

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KEY FINDINGS, continued

Whole Child Development: The Science of Equity

- A convergence of recent research in the brain sciences and human development warrants new optimism for the progress of educational opportunity.
- A “whole child equity” framework encompasses screening, interventions, and supports that will, because of the brain’s malleability, prevent or mitigate the effects of adversity and chronic stress on academic and other student outcomes.

Equity Indicators and Quality Data: A Civil Right

- California collects a great deal of data that *could* help policymakers and educators better see and close equity gaps in resource allocation, educational readiness, quality, promising practices, and outcomes.
- Well-documented problems with data quality, accessibility, comparability, and connectivity—from basic accounting structures to sharing promising practices—reflect and reinforce poor incentives to make equity a priority.

Introduction and Foundations

This paper focuses on implications for equity in the research findings of *Getting Down to Facts II (GDFTII)*. Policymakers changed education funding and governance with the 2014 enactment of the Local Control Funding Formula (LCFF), Gov. Jerry Brown’s historic school funding and accountability legislation. This policy and others intended to tackle low test scores, wide achievement gaps, and other challenges identified in the 2008 research paper series, *Getting Down to Facts* (Loeb, Bryk, & Hanushek, 2008; Levin et al., 2018).

Today, ten years after the initial *Getting Down to Facts* studies, the state has made only limited progress in reducing achievement and opportunity gaps. Students who are Black, Latino, low-income, and/or English language learners continue to have low academic outcomes, and the disparities with White and Asian students mean that California as a whole has outcomes significantly below national averages. In 2017, results from the National Assessment of Education Progress (National Center for Education Statistics & Institute of Education Sciences, 2018) showed average reading performance in California was lower than all but five other states in fourth grade, and all but 10 states in eighth grade; in math, California was worse than all but five states in fourth grade and six states in eighth grade.

California’s most recent education reforms have largely relied on good intentions rather than specific accountability, corrective action, and enforcement (Warren & Carrillo, 2015) to disrupt and reverse generations of entrenched inequity. For example, LCFF gives school districts more money to support disadvantaged students but does not guarantee adequate school funding or alter state limits, such as the Proposition 13 limits on property taxes, on local fiscal authority.

After considering the definition of education equity and noting the background of student groups’ isolation by class, race, language, and ethnicity, this paper has sections on teaching, learning, finance, and accountability. It concludes with a more speculative section defining a broader conception of equity for the future, *whole child equity*; it points us towards a research agenda which could well provide new evidence-based strategies for moving the needle on this nearly intractable problem.

Defining Equity

In everyday conversation, the terms *equity* and *equality* are often used interchangeably. In technical contexts, their meanings differ in important ways. Equality of schooling generally connotes the idea that goods and services are distributed evenly (i.e., everyone gets the same amounts). Equality *does not consider the assets, needs, or socioeconomic circumstances* of the individual. The starting point is irrelevant—including the personal characteristics that an individual brings to a situation, both positive and negative.

Equity, on the other hand, incorporates the ideas of access, opportunity, and need. A commitment to education equity entails, first, concern about group disparities in important inputs or outcomes. Second, it may be applied to a particular individual—for example, “the school treated her inequitably”—because the practices and processes adopted to ensure equity were not applied to that individual. The idea of need, either individual or group, replaces a mechanistic equality; indeed, an equitable distribution of certain goods and services is purposefully unequal. Instead, the neediest of students may receive more of a resource, often because of salient differences in their starting points. Examples of equity policies include: the weighted-student approach in California’s LCFF; the federal Individuals with Disabilities Education Act (IDEA); Titles I and III of the Elementary and Secondary Education Act; and the distribution of lead abatement funds.

One way to understand how various conceptions of equity relate to each other is provided by Marsh, Hall, and their colleagues (2018)—see Table 1.

Table 1: Overview of Four Perspectives on Equity (Marsh, Hall, et al., 2018)

| | Libertarian | Liberal | Democratic Liberal | Transformative |
|-------------------------------|-----------------------------------|---|--|--|
| Equity is... | Fair competition | Equal opportunity | Universal high performance | Freedom from oppression |
| Greater resources go to... | Gifted and advanced students | Disadvantage students | Under-performng students | Marginalized students |
| Equity is achieved through... | A fair process to determine merit | Meeting needs to create a level playing field | Closing gaps to achieve universal high standards | Changing oppressive structures & promoting empowerment |

But how to make these abstract principles useful for education policy and its implementation? Interpreted using the framework in Table 1, our approach below is a mix of Liberal and Democratic Liberal approaches.

There are countless education disparities because schooling, learning, and student context are all complex. Is there a framework to guide decisions about when a disparity should be deemed inequitable? We suggest that inequity is:

- **Excessive disparity** between groups with respect to a consequential outcome and/or resource; or
- An unacceptably **poor correlation** (fit), observable at a group level, between resources and student needs; or
- An **inadequate effort** to mitigate the effects of some structural disadvantage—such as poverty, geography, race, language, or deleterious segregation—faced by a group of learners.

This may guide analysis and subjective judgment, yet a great many circumstances meet this definition. So, in a consequential decision—funding, school improvement plans, regulatory commands, enforcement action, accountability—two further judgments are necessary.

First, to paraphrase some leading Supreme Court cases involving challenges in court to administrative action,² a conclusion that one of these three failings **poses significant risks to official educational goals** must have warrant in the data and a reasonable basis in education research. The notion of a “significant” or “unreasonable” level of risk is familiar in regulatory systems as diverse as environmental protection, civil rights, securities regulation, and intellectual property. For example, what level of risk is created by using non-credentialed teachers at the observed level with the given measure?

Second, inasmuch as an agency’s political and budgetary resources cannot support universal enforcement, there should also be a formal or informal level of predicted harm below which the agency will take no action. Even if, for example, the difference between the standard (25 miles per hour) and the observation (40 MPH) is significant, the police have more important things to do until the speeding is undeniably reckless (say, 50 MPH in traffic). When comparing the exposure of student Group A to non-credentialed teachers with the exposure of Group B, how much difference is too much?

These judgments, for whatever regulatory purpose, are often less science than they are an amalgam of parascience—i.e., politics, intuition, inertia, and art. It is the commonplace, messy, making of a sausage-like regulatory standard. As an analogy, compare formulating a regulatory or political response to lead levels in a city’s water supply, with formulating a response to racial disparities in high school graduation rates, student discipline, or participation in the performing arts. Science has its limits in terms of how it has measured both inequity and progress towards equity, so it is important to have well-structured public consideration of which dimensions matter for education equity, what variables should serve as measures, and how much group difference we will tolerate.

Contemporary Jim Crow: Racial and Class Isolation

Nationally, Americans are generally more mixed in workplaces, and the redlining of our neighborhoods by banks and financial institutions is less obvious, but broad structures of governance, regulation, demography, and custom operate together to keep our students apart and racially isolated. Examples of this include draw-

² For example, *National Labor Relations Board v. Hearst Publications* (1944) and *Industrial Union Department v. American Petroleum Institute* (1980).

ing attendance zones between and within school districts; limits on and distribution of taxing authority; zoning; NIMBY opposition to schools and affordable housing; implicit biases, and the powerful legacy of *de jure* housing segregation (see Rothstein, 2017; Orfield, 2008, 2012, 2013). These segregative forces do not usually amount to legally actionable discrimination, but they increase racial isolation in schools.

And so it has been in California. It is among the nation's most diverse states, but many of its schools are homogeneous. In fact, intra-district segregation, defined in terms of a student's likelihood of school exposure to another group, has increased over the past few decades.

On average, Latinos attend California schools that are about 70 percent Latino whereas their share of the state's student population is 46 percent (Reber & Kalogrides, 2018). In comparison, the average White student goes to a school that is 48 percent White, although Whites make up 26 percent of total state enrollment.

Latino, Black, and Native American students are more likely to be economically disadvantaged and to be concentrated in schools with other poor children. Again, the gap is largest between Latinos and Whites. Latino students typically attend schools with the highest rate of children eligible for free lunch (more than 60 percent); for White children the rate is the lowest (30 percent) (Reber & Kalogrides, 2018).

Of course, in regard to race, the Supreme Court declared intentional "separate but equal" laws and practices unconstitutional in public education in 1954. It is important to recall, however, that 60 years earlier the Court had declared "separate and unequal" unconstitutional in 1896 (*Plessy v. Ferguson*). The equality requirement was rarely enforced until the 1940s, when civil rights attorneys pursued litigation strategies that led to *Mendez v. Westminster* (1946; 1947) and *Brown v. Board of Education* (1954). Now, 65 years later, it is ironic and painful that the separate and unequal era of Jim Crow is echoed today in myriad active and passive forms of racial, ethnic, linguistic, and class isolation in schools.

California is an exemplar of this perpetuated disparity. The policy choices that create or sustain contemporary "Jaime Crow" segregation between districts, within districts, and within schools usually lack the intentionality and animus required to violate the U.S. Constitution. (The California state constitution is more protective of minority rights, but courts often accept the claim that the disparate impact of a policy is justified by a legitimate educational purpose.) However, an antidiscrimination formulation of wrongfulness, whether judicial or legislative, differs from a definition designed to animate an equity strategy that supports success for each and every child. From an equity policy perspective, the fact that demography and housing patterns drive racial and class isolation amplifies the challenges to student success, but does not excuse them. Nor does it make the challenges impervious to public policy and education practice.

Challenges for California's Rural Schools

Nearly a third of the state's school districts are located in rural areas and small towns, and their size and geographical isolation continue to exacerbate educational disparities. And the rural equity story is not good, nor does it seem to be getting better with the California Way.

In these districts, most of which enroll fewer than 500 students, there are proportionately fewer fully credentialed teachers compared to urban and suburban areas. In some small, rural districts in Fall 2017, all new teachers were hired on emergency-style permits (Darling-Hammond, Sutchter, & Carver-Thomas, 2018).

Early learning programs are also scarcer, so children are more likely to enter kindergarten less prepared. Rural counties usually have the highest percentages of children whose families are income-eligible but are not served

by publicly funded early education programs (Stipek & Pizzo, 2018). In Mariposa County, 81 percent of eligible four-year-olds were not served in 2014, and 66 percent each in Lassen and San Benito counties. In comparison, densely populated counties had much lower percentages of eligible children not served (26 percent in Los Angeles County), although the actual number of children is higher.

Test scores reflect the lack of school readiness and credentialed teachers. Adjusting for socio-economic status, students at rural schools, on average, lag behind their peers in urban and suburban schools (Reardon et al., 2018). These differences in student performances are similar to performance gaps between rural and urban and suburban schools across the country.

Overall, California's recent educational reforms are often more of a burden than a boon for small, rural districts (Koppich & Humphrey, 2018; Willis, Krausen, Byun, & Caperas, 2018). Rural areas have typically been more underfunded than other districts even with an allowance awarded to small districts. Under LCFF, rural districts received just 2 percent more on a per pupil basis than their urban counterparts (Levin et al., 2018; Bruno, 2018) and continue to have a harder time supplementing state aid with local revenues or federal grants (Bruno, 2018).

