



Center for
Universal Education
at BROOKINGS

TECHNICAL REPORT
SEPTEMBER 2022

RESEARCH FOUNDATIONS TRANSFORMING EDUCATION FOR HOLISTIC STUDENT DEVELOPMENT— LEARNING FROM EDUCATION SYSTEM (RE)BUILDING AROUND THE WORLD

AMANDA DATNOW, VICKI PARK, DONALD J. PEURACH AND JAMES P. SPILLANE





Center for
Universal Education
at BROOKINGS

RESEARCH FOUNDATIONS

TRANSFORMING EDUCATION FOR HOLISTIC STUDENT DEVELOPMENT— LEARNING FROM EDUCATION SYSTEM (RE)BUILDING AROUND THE WORLD

TECHNICAL REPORT | SEPTEMBER 2022

AMANDA DATNOW is professor and Chancellor's Associates endowed chair in the Department of Education Studies and associate dean of the School of Social Sciences at the University of California, San Diego.*

VICKI PARK is an associate professor at San Diego State University's College of Education in the Department of Educational Leadership.

DONALD J. PEURACH is a professor of educational policy, leadership, and innovation in the University of Michigan's School of Education

JAMES P. SPILLANE is the Spencer T. and Ann W. Olin professor in learning and organizational change at the School of Education and Social Policy at Northwestern University.

**Names are listed in alphabetical order. All authors contributed equally to this report*

ACKNOWLEDGEMENTS

The Brookings Institution is a nonprofit organization devoted to independent research and policy solutions. Its mission is to conduct high-quality, independent research and, based on that research, to provide innovative, practical recommendations for policymakers and the public. The conclusions and recommendations of any Brookings publication are solely those of its author(s), and do not reflect the views of the Institution, its management, or its other scholars.

Brookings gratefully acknowledges the support provided by the BHP Foundation and the LEGO Foundation.

Brookings recognizes that the value it provides is in its commitment to quality, independence, and impact. Activities supported by its donors reflect this commitment.

CONTENT

Acknowledgements	3
Abstract	5
Introduction	6
Centering holistic student development: Why, and why now?.	7
Instruction, teaching, and learning.	9
(Re)building education systems.	12
Demands on education leaders.....	15
The global context.	19
Continuing our exploration	23
References	24

ABSTRACT

The following research review is a companion to “Transforming Education for Holistic Student Development: Learning from Education System (Re)building Around the World” (Datnow et al., 2022), a summary report that explores the work of building and rebuilding education systems to support holistic student development in six systems around the world (in Singapore, Ireland, Chile, Canada, India, and the United States) and in one cross-national system (the International Baccalaureate). This review synthesizes the research foundations of four topics central to the summary report: the contemporary policy focus on holistic student development; instruction, teaching, and learning; (re)building education systems; and the demands on education leaders. It also situates these topics in the global education context. Insights from the review support readers in engaging the summary report both (a) to understand and appreciate the work of these seven initiatives, and (b) to think critically about the ways that their work extends and complicates leading theory and research bearing on (re)building education systems to support holistic student development

INTRODUCTION

The following research review is a companion to “Transforming Education for Holistic Student Development: Learning from Education System (Re)building Around the World” (Datnow et al., 2022).

Prepared in anticipation of the United Nations Educational, Scientific, and Cultural Organization (UNESCO) Transforming Education Summit in September 2022, the report explores the work of building and rebuilding education systems to support holistic student development. It focuses specifically on the journeys of seven education systems—situated in high- and low-middle-income countries with democratic traditions—as they make the whole child the center of their work. They include national initiatives in Singapore, Ireland, and Chile; provincial, territorial, and local initiatives in Canada, India, and the U.S.; and a cross-national initiative in the International Baccalaureate. All seven systems operate in policy contexts pressing for measurable gains in students’ academic learning, and none seeks to compromise academic rigor. Yet all seven aim to go further by supporting the intellectual, physical, emotional, social, cultural, and moral development of students.