With their limited budgets and few economies of scale, rural districts are struggling to provide students with the resources necessary to raise standards and achievement. While urban districts spend more on supplemental education programs and special education, rural districts have to allocate more of their budgets towards basic operating costs such as food, transportation, and general administration (Bruno, 2018). As one rural superintendent said in an interview,

With only eight certificated staff, seven are full-time teachers, it is tough to hit all the buttons in a high school but still comply with sometimes unrealistic necessities or levels of achievement that are expected at, say a school of 4,000 with 75 staff. (Moffitt et al., 2018, p. 23)

Support for improvement is also scarce. Non-profit education service organizations, which provide a wide variety of services ranging from afterschool programs to remedial reading and math support, are concentrated primarily in metropolitan areas (Moffitt et al., 2018). Longer distances between and within districts mean that in-person meetings as well as deep engagement and collaboration between schools, districts, parents, and other community members require more time and capacity. Rural districts are increasingly leaning on their county boards of education for help with budget development and curriculum improvement, but many of those offices are similarly thinly staffed and lack the specific technical expertise (Koppich & Humphrey, 2018).

Policymakers and stakeholders need to expand and strengthen the supports to ensure that students in rural areas and small towns can receive high-quality and rigorous educational opportunities. Fundamentally, increased funding is essential. And while LCFF has loosened funding restrictions so districts can be more flexible and creative, schools need help finding best practices, professional learning communities, and the resources to guide their improvement. With all of the challenges that districts in rural areas and small towns face, geography should not determine the destiny and outcomes of the students who live in these areas. With proper funding and support, schools can leverage technology to help bridge distances, and a district's small student population can be an asset for deeper learning and innovation.

Ready to Teach

The success of California’s most recent education initiatives to raise student achievement—new standards, curriculum, instruction, local control, and assessments—depends on classroom personnel and school leadership. Amid the state’s initiatives, teachers are working in higher pressure, more challenging social contexts. For example, one in five California students lives in poverty, one in five is an English language learner, and many are doubly burdened. So, too, are their schools and teachers. In effect, educators and staff are expected to address massive social and economic problems (Bell, White, & White, 2018; Sutchter, Podolsky, Kini, & Shields, 2018), such as mental health or food insecurity while their school funding remains inadequate (Levin et al., 2018).

Research confirms that teachers are fundamental to student achievement (Rivkin, Hanushek, & Kain, 2005; Bell et al., 2018). Yet schools serving the most vulnerable students often get the least experienced and least qualified teachers, those who are also the most likely to leave. Furthermore, inequitable access to effective teachers is correlated with disparities in student outcomes (Darling-Hammond, Sutchter, et al., 2018; Santibañez & Snyder, 2018).

There are several levers that can ensure the equitable distribution of high-quality educators who are ready to teach: preservice teacher and principal preparation; in-service mentoring and professional development; and the criteria used to assign teachers and leaders to particular schools, subjects, and classrooms, including salaries and working conditions.

Pipeline and Distribution

Since the end of the Great Recession, California has had trouble replenishing its teaching ranks. Veteran teachers are retiring, and fewer people are interested in entering a profession with low pay, uncertain pensions, high demands, unreliable support, and, arguably, little respect (Sutchter, Darling-Hammond, & Carver-Thomas, 2016; Phi Delta Kappan, 2018). Accepting teachers with substandard credentials is supposed to be a temporary fix, but instead masks the urgency and exacerbates the problem. Whiter or wealthier schools, with more resources and better working conditions, have fewer problems attracting instructional staff. Other schools must settle for far less (Darling-Hammond, Sutchter, et al., 2018; Goldhaber et al., 2018).

As teachers face greater expectations and impediments, recruitment and retention measures appear insufficient. For example:

- The number of teachers with substandard credentials—having met neither testing nor preparation requirements—has jumped by 260 percent since the 2012–2013 school year (Darling-Hammond, Sutchter, et al., 2018).
- In high-poverty schools, teachers are twice as likely to be teaching on an emergency-style permit than in low-poverty schools (Darling-Hammond, Sutchter, et al., 2018).
- In high-minority schools, teachers are three times more likely to have emergency-style permits than in low-minority schools (Darling-Hammond, Sutchter, et al., 2018).
- Districts serving the most English language learners are nearly 20 percent more likely to report teacher shortages, compared to districts with the least number of English language learners (Santibañez & Snyder, 2018; Goldhaber et al., 2018).

The worst shortages are in special education, which serves the students with the greatest needs. Two thirds of new California special education teachers are on substandard credentials (Darling-Hammond, Sutchter, et al., 2018). Over the past decade, without sufficient staffing and funding, four special education programs were eliminated and nearly 30 have been put on a moratorium status or reduced in size (Darling-Hammond, Sutchter, et al., 2018). All of these are contributing factors to understanding why two thirds of the 228 districts identified for needing assistance under the state's new multi-tiered system of support were identified because their special education students were performing very poorly (Fensterwald, 2017).

Underprepared teachers are more likely to leave, and especially so when they are given the toughest assignments. The churn of teachers can throw a school's already fragile staffing into chaos. Classes are cancelled, class size is expanded, and substitutes fill in. Vacancies are either left open or filled with more underprepared teachers, and the cycle repeats.

Teaching English Learners

Whatever curriculum or policy changes California makes to help students with the highest needs are meaningless without skilled teachers. The state has required since 2004 that all teachers receiving state credentials learn how to serve English language learners. But that mandate doesn't ensure quality. Until 2018, with the implementation of a new assessment, teachers were not required to demonstrate their competency in effectively teaching English language learners (Santibañez & Snyder, 2018).

In 2016, voters overwhelmingly overturned a 1998 ballot initiative, thereby reinstating bilingual education. Research shows that for many English language learners bilingual education can be more effective than English-only programs. However, California does not have enough bilingual teachers. Half of principals surveyed in 2017 said they wanted to hire bilingual teachers, and about 90 percent of those were having trouble finding staff (Darling-Hammond, Sutchter, et al., 2018).

Principals

The staffing problems are capped by a shortage of principals. California's principals have the least experience and the most turnover among comparison states. One in five is in their first year at their current school (Sutchter, Podolsky, et al., 2018). Nearly one in four left the state or their profession or switched schools by the end of the school year, a turnover rate that is among the highest in the nation (Sutchter, Podolsky, et al., 2018). As with teachers, the least experienced principals are most likely to be leading schools that have high numbers of poor families and students of color.

Effective principals are critical to the success of teachers, and thus student achievement. Leaders set clear goals, develop structures and opportunities for staff, and support teaching and learning. The longer a principal stays at a school, the more progress can be sustained. Student achievement falls after a principal leaves, and one study found that it could take five years after a new principal comes aboard for conditions to fully rebound (Sutchter, Podolsky, et al., 2018).

The dearth of experienced principals exacerbates the teacher shortage because one of their primary responsibilities is teacher recruitment and retention. To compound the problem, those are some of the duties for which principals feel least prepared and receive the least professional development (Sutchter, Podolsky, et al., 2018).

Ready to Learn

All children have the potential to succeed in school. This is not an abstract ideal, but a fact grounded in science. Learning and development are malleable, and children can continually learn new skills. The science of learning means that quality education and integrated health and social services supports can mitigate and even undo the impact of poverty, trauma, and other adverse conditions (Osher, Cantor, Berg, Strayer, & Rose, 2018; Cantor, Osher, Berg, Strayer, & Rose, 2018).

Early care and education are now widely recognized as two of the most effective ways we can help

Early care and education is now widely recognized as one of the most effective ways we can help disadvantaged children and their families. When children have more learning opportunities at the beginning of their life, when their brains are still developing, they can build a firmer foundation for future success in school and beyond. But despite the clear benefits, California provides fewer supports for early learning than many other states. Far too many of our children start behind and stay behind (Reardon et al., 2018).

When California children living in low-income districts enter kindergarten, they already lag their national counterparts. Their academic achievement does increase at a slightly faster rate than the national average through elementary and middle school. But despite that progress, students generally cannot catch up to their national peers.

Unlike many states, California does not fund enough preschool programs for the children who could most benefit. In 2014, at least 42 percent of children ages three and four who were eligible for state-funded preschool or early childhood programs were not served. In New Jersey, following litigation under the state constitution that created access for all preschool-aged children in low-income districts, the participation rate for eligible children in those districts was 90 percent (Stipek & Pizzo, 2018).

THE SCIENCE OF LEARNING AND DEVELOPMENT

Recent research in neuroscience and human development should inform efforts to more effectively serve each and every child. Science tells us that the process of human development relies on relationships and interactions between an individual's biology and one's context and culture (Osher et al., 2018). These reciprocal interactions can function as either risks or assets depending on the nature of the relationships.

Research also indicates that development—including the brain itself—is malleable, especially from birth to early adulthood. This plasticity is influenced by the environment and context in which one develops; the brain tissue is the most responsive in the human body to environmental and relational

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THE SCIENCE OF LEARNING AND DEVELOPMENT, *continued*

changes. This malleability presents a promising opportunity for educators and service providers to better understand, serve, and support the developmental needs of all children and youth. Science can and must inform our responses to childhood and youth adversity.

The developing brain is best equipped to reach full potential when professionals intentionally integrate affective, cognitive, social, and emotional development. Each and every child learns and develops in their own way, at their own pace, and not in a linear way. The many sources of variation require an individualized approach to teaching and supporting the whole child.

An education system must be able to successfully match the necessary resources and opportunities with each child, based on her learning profile, culture, and context—especially for children who have been exposed to trauma or chronic stress. Supporting the whole child is an equity strategy because it can disrupt the negative, often intergenerational effects of adversity—including poverty and racism—on well-being and learning for our most vulnerable children and youth.

— *The Opportunity Institute*

Without state support, preparing children for kindergarten is out of reach for many families. The cost of care and education for young children rivals in-state college tuition. In 2014, full-time care for three- and four-year-olds averaged more than \$9,000 per child; for infants, the average was more than \$13,000. Only wealthier families can guarantee that their children, who are already ahead, receive the benefits of early education.

Disparities in race, ethnicity, and language are also reflected in early education attendance. In 2014, the percentage of Latinos ages 3 to 5 who were not enrolled in either preschool or kindergarten was nearly 45 percent, 5.5 percentage points more than Black children and 11 more than Whites. Children who are dual-language learners are also less likely to be enrolled in preschool than non-dual-language learners, a gap of nearly 9 percent from 2011 to 2015 (Stipek & Pizzo, 2018).

Because the most vulnerable children are less likely to be enrolled in early learning programs, they are also less likely to be identified for special education services. In 1975, through the Individuals with Disabilities Education Act (IDEA), Congress first mandated free, appropriate education for children as soon as they are identified as disabled. The sooner children receive help, the more easily—and more cost-effectively—the challenges can be addressed. Research on early intervention convinced Congress to give states discretionary grants for services for infants and toddlers.

Even so, over 40 years after the passage of IDEA, California does an especially poor job of identifying and helping young children. As California lacks a statewide screening system, the responsibility for getting a child screened falls largely on families and other adults in a child's life. Even after children are identified, the state is slow to respond. California ranks near the bottom nationally in meeting deadlines to plan and implement services (Hunt, 2018).

Because California fails children when intervention could most help them, their learning challenges increase with time. Black and Latino children in California are underrepresented in early intervention and preschool

special education programs compared with the national average (Hunt, 2018). Yet they are overrepresented in K–12 special education services.

Given that California has trouble complying with a Congressional mandate to help disabled children, it is not surprising that our early childhood education system suffers from other shortcomings in quality and accountability. The system is so complex and fragmented that it is unable to strategically support the needs of children. Consider these challenges:

- No single agency owns responsibility for early education. An array of agencies, regulations, and sources of funding is involved, with little coordination and accountability (Melnick, Ali, Gardner, Maier, & Wechsler, 2017).
- Reimbursement rates for providers are not tied to quality, unlike in other states, so providers have little incentive to give children better care and education (Stipek & Bardack, 2018).
- Preparation requirements for educators are low and vary widely (and irrationally) by program. Little support or incentive is offered for educators, who are typically poorly paid, to get more training (Austin, Whitebrook, & Chávez, 2018; Stipek, 2018).
- No centralized data system tracks open slots, children’s experiences, or workforce information, making it impossible for the state to assess the impact of policies (Anantharajan & Stipek, 2018).

The current early education system confuses rather than helps families and worsens learning problems rather than prevents them. Our leaders have long known the established research on early learning; they voice support for early learning. Yet they offer half-hearted funding so only a few lucky children get what they need. In failing to do more, policymakers are actively undermining our youngest, most disadvantaged children.

English Learners

Now forty years post *Lau v. Nichols* (1974), the research continues to document our failure to address the needs of English learners. It is profound, undeniable, and unconscionable, especially in California where 1 in 5 students is an English learner (EL). The research is also clear that there is no one solution to address the teaching and learning needs of a complex and heterogeneous group of students, families, and communities; the urge for a unitary policy response further exacerbates negative outcomes.

As Umansky (2018) observes in her comprehensive analysis of California (and corroborated by others in this series), the state’s EL policy structure and implementation realities do not sufficiently account for the diversity and individual needs of English learners. ELs do not have equitable access to rigorous core content (Umansky, 2018). Schools struggle with identification of and response to ELs with disabilities, with varying degrees of validity and reliability from district to district (Warren & Hill, 2018). In general, schools do not have enough supports for students experiencing trauma (Reback, 2018) as well as not enough teacher capacity to know how to best meet their learning needs (Santibañez & Snyder, 2018; Bell et al., 2018). In some of the highest need locations and subjects, there are not enough teachers who are qualified and competent to teach ELs (Darling-Hammond, Sutchter, et al., 2018; Goldhaber et al., 2018) and not enough school leaders who feel adequately prepared to address English learner needs (Sutchter, Podolsky, et al., 2018; Grissom & Bartenen, 2018). All of these challenges reflect an overall fragmentation, misalignment, and arbitrary “local control” of EL policies, frameworks, resources, and practices within and across the early childhood, K–12, and post-secondary systems.

California’s English learners continue to be the canaries in the coal mine, alerting us to the hazardous conditions of our public education system—its policies, cultures, tools, and practices. The canaries have been subject to

academic harm and failure at disproportionate rates (Reardon et al., 2018), revealing the negative impacts of an incomplete and under resourced system.

And at the same time, the work to support English learners in California draws attention to our collective failings to address the broad equity challenges that face many of California’s most vulnerable students, families, and communities. What if:

- Every child, regardless of income, race/ethnicity, or language, went to school with highly qualified teachers and principals?
- Every incoming kindergartener were universally screened for English Language Proficiency, progress in child development, and Adverse Childhood Experiences (ACEs)?
- All teachers were prepared to teach in diverse classrooms, and they differentiated instruction to meet the needs of each child?
- Appropriate assessments (a) were used to ensure that students were getting what they needed, and (b) helped teachers understand what and how their students were learning?
- All schools prioritized mental health supports and social emotional learning as part of a high-quality teaching and learning environment?
- Each teacher and school valued the language, experience, and background of families as a core learning partner in their child’s education?

To this end, the recent passage of the California English Learner Roadmap policy (California Department of Education, 2017) is a step in the right direction. The Roadmap does not rely on a singular dimension of “student support” or expect an entire system to easily change course. Directing attention to the most obvious opportunities to address severe shortcomings, a roadmap comprising research and policy consensus can perhaps propel meaningful change rather than increase the eloquence of our platitudes. It is imperative that California makes this intention a reality. When the canaries in the mine are okay, the miners will be okay; when the most heavily burdened children thrive, all of our students will thrive.

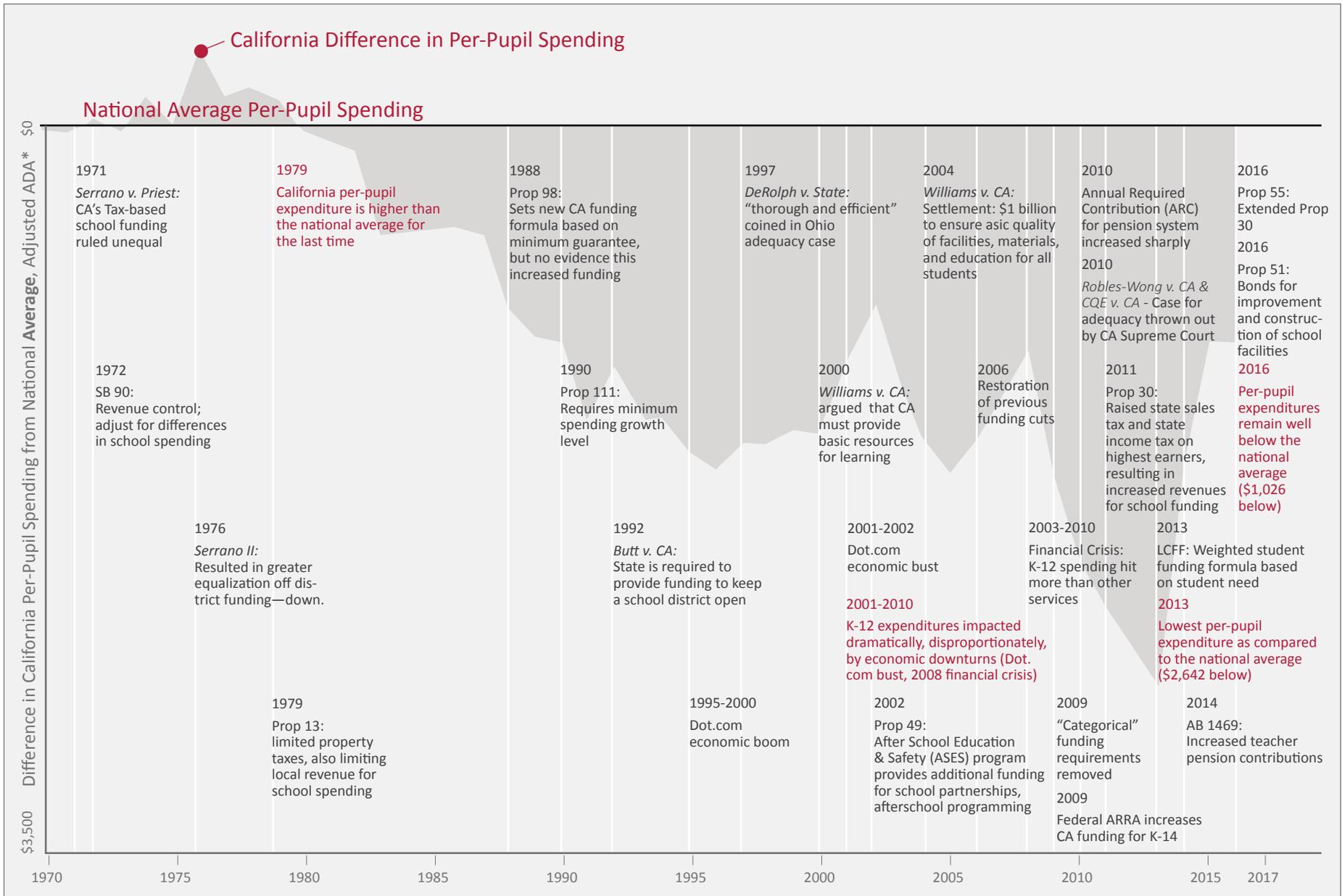
Finance

Funding Adequacy

Money matters. No plan to improve teaching and learning, no matter how thoughtful and innovative, can succeed without financing. But that funding has to be sufficient and designed to reach all children who are most in need. Through LCFF, California has mandated the redistribution of resources to disadvantaged students. Nonetheless, financing still falls short in size and scope (Willis, Berg-Jacobson, Baumgardner, & Frank, 2018).

In recent years, with a booming economy in California, lawmakers have touted the restoration of the massive education cuts from the Great Recession. However, new dollars flowing into the system have barely restored funding to pre-Recession levels, much less increased funding for schools; the self-congratulatory posture of many leaders is not warranted by the long-term expenditure data. California has long failed to meet the barest thresholds for operating, much less for making progress—see Figure 1 on the following page for a longitudinal timeline of per pupil expenditure in California and concurrent policy and budget decisions that may have unintentionally further exacerbated funding inadequacy.

Figure 1: CA Per-Pupil Spending and Policy Contexts, 1970-2016



*Costs adjusted to 2016 values.

Source: Kirst, Goertz, & Odden, 2007; Hirji, 1999; Timar, 2006; Shambaugh, Kitmitto, Parrish, Arellanes, & Nakashima, 2011; National Education Association, 2018; California Budget Project, 2006; Kaplan, 2017; Kaplan, 2016.

In the 2016–2017 school year, the state funded schools at nearly a third less than what Levin and colleagues (2018) estimate districts need to provide an adequate education. Researchers calculated that California needed \$16,800 per pupil versus the current \$12,750 for all students to have the opportunity to meet the goals set by the State Board of Education. That adequate amount is still less than what is currently spent by Connecticut, New Jersey, New York, and Massachusetts—states where salaries and other costs are similarly high.

All students suffer when funding is inadequate, but disadvantaged students bear the brunt. The student–teacher ratio is 22.5:1 in California, compared to below 17:1 in most other states (Imazeki, 2018). As discussed earlier in this report, many teachers are uncredentialed and inexperienced, and less qualified teachers are concentrated in schools that serve more low-income students. The same is true for novice teachers. Similarly, less than half of public school students have regular access to healthcare in their schools, despite the fact that research has consistently shown that school-based health services help children do better in school. California ranks 39th in the country for school nurses per student and *dead last* for school counselors per student (Reback, 2018).

Despite LCFF, districts with more disadvantaged students do not necessarily have more money than those with fewer English learners, foster youth, or low-income students (Bruno, 2018). About 15 percent of a district’s budget comes from local revenue. Some wealthier districts have higher levels of local revenue because they collect property tax revenue in excess of their state aid entitlement or can use other sources of local wealth to supplement. Entrenched segregation means those places have fewer numbers of disadvantaged students. Only a few hundred of California’s 2.7 million poorest students attend schools in districts that spend above adequate levels (Levin et al., 2018).

The toll of previous budget cuts means that although disadvantaged students are now getting more money, the funding often doesn’t expand services but instead is a means to reinstate what the recession’s austerity budgets took away. Nearly half of the superintendents in a survey admitted that some of the funds intended for targeted students were used to pay for programs and services that had been previously paid for by base funding (Koppich & Humphrey, 2018; also see Willis, Krausen, et al., 2018). Moreover, some of the earmarked funds have been shifted to programs and services to serve all students, not only the disadvantaged. For example, investments listed in some strategic plans included remodeling bathrooms and providing school security (Koppich & Humphrey, 2018).