Rather than via a conventional research review, the report on these seven systems is motivated and framed by a thought experiment aimed at building readers’ shared intuitions around ideas and matters that, ultimately, become central to the analysis of their work building and rebuilding education systems for holistic student development. To engage both heart and mind, the thought experiment guides readers in exploring a rhetorical question: *What would it mean—and what would it take—to build education systems that develop every child as would that child’s own parents?* Exploration of that question, in turn, motivates the empirical question taken up in the rest of the report: *Is there evidence that it is even possible to (re)build academically focused education systems to support holistic student development?*

The following review details the research foundations that underlie our thought experiment and that frame our subsequent analyses of these seven education systems. The review is structured in five sections:

- Centering holistic student development: why, and why now?
- Instruction, teaching, and learning
- (Re)building education systems
- Demands on education leaders
- The global context

While this review functions as a stand-alone synthesis, it is more meaningfully engaged in dialogue with our full report. We encourage readers to read our full report and to engage the thought experiment that motivates and frames it as a prelude to this review of the research foundations.

CENTERING HOLISTIC STUDENT DEVELOPMENT: WHY, AND WHY NOW?

The logic and principles of holistic student development have deep roots in ancient and religious traditions, in philosophical and intellectual advances, and in social and reform movements. There are examples of these deep roots evolving into fully formed education systems (e.g., Steiner, Montessori, and Reggio Emilia) and animating national education ecologies (e.g., Denmark, Finland, the Netherlands).

Yet a collection of matters has driven holistic student development to the forefront of global education policy discourse, including declining mental health among children and adolescents; rising calls for increased parent and community voice in educational aims and approaches; and growing realization of the individual consequences of societal, political, and ecological turbulence. The COVID-19 pandemic has brought this collection of matters to a crisis point.

Indeed, the global pandemic underscored the importance of education systems addressing the needs of the whole child rather than solely their cognitive development. Attending to students' socio-emotional well-being and supporting them in navigating today's complex local and global realities requires that education systems think more broadly about their charge. Whereas many countries' prior reform efforts focused on improving student performance in tested subjects involving numeracy and literacy, increasing attention is now paid to developing student capacities in areas that are perhaps not as easily measured but are critically important. Winthrop et al. (2018) refer to a wider range of capacities as a "breadth of skills":

"Breadth of skills" refers to the expanded set of skills that education systems should help young people develop. Traditional skills, such as literacy and numeracy, must be complemented with skills such as collaboration, problem solving, and creativity. Children's cognitive, social, and emotional abilities must be brought to bear in developing their breadth of skills (p.8).

Winthrop et al. (2018) further note that a breadth of skills is sometimes also referred to as a set of "21st-century skills." Such conceptions and similar notions often focus primarily on a set of core competencies that students should be able to demonstrate. For example, Fullan and Scott's (2014) "Six Cs of Deep Learning" encompass creativity, communication, critical thinking, citizenship, character, and collaboration. Importantly, noting the system transformation that is required to support these goals for students, Fullan and Scott explain that the "Six Cs" approach is part of a system in which teachers shift to become "proactive learning partners" rather than the "sage on the stage" (p.7).

Yet the increasing calls for holistic student development go further, also prioritizing students' socio-emotional learning and well-being in system change efforts. Although this movement was gaining fuel before 2020, the pandemic has accelerated interest in this direction. This shift marks a departure from the "academics obsession" that prioritizes testing and competition to a system that integrates well-being and learning (Fullan, 2021). The Learning Policy Institute (n.d.) portrays cognitive and academic development as interconnected with socio-emotional and identity development as well as mental and physical health. It emphasizes the systemic shifts that are required to support whole child development. These include "designing learning environments to support the whole child; developing curriculum, instruction, and assessments for deeper learning; preparing educators for whole child practice; and changing policy and systems to support the whole child" (Learning Policy Institute, n.d., para. 3). Each of these elements is important in transforming education systems beyond academic development to holistic student development.

Learning environments that support the whole child understand learning as an expansive, socio-cultural, and interactional process that involves the development of the whole person, not just their cognitive capacities (McKinney de Royston et al., 2020). Such broader conceptions of learning are a significant departure from earlier notions of learning as an individual and cognitive activity, and they are even more of a departure from behavioral notions of learning. Building on these new conceptions has significant implications for how schools and education systems do their work. "Schools that take these principles into account will honor diverse cultural repertoires, partner with families and communities, and promote deep engagement with the disciplines, with one's identities and communities, and with equitable social change" (McKinney de Royston et al., 2020, p. 13).