The formula also may underestimate the resources needed by disadvantaged students by ignoring their multiple, intersecting identities. Students may be English learners who are low-income foster youth, but for resource allocation they are counted in only one category. In comparison, other states such as New Jersey provide weighted funding for both low-income students and English learners, and “double-count” students who fall into both categories (Imazeki, 2018).

Pensions: There’s a Hole in the Bucket

No funding formula can address issues of equity realistically and practically until we address some intractable structural deficits that face our education system, including pensions (see Krausen & Willis, 2018). Koedel and Gassmann (2018), in their study of the California State Teachers’ Retirement System (CalSTRS) and its substantial unfunded liabilities, often called “pension debt,” describe a looming fiscal crisis for districts. Pension debt will have major equity implications in the short and long term as debt affects district fiscal solvency, funding adequacy, and the teacher labor market.

California's pension crisis is not unique: States across the nation are facing the hard realities of decades of unsustainable fiscal assumptions (Marchitello, 2018). In California, the state's pension liability stems from a lethal combination of: (a) not enough money going into the system (through the Annual Required Contribution) and (b) lower than anticipated returns on investment (Koedel & Gassmann, 2018). Accumulated debt exponentially increases the costs of pensions.

The authors describe a few options that would require substantial structural changes to the pensions system, either in terms of the system's inputs or outputs. None seem fiscally or politically simple. One option, in theory, is to slow down the hiring of new teachers to reduce the numbers of members who would need to be served. Given the high pupil ratio and the assessed need for more adults in schools, especially in our most underserved schools and districts (Darling-Hammond, Sutchter, et al., 2018), limiting hiring is not a likely solution.

Through Assembly Bill 1469 (A.B. 1469, 2014), the state has called for a mandatory increase in contribution to CalSTRS, to nearly double from 18.3 percent to 35.3 percent of teacher salaries. School districts will be the most impacted, accounting for nearly 11 percent of the 17 percent hike, with teachers' individual contributions and the state accounting for the remaining 6 percent.

These required increases in contributions are inevitable, and present potentially more severe equity challenges to an already inadequate system of finance. Districts already anticipate that ballooning pension costs will outpace revenue and lead to budget cuts that could reduce classroom level spending (Willis, Krausen, et al., 2018). Marchitello's analysis (2018) of pension liabilities across the nation forecast what could happen in California.³ Preliminary analysis of Fremont, Los Angeles, and West Contra Costa school districts bears out these concerns: Their CalSTRS contributions will result in per-pupil expenditures that are projected to rise by 180–200 percent to around \$1,000 per pupil by 2021 (Koedel & Gassmann, 2018). While these estimates are based on narrow analyses of a small sample of districts, it is clear that any pension squeeze will impact districts differently, especially in terms of their spending priorities.

For example, a 2017 report from Education Trust-West (Chen & Hahnel, 2017) examining variance in state and local per pupil spending in the largest California districts shows that Anaheim Union High School district with more than 31,000 students (69 percent free/reduced-price lunch, 21 percent English learner, 1 percent foster youth) spent \$11,794 per pupil in state and local revenue. Huntington Beach Union High School district, serving 16,000 students (32 percent free/reduced-price lunch, 9 percent English learner, 0 percent foster youth) spent \$11,798 per pupil in state and local revenue. The impending pension squeeze and any across-the-board mandate in benefits spending (like the increase in the ARC) will have a differential impact on how these districts negotiate their local priorities.

History bears out that given economic volatility, state fiscal challenges lead to funding cuts for schools; districts with the fewest fiscal options are faced with the imperative to do better and more for their teachers and students to improve classroom outcomes (The Equity and Excellence Commission, 2013). As such, it is likely that pension debt and resulting budget implications will have more acute, negative impact on poor students, English learners, and foster youth in Anaheim, as well as other districts serving higher need students.

³ Nationally, benefit spending is up 22 percent compared to a 1.6 percent increase in K–12 overall spending from 2005 to 2014; 23 states spent fewer dollars in the classroom in 2014 than they did in 2005 after adjusting for inflation (Marchitello, 2018).

School Construction and Capital Projects

Physical environments can impact teaching and learning, but LCFF does not address new construction or modernization. California continues to use a facilities funding formula that is inequitable and regressive. The state helps districts pay for facilities by matching the funds that are raised by districts primarily through developer fees and local general obligation bonds, which are repaid through local property taxes, and to a lesser extent with revenue from developer fees. Because districts with higher property wealth tend to raise more revenue through local general obligation bonds, they also tend to receive more state aid for school modernization projects.

The greatest needs are in districts with increasing enrollment and older buildings. Those are also the places that typically have more lower income and non-White households. And they are less likely to be able to raise local money. From 2006 to 2015, unified school districts in the bottom quintile for median household income received nearly \$4,000 per student for facilities funding. Those in the top quintile of median household income received more than \$20,000 per student (Brunner & Vincent, 2018).

Revenue from statewide bonds is supposed to help mitigate some of the disparities, but funding has been in decline and is unreliable (Brunner & Vincent, 2018). In 2014, lawmakers failed to pass a statewide general obligation construction bond for schools, the first such funding proposed since 2006. Voters stepped in and approved the bond in a 2016 ballot initiative, despite the opposition of Gov. Jerry Brown. This was the first time a statewide school construction bond had not been approved by legislators but by voters.

But even when money is available, lower income and lower property-value districts are at disadvantage when it comes to obtaining state aid and consequently tend to have significantly less revenue available for school modernization projects. This is because wealthier districts have an easier time raising matching funds for school modernization projects, and state aid is distributed on a first-come-first-serve basis. Given the substantial decline in state funds for school construction and modernization projects over the past decade, local school districts have been forced to rely more heavily on local revenue from general obligation bonds to fund their facility needs. Wealthier districts have surmounted, and most likely will continue to surmount, the decline in state aid by funding their facility needs with local revenue. In contrast, low-income and low-property-value districts, which tend to have higher concentrations of disadvantaged students, are much less likely to raise the revenue necessary to fund their facility needs and will continue to be at a disadvantage unless the state reforms its system of school facility finance.

Accountability

Role of Accountability in Reality and in California

To what extent can we assume that policymakers and administrators, from Sacramento to school houses, will give due attention to equity concerns if external carrots and sticks are modest or even absent? History suggests that equity requires much expertise, but also accountability with consequences. Well-designed accountability helps drive better outcomes by establishing clear expectations, responsibilities, and consequences.

California has taken a very different strategy. Despite its formal responsibility under the state constitution, California has largely withdrawn from any role in accountability, including enforcement of equity goals. Instead, Sac-

ramento decision-makers have moved sharply in favor of local control and flexibility. They have relied, in part, on a supposition that localities will do better at accepting responsibility and creating self-defined accountability for equity. This approach is analogous to the diminishing role of the federal EPA in environmental regulation and enforcement, with more responsibility shifted to each state and its environmental values.

California offers school districts very little in rewards for improving or sanctions for falling short. The very notion of falling short is problematic because the state establishes no clear, ambitious goals with respect to outcomes, much less outcome equity (Brighthouse & Mullane, 2018). Instead, LCFF encourages “continuous improvement” (Grunow, Hough, Park, Willis, & Krausen, 2018; Hough, Byun, & Mulfinger, 2018) without a standard measurement system for whether an improvement strategy is working, what it means to be on track, or guidance for what kinds of resources, staffing, and data districts should find in order to identify and address root causes.

Moreover, state requirements for community engagement, Local Control and Accountability Plans (LCAPs), and the California School Dashboard all appear to be largely pro forma (Polikoff, Korn, & McFall, 2018; Marsh, Hall, et al., 2018; Willis, Krausen, et al., 2018). Policymakers heralded increased community involvement as a key reform to bring more stakeholders and transparency into the process of setting goals, budgeting, and monitoring outcomes. School districts were required to organize “meaningful” engagement (undefined) with parents, students, educators, and others in the community. California’s education policymakers (see for example, Bersin, Kirst, & Liu, 2008) optimistically predicted that by investing in a robust democracy at the local level, meaningful public participation could change the power dynamics of decision-making, especially among Sacramento lobbyists.

But, in practice, those ideals remain mostly aspirational. The evidence is not yet solid that the hypothesis of devolved politics reduces inequity, although more funding seems to help boost achievement and graduation rates (Johnson & Tanner, 2018). Districts are currently free to interpret and implement meaningful engagement as they wish, even though most have neither the experience nor the capacity to invite ideas and feedback from a broad range of stakeholders. Just 5 percent of respondents in a statewide poll of voters said they had attended an LCFF-related meeting (Marsh, Hall, et al., 2018). If registered voters are not engaged in general, then participation is even less likely in marginalized communities. At least half of superintendents said it is difficult to get input from parents or guardians of each of the three disadvantaged groups covered by LCFF: foster youth, low-income students, and English learners (Marsh, Hall, et al., 2018).

Meaningful Engagement: Participation and Politics for Equity

In charge of implementing equity, many local administrators seem unaware of how power imbalances and social barriers prevent underrepresented communities from participating in public discussions. Eighty-one percent of superintendents reported that community trust was not a hurdle to engagement. When asked to choose a reason for low levels of engagement, superintendents cited “lack of stakeholder interest” (61 percent) and “a belief on the part of stakeholders that district professionals should make these decisions” (46 percent) (Koppich & Humphrey, 2018; Marsh, Hall, et al., 2018).

All too often the loudest voices, not the neediest, are heard. More than half of superintendents agreed with this statement: “District engagement activities tend to be dominated by a few stakeholders and that impedes a balanced representation of stakeholders’ interests.” In some districts, authorities capitulated to parents demanding expansion of Advanced Placement classes over those advocating for services and programs for students who LCFF targeted (Koppich & Humphrey, 2018). The most recent \$13.3 million initiative (to begin implementation in Fall 2018) is aimed at district and community capacity-building to support engagement and

“difficult conversations” through professional learning communities. Although before this initiative, the state has made little effort and investment to help districts organize and build capacity to engage stakeholders in a meaningful way (Marsh, Hall, et al., 2018).

A handful of districts prioritized broad and deep engagement within their communities and made explicit equity choices in their LCFF allocations to target funds based on student need. In contrast, districts that had more narrow and shallow engagement practices mostly spent funds on district-wide initiatives and had vague, competing, or multiple understandings of equity (Marsh, Hall, et al., 2018). Districts that prioritized the participation of historically underserved families (a) focused LCAP discussions around the common good of the district and (b) developed participants’ capacity for two-way conversations that specifically address racial bias (including professional development for district leaders and staff). As a result, they created conditions that more intentionally reflect the LCFF’s underlying assumptions of local control (Marsh, Hall, et al., 2018).

Just as the state allows local districts to define engagement, it also has a hands-off approach to resource allocation. LCFF requires that districts give more money to targeted groups and outline their strategies in LCAPs, but does not offer guidance on how to best serve them. Policymakers touted this lack of expectations as a way to encourage “innovation.” However, aspirational goals for innovation without adequate guidance may put some of our most vulnerable students at risk of not receiving the resources that they desperately need.

Few of the representative districts studied by researchers offered basic strategies tailored to English learners or foster youth, much less any cutting-edge ideas (Koppich & Humphrey, 2018). Instead of information on professional development, instructional approaches, or student interventions, LCAPs offered generalizations. “All teachers are teachers of English learners” was a statement in two LCAPs that supported goals such as “ensure English learner professional learning is job-embedded and student-centered.” Most plans do not mention differentiation in support to address the range of needs within a group. Distinctions are not made between an English learner from a high-income family versus one from a low-income family, or a monolingual household versus one with some English speakers. Some plans do not even distinguish between different groups. A review of more than 80 LCAPs found that most districts lump services for foster youth under those for low-income students and English learners (Koppich & Humphrey, 2018).

Many superintendents, especially those from districts with high concentrations of English learners, say they would welcome more guidance (Plank, O’Day, & Cottingham, 2018). However, their three primary systems of support lack capacity and expertise. The California Department of Education has few staffers with subject-matter instructional knowledge. Likewise, the county offices of education have limited capacity (Koppich & Humphrey, 2018). Moreover, county offices have traditionally worked to monitor compliance, and their staffers have no background in helping schools develop plans for improvement. The California Collaborative on Educational Excellence (CCEE), created under LCFF, is expected to serve as a statewide source of expertise and coordination, but it is funded to provide only extremely limited direct support to district or county authorities. The agencies have little experience working together and no clear directives on how to coordinate support. For most local authorities, it’s unclear to whom and for what they should turn. They have largely been left alone, for better and for worse.

The most public accounting of how districts are serving students, the California School Dashboard, has shortcomings that diminish its impact. Schools can get high overall ratings even if they are failing to support subgroups (Polikoff et al., 2018). Data do not match improvement projects towards specific goals or enable administrators and teachers to monitor progress and make timely interventions. The data do not allow com-

parison between local indicators across schools. Parents and other community members do not have enough information to make informed choices or push for change. Few people even know about the Dashboard; only 12 percent of voters say they have visited the website.

Without accountability, what drives our leaders to excellence? In a poll of superintendents, just 61 percent said they felt pressure to improve (Polikoff et al., 2018). Of those, 40 percent cited internal or intrinsic pressure and 20 percent pointed to their community. Not surprisingly, few said they felt pressure from the county or state. Relying on the intrinsic motivation of a leader to prioritize equity in systemic and transformative district-level change is an inadequate strategy. The reforms that were supposed to champion equity have largely absolved policymakers and administrators from expectations, responsibilities, and consequences. Those burdens, particularly the consequences, fall to the people the reforms were supposed to help: the most disadvantaged students and their communities.

Charter Schools Within a Statewide Equity Strategy

California has made strides towards supporting a more equitable distribution of resources (e.g., through LCFF), but has yet to see overwhelming evidence that the entire ecosystem of public schools is making progress towards greater actual educational equity. Charter schools are part of that ecosystem and could be recognized and held equally accountable for their efforts to ensure that California's highest need students are getting what they need and deserve.

In terms of outcomes, the research on charter school students continues to be mixed, with promising indications that, on average, California's charter schools are making some positive differences for Black and Latino students. For instance, Raymond's 2014 analysis finds that students enrolled in charter schools realized more progress in reading than their matched peers from comparable traditional public schools, amounting to about 14 additional days of learning. Furthermore, students who are Black or Latino or are in poverty made significantly greater progress in charter schools than their matched peers (Raymond, 2018).

Yet, charter schools have not closed achievement gaps and are not held accountable for equity goals. Given the heated debate between pro- and anti-charter advocates, it is important to recognize that neither traditional schools nor charter schools have a consistent equity mandate across California. We will not do our students any "equity favors" by continuing a zero-sum argument of "us" and "them." The opportunity through LCFF couldn't be better timed for both charter schools and traditional public schools—together—to consider a more enlightened and equitable path forward, one that focuses on our collective responsibility to ensure student success, across all types of public schools.

Charter schools have faced scrutiny from advocacy organizations for their lack of engagement and transparency in resource allocation and distribution to support high-need students. A report released by Public Advocates (Massaro & Narowski, 2018) found that the vast majority of California's charter schools failed to fully disclose or disclose at all how they spent money on students targeted for assistance under the state's funding formula. They found that only a third of the \$48.6 million that 43 schools (in Oakland, Sacramento, Richmond, Los Angeles, and San Jose) received specifically for high-needs students was documented as actually having been being spent for those purposes.

These concerns are hardly unique to charters, as traditional public districts such as Los Angeles, Long Beach, and West Contra Costa Unified School Districts have similarly been criticized by advocacy groups for their lack of transparency (Public Advocates, 2015; Public Advocates, 2017; Public Advocates, 2018; Education

Trust-West, 2016; CLASS Coalition and the United Way of Greater Los Angeles, 2015) and their mixed record in producing positive results for their highest need student groups.

But one key difference between traditional and charter schools is that LCFF exempted charter schools from key oversight and public participation requirements. Some freedom from bureaucratic oversight might be expected, given that charter schools are intended to be a disruptive, innovative force in public education, but in this context, while choice might be “a powerful tool for parents seeking access to quality education for their children,” it may not lead to more equitable outcomes.

Finally, we should be concerned that when charter schools, community schools, and other innovative campuses have success improving equity and outcomes, that success is all too often unheralded and uninfluential in the broader context of education equity and school improvement.

Looking Ahead for Equity

The equity findings from GDTFII are not news to California’s equity community. They do, however, provide updated context for understanding the urgency to do more and better in response to the persistent challenge. This section explores some possibilities for future empirical and basic research related to education equity, as well as specific areas for better indicators to keep equity at the center of systems of accountability and improvement.

Whole Child Development: The Science of Equity

The implicit premise of this paper is that there is no more important social justice or economic challenge than narrowing the persistent, inequitable, group disparities in academic and social-emotional opportunities and outcomes. In the years immediately ahead, there are exciting possibilities to apply recent advances in child development and brain sciences to the challenge of improving education outcomes for minority and low-income children most vulnerable to the shortcomings of schools, “adjacent” child-serving agencies, and non-governmental youth development organizations. In large measure, and apart from the early childhood realm, this is a new frontier for the evidence-based pursuit of equity.

A convergence of recent research in the brain sciences and human development warrants new optimism for the progress of educational opportunity. More specifically, findings in neurochemistry, neuroanatomy, cognitive and social psychology, and other fields now describe the biological pathway linking a child’s context and experiences—mediated by natural variations in developmental pathways and individual characteristics—to a broad set of outcomes. In this paper we use the phrase whole child equity to mean the framework that emerges from this science. In implementation, the framework would encompass screening, interventions, and supports that will, because of the brain’s malleability, prevent or mitigate the effects on student outcomes, academic and other, of adversity and chronic stress (Osher et al., 2018; Cantor et al., 2018; Marsh, McKibben, et al., 2018).

Since the end of Lyndon B. Johnson’s Great Society, waves of education “reforms” have failed to dismantle these disparities. Put loosely, the effect sizes of reforms intended to narrow outcome disparities by group have generally been disappointing to policymakers and advocates—again, apart from early childhood learning and childcare, which come with large caveats about access, quality, and cost.

Poverty is the most villainous explanation for seemingly intractable disparities; structural racism is often its sidekick. Five years ago, the congressionally chartered National Commission on Education Equity and Excellence urged that policymakers and the public sidestep the impossible challenge of eliminating poverty (The Equity and Excellence Commission, 2013). Instead, the commission argued for a new dimension in our concept of education equity (paraphrasing):

- An equity strategy is adequate only if it includes a portfolio of effective, individualized measures to mitigate the effects of poverty.
- That portfolio must include interventions and supports that are provided by, and funded by, child-serving agencies outside of school districts.

A scientific consensus now provides stronger support for the conclusion above and guidance about promising mitigation measures. Routinely, a vulnerable child's needs go unmet by either the school or some other agency, such as health, mental health, or child welfare services. The principles for education practice that follow from the scientific convergence support the proposition that every child deserves instructional practices and learning environments that:

- Are academically rigorous and rich, addressing the unique learning and developmental needs and strengths of each child rather than designed for the average;
- Promote comprehensive student development that integrates academic, cognitive, social, emotional, identity, and health dimensions;
- Foster deep positive developmental relationships that are culturally responsive and promote students' physical and emotional safety;
- Engage comprehensive supports to meet individual student needs and address the effects of adversity, including poverty and racism;
- Include the intentional development of critical skills, mindsets, and habits; and
- Reflect an understanding that a child-centered transformation of instructional and SEL practices requires tailored responses to the circumstances of individual children and youth (Darling-Hammond, Flook, Cook-Harvey, Barron, & Osher, forthcoming).

With these abstract dimensions of response necessitated by adversity and chronic stress, the whole child equity question is whether the resources and conditions are in place to fit those student needs individually. Stated negatively, inequities are present if the resources and conditions provided fail to fit students' needs. The idea of fit is familiar with respect to traditional variables in an education production function. What is new here is the normative proposition that we should also fit resources to the whole child needs that arise, through biology, from trauma, adversity, and chronic stress. Without attention to these other needs, it should no longer be surprising when conventional measures leave gaping outcome disparities.

There are significant obstacles, however, to incorporating these principles in practice and policy, including:

- Consensus on valid and reliable measures of need; more science on screening instruments;
- Comprehensive science linking specific need to appropriate interventions and supports;

- Governance, budgetary, and institutional redesigns to reshape child-serving agencies so that supporting student success falls within their missions and accountability systems;
- Professional cultures that promote multidisciplinary collaboration by service providers;
- Politically legitimate, evidence-informed judgments about the reasonableness of the fit between individual needs and response; and
- A mechanism for continuous improvement regarding the preceding points.

This agenda reflects a sea change in acknowledging what we owe our children. As such, it warrants consideration by researchers, educational reformers, human services providers, civil rights advocates, policymakers, teachers, and parents.

Equity Indicators and Quality Data: A Civil Right

Any plausible theory of change in education requires a way to state a goal and measure change over time. While there is literature addressing the definition and use of indicators (National Research Council, 2012; Planty & Carlson, 2010), it is only modestly helpful for designing a practical system of education equity indicators. The school and district report cards mandated by California’s accountability system provide some foundation, albeit incomplete and unproven. Arguably, the principal audience for such report cards is parents and perhaps voters. A full system should also provide guidance to educators and policymakers. Further, a high-quality system should be sophisticated and complex enough to inform judgments about needed improvements in practice and policy, both real time and over time (Hough et al., 2018). As with any practical definition of equity, the design of indicators should be informed by science but reflect much more.

An important complication follows from the preceding subsection on whole child development and education equity. While the recent science illuminates the biological mechanisms and importance of adversity, and is suggestive of the needed institutional responses, a complete indicator system will eventually include variables to *measure the fit between individual needs and resources* within the domain of whole child equity. We are quite some distance from a working model of such a system. Nonetheless, clarifying its importance may hasten its development and deployment of promising approaches.

California has made some progress. It has incorporated measures into its accountability and improvement system that may be proxies for conditions we consider relevant in relation to whole child equity (apart from academic test scores): rates of school suspension, chronic absenteeism, and students’ views of school climate. This last variable might be constructed to reveal how different subgroups are being treated and supported in school.