Equity is an important guiding purpose of education that supports holistic student development, and the provision of a wide range of supports helps ensure that all students can thrive. Focusing on students' assets

rather than their deficits is foundational to supporting the whole child (Ladson-Billings, 2006). Recognizing the cultural wealth within communities is also essential to fostering positive identity development as another component of holistic student development (Yosso, 2005). Increasing attention is also being paid to creating schools, particularly those in underresourced localities, that function as community hubs that coordinate social services, health care, and education to address student and family needs (National Center on Education and the Economy, 2021; Saunders et al., 2021). These kinds of shifts are important to ensure equity in education as education systems transform to attend to holistic student development.

Transforming systems to support an expansive view of learning for all children is a monumental undertaking, but there are signs of movement in this direction. For example, regarding policy shifts in the United States, the federal Every Student Succeeds Act provides opportunities, resources, and incentives for states to include measures of socio-emotional development in their accountability systems (Melnick et al., 2017). Standardized college entrance tests (e.g., the SAT and ACT) have become optional for admissions in many U.S. universities in an acknowledgement that they are inequitable. There is growing recognition that engaging in deeper learning is important, even though it is not yet widespread in core classes (Mehta & Fine, 2019).

Across the globe, and as evidenced by the seven case studies that we explore in our summary report, the transformation of school systems into education systems that support the whole child (and, further, into evidence-based learning systems that continuously improve over time) is beginning to take root in some jurisdictions and to deepen in others.

INSTRUCTION, TEACHING, AND LEARNING

Centering holistic student development also requires attention to the primary site for student development in schools: instruction, both within and beyond classrooms (Cohen, 1988; Cohen, 2011; Spillane et al., 2019). That, in turn, requires care in conceptualizing, reasoning, and thinking about what we mean not only by “instruction” but also by “teaching” and “learning.”

For example, teaching is sometimes thought of as something that teachers “do” to students, as if teachers could somehow develop students in ways they see fit. This view equates teaching with the behaviors or moves teachers use to transfer a fixed body of knowledge, often codified in an official curriculum, to their students (Brophy & Good, 1986; Dunkin & Biddle, 1974; Mitzel, 1960; Rosenshine & Stevens, 1986). Learning, in turn, is sometimes thought of as an outcome of teaching and as a change in students’ knowledge, skill, or dispositions.

By contrast, we conceptualize teaching, learning, and instruction as *categories of active work*—that is, as *forms of practice*—that contribute to students’ development: *teaching* as work enacted by teachers; *learning* as work enacted by students; and *instruction* as work coenacted by teachers and students as they teach and learn in collaboration with (and in relation to) each other. As categories of work and forms of practice, these are activities to which teachers and students are habituated. These are also activities that teachers and students can improve and enact to greater effect, on their own and in collaboration with each other.

Indeed, pursuing rising ambitions for holistic student development will require that schools and education systems cultivate conditions for supporting, developing, improving, and maintaining the essential practices that contribute to holistic student development: the work of teaching, learning, and instruction. Far beyond shifting teachers from the “sage on the stage” to “proactive learning partners,” this effort will require that schools, systems, and those leading them shift beyond an exclusive focus on *teaching* to a more comprehensive focus on *instruction* as a collective practice coenacted by teachers and students using situated intellectual, cultural, and material resources.