While *Getting Down to Facts II* and other research have shed light on many important equity issues, from segregation to school finance, too much still remains in the dark. California collects a great deal of data that *could* help policymakers and educators better see and close equity gaps in resource allocation, educational readiness, quality, promising practices, and outcomes. However, well-documented problems with data quality, accessibility, comparability, and connectivity—from basic accounting structures to an accessible means to share promising practices—reflect and reinforce inadequate incentives to make equity a priority.

Progress on equity depends on data that better reflect the diversity of our students and teachers; allow for comparisons by school, district, and specific underserved populations; include critical factors and outcomes beyond the schoolroom; reveal changes over time; connect across institutions; and inform both policy and

practice. Here are just a few examples of how California's data limitations are making it hard to identify equity gaps, address problems, share progress, and hold decision-makers accountable.

- LCFF does not require school districts to use consistent indicators in several priority areas. That is, Priority 1: Basic Services and Conditions (i.e., appropriately assigned teachers, access to curriculum-aligned instructional materials, and safe, clean and functional school facilities); Priority 2: Implementation of State Academic Standards; Priority 3: Parent Engagement; Priority 6: School Climate. Letting each district judge their own progress (met, not met, or not met for two or more years) makes it impossible to make reliable comparisons across districts or to combine district data to see regional or statewide trends.
- Standardized Account Code Structure (SACS) codes—the state required accounting system that all districts must use to report their revenues and expenditures—make it nearly impossible to account for how dollars are spent at the school site level, and ensure that targeted LCFF funds are actually meeting the needs of priority students, let alone supporting efforts to improve academic achievement (Chen & Hahnel, 2017).
- Federal law, the Every Student Succeeds Act (ESSA), requires that all districts report at the school level, starting 2018–2019. This applies, however, only to data included in the state's accountability system. These data are a small subset of the data in the SACS database. It remains unclear how the state will implement its new ESSA obligation; there are no signs that the state is moving to build local capacity or expand local data collection to an advanced SACS that would, among other things, better support equity accountability.
- The California School Dashboard better documents the presence of racial/ethnic and other subgroups of students at each school than prior systems did. However, by setting the minimum number of students at 30 (in comparison to 20 or lower in other states), the Dashboard may still significantly undercount some populations, including Black students (Polikoff et al., 2018).
- A survey of school superintendents found Dashboard data usage varies widely, with one in four respondents not using it at all (Polikoff et al., 2018).
- California has much less financial data about charter schools than traditional public schools, and charter requirements vary by authorizer, making even charter-to-charter comparisons difficult. Moreover, limited data tracks the performance of charter school authorizers, such as the average performance of schools under a single authorizer, or easily accessible information on how many petitions were approved by an individual authorizer in any given year (West & Slungaard Mumma, 2018).
- Inequities in teacher and principal quality and distribution are difficult to assess because data systems that track teacher and principal preparation, certification, distribution, and retention are not easily linked or accessible, nor do they easily allow for analysis of their impacts at the student and classroom levels (Darling-Hammond, Sutchter, et al., 2018; Bell et al., 2018; Taylor & Lovison, 2018; Grissom & Bartenen, 2018). Similarly, access to data that track the movement of labor across districts, especially at the classroom level, is severely limited (Goldhaber et al., 2018).
- There is no way to target facilities funding to the schools that need it most, because the state collects very little information on school facilities and has not put in place uniform measures of school conditions (Brunner & Vincent, 2018).
- Districts do not have access to social service information that would help them coordinate with local providers in supporting foster youth and other students in difficult circumstances (Phillips, Rothstein, & Reber, 2018).

- Due to fragmented data systems, we do not know which high schools or programs are best preparing which students to succeed in college, or how this has been changing over time (Phillips et al., 2018; Moore & Braco, 2018). Moreover, existing data systems do not provide frequent enough data to help them make real-time decisions about how to better support students (Hough et al., 2018).

Policymakers, educators, researchers, and advocates at every level need better data and a system that makes the data easier to learn from and use. There is growing support (Zinshteyn, 2018) among advocates, researchers, and policymakers for a statewide, longitudinal data system that connects K–12 and higher education systems; connects students to teachers; includes human services and workforce data; and can be used for continuous improvement, evaluation, and accountability. Other states have done it (Phillips et al., 2018; National Commission on Excellence in Education, 1983), and California could benefit from it.

Building Collective Expertise and Capacity

Advancing equity is not only important work but also tough work. The roles of intuition, fad, and the power politics should be cabined by evidence and expertise. Yet, we have no system that allows policy choices to benefit from something analogous to peer review processes in research and academia. School improvement plans demanded by federal and state authorities have very limited quality controls and are firmly embedded in a program above technical assistance.

Relatedly, busy and bureaucratically oppressed district and school administrators have little luxury time to spend skimming policy research or making a site visit to Finland or Massachusetts, where students are performing above average and there seems to be decreases in the achievement gap (Tucker, 2016). There is a collection of topic-specific professional learning networks including self-selecting school districts that are funded by the California Collaborative for Educational Excellence (CCEE). This structure involves so few of California’s school districts, so few topics, and so little funding that it could better be termed a pilot project, or just a gesture. Similarly, much in-service professional development and ad hoc conferences fall short.

For education equity, more intentional intellectual capital strategies make sense because of the difficulty and the importance of the subject. Present inequities are partially attributable to its back-burner status. Smarter decisions and implementation with respect to equity are more likely with dedicated means to build individual and collective expertise. State, district, and school administrators and decision-makers need to be smarter about equity, but they also need the wherewithal to use equity indicators for continuous improvement in their own roles.

Conclusion

The good news is that broad interest around the country in education equity seems the highest it has been since the publication of *A Nation at Risk* (National Commission on Excellence in Education, 1983) and perhaps since the waning days of court-ordered school desegregation in the mid-1970s.

The bad news is that so much of the policy response is based on intuition, professional lore, and ill-informed politics. As researchers, we strive to make evidence and science not merely interesting but of paramount importance to policymakers, administrators, and journalists. We hold hope for the same among advocates because

our values and passion should be marshaled to support what we have good reason to believe will help, and to oppose measures that the evidence—the science—tells us simply will not work. At least, not well enough.

From researchers to advocates to policymakers, the stakes are so high that we all have an intellectual and moral duty to consider the facts. Researchers have a duty to discover those facts, even unpleasant ones, as best they can with the resources taxpayers and philanthropists will provide. We all have a responsibility to redeem those who would shirk their duty.

Appendix: Promoting Policy Discussion

This appendix offers several policy directions that are responsive to and consistent with the *Getting Down to Facts II* (GDTFII) research findings. These ideas, however, cannot be supported fully by reference to those findings alone. Our purpose is to help put the findings related to equity in a policy context and encourage discussion in several quarters to advance practical next steps. These ideas should not be attributed to other researchers participating in the GDTFII project.

A dream of most researchers in this field is that their work—their science—influence policy in some way. The challenge is that their work is ignored by research peers and policymakers. Advocates are commonly cast as dreamers, but researchers are as well.

Some Possible Policy Directions

Ready to Teach

1. **Pipeline.** In-service professional development and pre-service teacher preparation should be subjected to regulatory, licensing, and accreditation policies that ensure best practices in the preparation of teachers and principals for work in challenging situations and with struggling students. (Darling-Hammond, Sutchter, et al., 2018; Santibañez & Snyder, 2018; Sutchter, Podolsky, et al., 2018; Grissom & Bartenen, 2018; Bell et al., 2018; Taylor & Lovison, 2018). Best practices, including a whole child equity framework (this list, item 5), should be embedded in a system of continuous improvement as research evolves.
2. **Minority teachers.** Research provides some evidence that student outcomes—e.g., academic, disciplinary, representation in gifted/talented programs, teacher expectations—for Black and Latino students improve if some of their teachers have the same ethnicity (Carver-Thomas, 2018; Lindsay & Hart, 2017; Wright, Gottfried, & Le, 2017; Grissom, Rodriguez, & Kern, 2017; Gershenson, Holt, & Papageorge, 2016; Cherg & Halpin, 2016; Egalite, Kisida, & Winters, 2015; Bates & Glick, 2013). We also know that teachers of color are more likely to be in alternative certification programs (Carver-Thomas, 2018; Darling-Hammond, Sutchter, et al., 2018). County Offices of Education, together with larger districts, should have transparent strategies to address these mismatches and shortfalls in minority teacher supply, professional development, and assignment—consistent with state law.
3. **Recruitment and retention data.** Data are inadequate to support fully these supply and allocation measures. The state could track entry and exit patterns for teachers. This would also facilitate more sophisticated

analysis of the productivity of different pathways to, and investments in, teaching. This will help improve recruitment and retention efforts.

4. **Teacher distribution and devolution.** Jurisdictions around the country use a variety of strategies to improve the distribution of effective teachers with an eye towards more equity in student outcomes (Sutcher, Darling-Hammond, et al., 2016). The devolution of state authority to districts makes it more difficult to ensure that districts and principals adopt evidence-based approaches, or that teachers, teacher unions, and researchers participate appropriately in developing those approaches. Education leaders need a more ambitious effort to share intellectual capital and insist that it be used.
5. **Professional development.** Few teachers and principals are aware enough of the implications for practice of recent scientific research in neuroscience, human development, adversity, chronic stress—all of which trigger biological and chemical changes that can affect learning. As a policy matter, teachers need familiarity with this richer understanding of how a student’s context bears on what they need to learn and thrive (Darling-Hammond et al., forthcoming). The science has enormous implications for how schools relate to other child-serving agencies and organizations who are the primary providers of interventions and supports related to health, mental health, housing insecurity, and domestic violence, and other stressors. Whole child equity strategies need to move beyond ad hoc and fragile community school approaches, and develop system-wide infrastructure, policy, funding, and evidence-based practice.

Ready to Learn

6. **Master Plan (again).** California has “systems” for K–12 and postsecondary education, and even “segments” within those systems. Early learning and childcare have, instead, a complex patchwork of delivery and financing arrangements, public and private (Melnick et al., 2017; also see Chapter 3: Ensuring Access to High-Quality Early Childhood Education, The Equity and Excellence Commission, 2013). This includes a very large, unregulated, informal sector which is usually ignored by officials and advocates alike. It should not be. California could develop a Master Plan for early childhood learning and childcare, with a proposed path from where we are to realization of a vision. The vision, of course, should be deeply informed by whole child equity and fully aligned with the early years of primary school (see the subsection, Whole Child Development: The Science of Equity).
7. **Staffing childcare.** Among the most vexing questions is how to meet the demand for well-prepared childcare workers, in both the regulated and unregulated sectors. An Early Childhood Master Plan should include a human resources strategy. That plan would incorporate in-service professional development, career ladders, and a more expansive role for community colleges and non-profit training organizations.

Finance

8. **Facilities data.** California must develop a more comprehensive data system collecting indicators of construction/capital needs for all schools and districts, such as building age, basic measures of physical condition, and debt burdens. The state should convene a study panel to design the data system with stakeholder input; the data system should then be established by regulation.
9. **Construction assistance.** In poor communities, the interaction of property values, Proposition 13, and debt limits creates crippling constraints on capital investment, so student access to good facilities is inequitable. Any substantial fix would require revisions to statutes, and perhaps the state constitution. By analogy with

LCFF, for example, state funding for facilities should be adjusted for differences in local resources. For example, the Legislative Analyst Office has suggested replacing general obligation bonds with annual, per-pupil grants to cover a minimum share of a school district's expected facility needs. Adjusting the state's share of aid based on property wealth may reduce socio-economic and other inequitable disparities in school facility funding. Proposals could be carefully modeled when a decent facilities database is available to researchers.