This view draws on theory and research that de-centers teachers (and teaching) as a primary focus and instead puts teachers (and teaching) in dynamic relationships with students (and learning), with content and materials, and with the contexts in which they interact. For example, in their seminal analysis of instruction, capacity, and improvement, Cohen and Ball (1999) refer to teachers, students, and materials as the “instructional unit,” arguing persuasively that these three elements (and their interactions) mutually constitute or define instructional practice in and beyond classrooms. Others go further, framing instruction as both a social *and* situated practice in which teachers and their students work with particular intellectual, physical, and cultural materials, such as knowledge and curriculum, to coenact instruction together in classroom, school, and social contexts (Cohen, 2011; Cohen & Ball,

1999; Delpit, 1995; Freire, 1970; Hawkins, 2007). Seeing instruction as a social and situated practice is essential if schools are to embrace and build on the diverse cultural repertoires of students and families (McKinney de Royston et al., 2020)

This view also draws on theory and research that underscores the essential role and work of students and learning in instructional practice, by virtue of how they interact with one another and the teacher; the ideas they voice; their ways of being; and how teachers notice, engage, and treat students' ideas and their ways of knowing. For example, research on culturally responsive instruction contributes immensely to understanding instruction as a collective and situated practice by unpacking the fundamental role of students' cultural resources to the instructional unit (Delpit, 1995; Ladson-Billings, 1995). Children acquire cultural resources through their lived experiences, enabling them to develop an identity and a sense of belonging, but these cultural resources often go ignored in classrooms, contributing to feelings of alienation and being unvalued as learners (Farkas et al., 1990; Lee, 1995; Nasir, 2002; Nasir & Saxe, 2003; Saxe, 1988; Taylor, 2009).

Indeed, students' ideas and ways of knowing often go unseen by teachers or are viewed as "deficits" rather than "assets" for teaching and learning (Ainscow, 2005; Clycq et al. 2014; García & Guerra, 2004; Valencia, 2012). Failing to notice and recognize students' cultural resources constrains teaching practice, and it undermines the opportunities of all students to learn and develop holistically through collaborative instructional practice. Seeing students and teachers as coenacting instructional practice embraces the crucial role of diverse students' cultural resources in teaching and instructional practice. It also foregrounds instruction as a political practice situated in broader social and political contexts (Freire, 1970; Nieto, 2006).

Again, instruction as a collective and situated practice contrasts starkly with traditional notions that focus on teachers' efforts to transfer a relatively fixed, typically academic, codified knowledge base to students. As education systems globally focus on addressing the whole child (rather than just their cognitive development), and as they work to embrace the cultural, linguistic, ethnic, racial, gender, and class diversity of their children, attending to (and shifting) the

role and work of teachers and teaching is necessary but not sufficient. Teaching is integral to—but *not equivalent to*—instruction.

Instead, developing a collective and situated understanding of instructional practice is essential. Doing so will enable schools and systems to engage in the more expansive work of child development, beyond the cognitive, to embrace the physical, social, emotional, political, and affective dimensions of development and, most critically, the interactions therein. A collective and situated understanding of instructional practice is a necessity, because supporting children's well-being depends ultimately on codeveloping their cognitive, physical, emotional, and affective beings (Blair, 2002; Huppert, 2009; Immordino-Yang & Damasio, 2007).

Distinguishing between teaching and learning and framing instructional practice as a collective and situated practice is not an intellectual parsing of terms. Rather, it involves a fundamental reframing of the core work of education systems and the central goals of education system building. Specifically, it frames the work of building capacity and capability to support instruction for holistic student development in a new way.

As Cohen and Ball (1999) argue, seeing instruction as a collective and situated practice reframes instructional capability and capacity as "a function of the interaction among elements of the instructional unit, not the sole province of any single element" such as the teacher or curricular materials, or the teacher and students (pp. 2–3). Education systems seeking to support the holistic development of all students, while recognizing the diversity of their students, must reframe the challenge of developing capability and capacity by recognizing instruction as a coproduction between teachers and students, in interaction with material and other resources, in complex social contexts. With that, instructional improvement for holistic student development goes beyond simply providing new-and-better resources to teachers. It requires that education systems also support both teachers and students in collaborating to use resources in instructional practice to greater effect (Cohen et al., 2003).

(RE)BUILDING EDUCATION SYSTEMS

Embracing the social and situated nature of instructional practice necessary for holistic student development reframes the work of building instructional capability and capacity, since it places new demands on teachers in engaging the cultural resources of their students. It also focuses teachers' attention on not only students' cognitive development but also on students' affective, physical, social, and emotional development and the interactions among these intertwined domains of development. Specifically, the social and situational notions of instructional practice sketched above place new demands on teachers and students that education systems must understand to support, enable, develop, and maintain them.