10. **Red tape guidelines.** Current guidelines for capital modernization assume conventional building designs. These can conflict with plans to address updated needs for school spaces, such as co-location of health and social services. This becomes more important as recognition grows that student success for vulnerable populations requires whole child supports (see the subsection, Accountability: Role of Accountability in Reality and in California). The construction guidelines could be subject to periodic review so that they reflect the evolving consensus on what school facilities should be.
11. **Pension squeeze.** Pension obligations squeeze operating budgets, especially in poor districts which usually have low fiscal capacity. The equity challenge is clear because we have experience with how pain is distributed when the belt is tightened, just as we know where investment needs are critical. Few problems match the combination of high stakes with obscure technicalities. Districts cannot escape the squeeze without substantial state help. One possible model would parallel in design whatever approach is taken with regards to building construction. More important than the details is a serious effort to consider viable and equitable options by engaging stakeholders, insiders and outsiders alike.
12. **Squeeze transparency.** Most often, staffing and benefits decisions—which account for nearly 85 percent of district operating budgets (Willis et al., 2018)—are negotiated in parallel, closed-door processes that are outside of the transparent process of engagement and local control mandates of Local Control Accountability Plans (LCAPs). The pension squeeze and the substantial fiscal obligations that districts must face should not be confined to labor–management negotiations or presumed overhead. Instead, options to address structural deficits must be part of LCAP conversations, resource allocation priorities, and district strategic plans as they will significantly impact how the district is able to meet the needs of its most underperforming subgroups.

Accountability

13. **Equity indicators.** California could adopt a set of equity indicators to inform education administrators, policymakers, and researchers; accessible excerpts should be prepared for the public, various stakeholders, and journalists. For these purposes, indicators would focus on group disparities in important resources, conditions, and outcomes. In general, the state and districts should collect data at the school level. For some questions, the correct unit of analysis is the classroom—for example, high school student exposure to non-credentialed STEM teachers, or hours of laboratory experience. The indicator system should have an independent oversight organization similar to the National Assessment Governing Board (NAGB). Congress created NAGB in 1988 to oversee the National Assessment of Education Progress (NAEP), which it created 20 years earlier. It is a diverse group with several technical and other advisory committees.
14. **Funding research responsibly.** The state government should fund a robust, continuing process and impact evaluation of key state and local policies, beginning with the broad question of whether LCFF has had its intended equity effects on resource and outcomes. Only with sound research can the public hold policymakers accountable for choices made in the past, and for choices made for the future. More generally, California simply cannot rise to national averages in equity indicators without continuous improvement—made possible only with much more substantial state support for independent research.

15. **Engage for equity.** Federal and state regulations and statutes require outside public engagement with inside decision makers. This mandated engagement, done well, can advance the substance and politics of equity if both sides have appropriate capacity. In particular, outside groups and participants must be well informed about the policy and budget questions at stake in the state and their district.

Looking Ahead for Equity

Contemplating any serious description of education inequity should be overwhelming to education experts. With a broad perspective on public policy, however, education equity seems much easier than affordable health care, climate change salvation, or nuclear disarmament. One advantage is that leadership and proof points can be provided by states. We note some dimensions of the long-term policy challenge here.

16. **Consensus equity redefinition.** An updated conception of education equity would support scalable, sustainable integration of traditional in-school education with a range of human services ordinarily delivered outside of schools. While non-governmental organizations (NGOs) have a role, the great bulk of activity and funding will be from child-serving government agencies. That integration will be doomed without some kind of accountability. First, the science. There is a great deal of science to be done: social emotional and other assessments; appropriate student interventions and supports; in-school stress triggers; performance evaluation methods; professional culture clashes; and more.
17. **Organizational development, implementation research, law.** Second, after that research provides architectural plans for the content of services integration—the substantive activities—we will need the engineering plans for how to implement it. For example, there will be: statutory and regulatory measures; training and retraining of professionals and paraprofessionals; practical reconciliation of privacy laws and customs; streamlining inter-governmental processes; liaison with youth development NGOs; etc.
18. **Whole child data and accountability.** Third, and simultaneously, we will need assurance that we are making progress on our goals—through rigorous information and accountability systems.

Equity is harder than rocket science. It would be surprising to make progress on all of these policy directions, at substantial scale, within a decade. We may not know enough yet. Many don't care enough yet. So, a meaningful education equity agenda seems more difficult and even more expensive than putting Neil Armstrong on the moon.

That will not stop progress, because the reasons to work on education equity tap the fundamentals of what Americans want the future to bring for themselves and the nation: family economic security; prosperity; fairness; thriving children and youth; thriving communities; and a heart in which the wounds of history are healed.

References

- A.B. 1469, 2014. State teachers' retirement: Defined Benefit Program: funding. 2013–2014 Assemb. Reg. Sess. (Cal. 2014).
- Anantharajan, M., & Stipek, D. (2018). Early child care data systems. *Getting Down to Facts II*. Stanford University.
- Austin, L., Whitebrook, M., & Chávez, R. (2018). Strengthening California's early childhood education workforce. *Getting Down to Facts II*. Stanford University.
- Bates, L., & Glick, J. (2013). Does It Matter if Teachers and Schools Match the Student? Racial and Ethnic Disparities in Problem Behaviors. *Social Science Research*.
- Bell, C., White, R., & White, M. (2018). A systems view of California's teacher education pipeline. *Getting Down to Facts II*. Stanford University.
- Bersin, A., Kirst, M., & Liu, G. (2008). Getting beyond the facts: Reforming California school finance. Berkeley: The Chief Justice Earl Warren Institute on Race, Ethnicity & Diversity.
- Brighthouse, H., & Mullane, K. (2018). Aims and purposes of a state schooling system: The case of California. *Getting Down to Facts II*. Stanford University.
- Brown v. Board of Education of Topeka, 347 U.S. 483 (1954).
- Brunner, E., & Vincent, J. (2018). Financing school facilities in California: A ten-year perspective. *Getting Down to Facts II*. Stanford University.
- Bruno, P. (2018). District dollars 2: California school district finances, 2004–5 through 2016–17. *Getting Down to Facts II*. Stanford University.
- California Budget Project. (2006). Budget backgrounder: School finance in California and the Proposition 98 guarantee. Sacramento, CA.
- California Department of Education. (2017). California English learner roadmap. Available at www.cde.ca.gov/sp/el/rm/elroadmappolicy.asp.
- Cantor, P., Osher, D., Berg, J., Strayer, L., & Rose, T. (2018). [Malleability, plasticity, and individuality: How children learn and develop in context](#). *Applied Developmental Science*. doi:10.1080/10888691.2017.1398649.
- Carver-Thomas, D. (2018). Diversifying the teaching profession: How to recruit and retain teachers of color. Palo Alto: Learning Policy Institute. Available at <https://learningpolicyinstitute.org/product/diversifying-teaching-profession-report>.
- Chen, T., & Hahnel, C. (2017). [The steep road to resource equity in California education](#). Oakland, CA: Education Trust-West. Available at <https://west.edtrust.org/resource/the-steep-road-to-resource-equity-in-california-education/>.
- Cherng, J., & Halpin, P. (2016). [The importance of minority teachers: Student perceptions of minority versus white teachers](#). *Educational Researcher*. doi:10.3102/0013189X16671718.
- CLASS Coalition and the United Way of Greater Los Angeles. (2015). [Implementing the Local Control Funding Formula: Steps taken by LAUSD in year two, 2014–15](#). Berkeley: University of California, Berkeley. Available at <http://laschoolreport.com/wp-content/uploads/2015/06/JC-Berkeley-United-Way-Research-Findings-on-LAUSD-budget-June-15-2015.pdf>.
- Darling-Hammond, L., Flook, L., Cook-Harvey, C., Barron, B., & Osher, D. (forthcoming). Science of learning and development: Implications for practice. *Applied Developmental Science*.
- Darling-Hammond, L., Sutchter, L., & Carver-Thomas, D. (2018). Teacher shortages in California: Evidence about current status, sources, and potential solutions. *Getting Down to Facts II*. Stanford University.
- Education Trust-West. (2016). [Puzzling plans and budgets: Making sense of California's second year, Local Control and Accountability Plans](#). Oakland, CA. Available at <https://west.edtrust.org/resource/puzzling-plans-and-budgets-making-sense-of-californias-second-year-local-control-and-accountability-plans/>.
- Egalite, A., Kisida, B., & Winters, M. (2015). [Representation in the classroom: The effect of own-race teachers on student achievement](#). *Economics of Education Review*.
- Fensterwald, J. (2017, December 7). [One in 4 California school districts required to get county help based on new state performance data](#). *EdSource*. Available at <https://edsources.org/2017/one-in-4-california-school-districts-required-to-get-county-help-based-on-new-state-performance-data/591360>.
- Gershenson, S., Holt, S., & Papageorge, N. (2016). Who believes in me? The effect of student–teacher demographic match on teacher expectations. *Economics of Education Review*.
- Goldhaber, D., Strunk, K., Brown, N., Chambers, A., Naito, N., & Wolff, M. (2018). Teacher staffing challenges in California: Exploring the factors that influence teacher staffing and distribution. *Getting Down to Facts II*. Stanford University.

- Grissom, J., & Bartenen, B. (2018). Assessing equity in school leadership in California. *Getting Down to Facts II*. Stanford University.
- Grissom, J., Rodriguez, L., & Kern, E. (2017). [Teacher and principal diversity and the representation of students of color in gifted programs: Evidence from national data](#). *The Elementary School Journal*.
- Grunow, A., Hough, H., Park, S., Willis, J., & Krausen, K. (2018). Towards a common vision of continuous improvement for California. *Getting Down to Facts II*. Stanford University.
- Hirji, H. (1999). Inequalities in California's public school system: The undermining of Serrano v. Priest and the need for a minimum standards system of education. *Loyola of Los Angeles Law Review*.
- Hough, H., Byun, E., & Mulfinger, L. (2018). Using data for improvement: Learning for the CORE Data Collaborative. *Getting Down to Facts II*. Stanford University.
- Hunt, N. (2018). Early learning for children with disabilities. *Getting Down to Facts II*. Stanford University.
- Imazeki, J. (2018). Adequacy and state funding formulas: What can California learn from the research and national context? *Getting Down to Facts II*. Stanford University.
- Industrial Union Department, AFL-CIO v. American Petroleum Institute, 448 U.S. 607 (1980).
- Johnson, R., & Tanner, S. (2018). Money and freedom: The impact of California's school finance reform on academic achievement and the composition of district spending. *Getting Down to Facts II*. Stanford University.
- Kaplan, J. (2016). California's spending per student has increased due to Proposition 30, but still trails the rest of the US. Sacramento: California Budget and Policy Center. Available at <https://calbudgetcenter.org/resources/californias-spending-per-student-increased-due-proposition-30-still-trails-rest-us/>.
- Kaplan, J. (2017). [California's support for K-12 education is improving, but still lags the nation](#). Sacramento: California Budget and Policy Center. Available at <https://calbudgetcenter.org/resources/californias-support-k-12-education-improving-still-lags-nation/>.
- Kirst, M., Goertz, M., & Odden, A. (2007). The evolution of California's state school finance system and implications from other states. *Getting Down to Facts*. Stanford University. Available at <https://cepa.stanford.edu/sites/default/files/Kirst.pdf>.
- Koedel, C., & Gassmann, G. (2018). Pensions and California public schools. *Getting Down to Facts II*. Stanford University.
- Koppich, J., & Humphrey, D. (2018). The Local Control Funding Formula (LCFF): What have we learned after four years of implementation? *Getting Down to Facts II*. Stanford University.
- Krausen, K., & Willis, J. (2018). Silent recession: Why California school districts are underwater despite increases in funding. San Francisco: WestEd. Available at <https://www.wested.org/news-events/the-silent-recession-why-california-school-districts-are-underwater-despite-increases-in-funding/>.
- Levin, J., Brodziak de los Reyes, I., Atchison, D., Manship, K., Arellanes, M., & Hu, L. (2018). What does it cost to educate California's students? A professional judgment approach. *Getting Down to Facts II*. Stanford University.
- Lindsay, C., & Hart, C. (2017). Exposure to same-race teachers and student disciplinary outcomes for Black students in North Carolina. *Educational Evaluation and Policy Analysis*.
- Loeb, S., Bryk, A., & Hanushek, E. (2008). Getting down to facts: School finance and governance in California. *Education Finance and Policy*. Available at <http://cepa.stanford.edu/content/getting-down-facts-school-finance-and-governance-california>.
- Marchitello, M. (2018). Benefits take larger bite out of district K-12 education budgets. Bellwether Education Partners. Available at <https://bellwethereducation.org/publication/benefits-take-larger-bite-out-district-k-12-education-budgets>.
- Marsh, J., Hall, M., Allbright, T., Tobben, L., Mulfinger, L., Kennedy, K., et al. (2018). Taking stock of stakeholder engagement in California's Local Control Funding Formula: What can we learn from the past four years to guide next steps? *Getting Down to Facts II*. Stanford University.
- Marsh, J., McKibben, S., Hough, H., Hall, M., Allbright, T., Matewos, A., et al. (2018). Enacting social-emotional learning: Practices and supports employed in CORE districts and schools. Stanford: Policy Analysis for California Education. Available at <https://www.edpolicyinca.org/publications/sel-practices>.
- Massaro, R., & Narowski, R. (2018). Keeping the promise of LCFF in charter schools: Local control but too little accountability. Public Advocates. Available at <https://www.publicadvocates.org/wp-content/uploads/final-report.pdf>.
- Melnick, H., Ali, T. T., Gardner, M., Maier, A., & Wechsler, M. (2017). Understanding California's early care and education system. Palo Alto: Learning Policy Institute. Available at <https://learningpolicyinstitute.org/product/understanding-californias-early-care-education-system-report>.
- Mendez, et al. v. Westminster School District of Orange County, et al. , 161 F.2d 774 (9th Cir. 1947).
- Mendez, et al. v. Westminster School District of Orange County, et al., 64 F.Supp. 544 (S.D. Cal. 1946).
- Moffitt, S., Lyddon, M., Morel, D., O'Neill, M., Smith, K., Willse, C., et al. (2018). State structures for instructional support in California. *Getting Down to Facts II*. Stanford University.

- Moore, C., & Braco, K. (2018). A hunger for information: California's options to meet its statewide education data needs. Sacramento: Education Insights Center. Available at <http://edinsightscenter.org/Portals/0/ReportPDFs/hunger-for-information-final.pdf>
- National Center for Education Statistics & Institute of Education Sciences. (2018). *NAEP Report Cards*. Retrieved from <https://www.nationsreportcard.gov/>.
- National Commission on Excellence in Education. (1983). *A nation at risk: The imperative for educational reform: A report to the Nation and the Secretary of Education*. Washington DC: US Department of Education.
- National Education Association. (2018). *Rankings of states and estimates of school statistics*. Retrieved from <http://www.nea.org/rankings-and-estimates>.
- National Labor Relations Board v. Hearst Publications, Inc., 322 U.S. 111 (1944).
- National Research Council. (2012). *Key national education indicators: Workshop summary*. Washington DC: The National Academies Press. Available at <https://www.nap.edu/catalog/13453/key-national-education-indicators-workshop-summary>.
- Orfield, G., & Frankenberg, E. (2013). *Educational delusions? Why choice can deepen inequality and how to make schools fair*. Berkeley: University of California Press.
- Orfield, G., & Frankenberg, E. (2008). *Lessons in integration: Realizing the promise of racial diversity in America's public schools*. Charlottesville: UVA Press.
- Orfield, G., & Frankenberg, E. (2012). *The resegregation of suburban schools: A hidden crisis in American education*. Cambridge: Harvard Education Press.
- Osher, D., Cantor, P., Berg, J., Strayer, L., & Rose, T. (2018). Drivers of human development: How relationships and context shape learning and development. *Applied Developmental Science*.
- Phi Delta Kappan. (2018). *The 50th annual of the public's attitudes toward the public schools teaching: Respect but dwindling appeal*. Arlington: PDK International.
- Phillips, M., Rothstein, J., & Reber, S. (2018). Making California data more useful for educational improvement. *Getting Down to Facts II*. Stanford University.
- Plank, D., O'Day, J., & Cottingham, B. (2018). Building a system of support for school improvement. *Getting Down to Facts II*. Stanford University.
- Planty, M., & Carlson, D. (2010). *Understanding education indicators: A practical primer for research and policy*.
- Plessy v. Ferguson, 163 U.S. 537 (1896).
- Polikoff, M., Korn, S., & McFall, R. (2018). In need of improvement? Assessing the California Dashboard after one year. *Getting Down to Facts II*. Stanford University.
- Public Advocates. (2018). *Families file complaint to compel school district to release data needed for review of spending plan*. Available from www.publicadvocates.org/resources/news/families-file-complaint-to-compel-school-district-to-release-data-needed-for-review-of-spending-plan/.
- Public Advocates. (2017). *Parents and stakeholders claim LBUSD violates state law, depriving high needs students some \$40 million in services for the 2016–17 school year*. Available from www.publicadvocates.org/wp-content/uploads/LB-LCFF-Complaint-PR-2.pdf.
- Public Advocates. (2015). *A primer on the LAUSD LCFF spending case*. Available from www.publicadvocates.org/wp-content/uploads/2016/04/primer_on_the_laUSD_lcff_spending_case.pdf.
- Raymond, M. (2018). An update to the 2014 CREDO study Charter School Performance in California. *Getting Down to Facts II*. Stanford University.
- Reardon, S., Doss, C., Gagné, J., Gleit, R., Johnson, A., & Sosina, V. (2018). A portrait of educational outcomes in California. *Getting Down to Facts II*. Stanford University.
- Reback, R. (2018). Investments in student health and mental health in California's public schools. *Getting Down to Facts II*. Stanford University.
- Reber, S., & Kalogrides, D. (2018). Setting the stage: Trends in student demographics and enrollment in California. *Getting Down to Facts II*. Stanford University.
- Rivkin, S., Hanushek, E., & Kain, J. (2005). Teachers, schools, and academic achievement. *Econometrica*, 417–458.
- Rothstein, R. (2017). *The color of law: A forgotten history of how our government segregated America*. New York: Liveright Publishing.
- Santibañez, L., & Snyder, C. (2018). Teaching English learners in California: How teacher credential requirements in California address their needs. *Getting Down to Facts II*. Stanford University.
- Shambaugh, L., Kitmitto, S., Parrish, T., Arellanes, M., & Nakashima, N. (2011). *California's K–12 education system during a fiscal crisis*. American Institutes for Research. Available at https://www.air.org/sites/default/files/downloads/report/CA_Fiscal_Crisis_Report_Draft_Final_May_19_0.pdf.

- Stipek, D. (2018). Preparation and training for professionals in early childhood education. *Getting Down to Facts II*. Stanford University.
- Stipek, D., & Bardack, S. (2018). Program quality monitoring and improvement. *Getting Down to Facts II*. Stanford University.
- Stipek, D., & Pizzo, P. (2018). The early learning landscape. *Getting Down to Facts II*. Stanford University.
- Sutcher, L., Darling-Hammond, L., & Carver-Thomas, D. (2016). *A coming crisis in teaching? Teacher supply, demand, and shortages in the U.S.* Palo Alto: Learning Policy Institute. Available at <https://learningpolicyinstitute.org/product/coming-crisis-teaching>.
- Sutcher, L., Podolsky, A., Kini, T., & Shields, P. (2018). Learning to lead: Understanding California's learning system for school and district leaders. *Getting Down to Facts II*. Stanford University.
- Taylor, E., & Lovison, V. (2018). Can teacher evaluation programs improve teaching? *Getting Down to Facts II*. Stanford University.
- The Equity and Excellence Commission. (2013). *For each and every child — A strategy for education equity and excellence*. Washington DC. Available at <http://partnersforeachandeverychild.org/wp-content/uploads/2017/02/Final-EEC-Report.pdf>.
- Timar, T. (2006). How California funds K-12 education. Stanford: Institute for Research on Education Policy and Practice. *Getting Down to Facts*. Stanford University.
- Tucker, M. (2016). How Massachusetts built a world-class school system. EdSource. Available at: blogs.edweek.org/edweek/top_performers/2016/12/how_manchusetts_built_a_world-class_school_system.html.
- Umansky, I. (2018). State policies to advance english learners' experiences and outcomes in California's schools. *Getting Down to Facts II*. Stanford University.
- Warren, P., & Carrillo, G. (2015). *Implementing local accountability in California's schools: The first year of planning*. Public Policy Institute of California. Available at http://www.ppic.org/content/pubs/report/R_315LHR.pdf.
- Warren, P., & Hill, L. (2018). Revisiting finance and governance issues in special education. *Getting Down to Facts II*. Stanford University.
- West, M., & Slungaard Mumma, K. (2018). Charter school authorizing in California. *Getting Down to Facts II*. Stanford University.
- Willis, J., Berg-Jacobson, A., Baumgardner, C., & Frank, S. (2018). *Finding a path toward equity: What states can learn from the transformation of California's new funding model*. San Francisco: WestEd and Education Resource Strategies. Available at <https://www.wested.org/resources/path-toward-equity/>.
- Willis, J., Krausen, K., Byun, E., & Caperas, R. (2018). In the era of the local control funding formula: The shifting role of California's chief business officers. *Getting Down to Facts II*. Stanford University.
- Wright, A., Gottfried, M., & Le, V. (2017). A kindergarten teacher like me: The role of student-teacher race in social-emotional development. *American Educational Research Journal*.
- Zinshteyn, M. (2018, August 8). Support builds to create longitudinal data system to track student progress in California: Backers of a statewide system will be looking to Gavin Newsom for action should he be elected governor in November. *EdSource*. Available at <https://edsources.org/2018/californias-schools-and-colleges-show-varying-degrees-of-support-for-data-system-linking-student-information/601026>.