Historically, at least in the U.S., developing capability and capacity to address such demands was a "self-help" exercise left to teachers and their individual choices about professional learning and curricular materials. Teaching was mostly a "cottage industry," with the individual classroom teacher deciding what and how to teach and with little or no pressure for vertical or horizontal alignment within and across schools and school systems (Spillane et al., 2017). For the most part, schools and school systems did little to organize, manage, and improve their core educational work: instructional practice (Cohen et al., 2018).

Instead, schools and districts were "loosely coupled systems": organizations that were highly formalized on such matters as scheduling, the assignment of teachers and students to classes, and grade reporting but in which formal organization otherwise had little bearing on day-to-day instructional practice (Cohen & Spillane, 1992; Meyer & Rowan, 1977; Weick, 1976). The practice of teaching—deciding what to teach, how to teach, and when to teach—was the province of individual teachers working behind closed classroom doors, practicing in professional isolation from colleagues (Jackson, 1968; Lortie, 1975). Scholars theorized this as a rational organizational response to complex, sprawling educational environments that were institutionally strong but technically weak—that is, environments that featured highly developed cultural norms, cognitive frameworks, and regulatory requirements that established expectations for schooling, absent highly developed, agreed-upon understandings of the means, ends, and evaluation of instruction (Meyer & Rowan, 1977; Rowan & Miskel, 1999).

Things began changing in the institutional and technical environments of public schooling in the U.S. and globally starting in the second half of the 20th century, and those changes began to accelerate with the turn of the century. Researchers, policymakers, and school reformers increasingly linked public schooling to societal and more specifically economic development, as a means to invest in human capital (Becker, 1962; Schultz, 1961). Their efforts sparked renewed global, national, and regional attention to education as an engine for economic development and spurred what some refer to as "the schooled society" (Baker, 2014). These efforts focused schooling primarily on students' cognitive development, fundamentally redefining not only the purpose of schooling but also of society more broadly in ways that

foregrounded social efficiency and mobility and that backgrounded broader democratic goals. Though often taken for granted, these developments fundamentally shaped both the purpose and the nature of schooling in the U.S. and globally, and they had profound impacts on education policymaking.

In the U.S. and other countries, spurred and supported by transnational organizations, “systemic education reform” (Smith & O’Day, 1990; World Bank, 1999) primed federal, national, provincial, and state policymakers to engage with instruction by targeting a handful of school subjects and deploying a small set of state policy instruments—standards, assessments, and test-based accountability—to incentivize schools and school systems to improve, albeit rather narrowly, on measures of a handful of metrics that privileged attendance and cognitive development. These policymaking efforts were consequential despite their well-documented limitations (Au, 2007; Jennings & Bearak, 2014; Polikoff, 2012).

One less well-documented outcome of these developments is that policy pressure to improve student outcomes is contributing to local districts and other school systems in the U.S. (and likely more globally) engaging or reengaging in system building. That, in turn, has them transforming themselves from school systems into education systems by working to reorganize and (re)build around their core educational work—instruction—albeit, again, in only a handful of tested school subjects (Austin et al., 2006; Cohen et al., 2014; Hopkins et al., 2013; Johnson et al., 2014; Marsh et al., 2005; Peurach et al., 2019; Spillane et al., 2018; Weast, 2014).

This work involves comprehensive, coordinated improvement initiatives that aim to advance ambitious, equitable instruction schoolwide and districtwide, albeit centered on cognitive development as measured by standardized tests. The evidence suggests that such education system (re)building efforts, at least in the U.S., are not just a public system phenomenon but also engage private systems (i.e., Catholic school systems) and hybrid systems (i.e., The International Baccalaureate and Montessori), driven by system

leaders’ concerns with organizational legitimacy (especially pragmatic legitimacy) in rapidly evolving institutional and technical environments (Spillane et al., 2022). Education system-building efforts in response to pragmatic legitimacy involved several interdependent domains of work, including (Peurach et al., 2019):

- **Managing environments** by strategically both bridging and buffering their cultural, political, and technical environments while managing diverse stakeholders.
- **Building educational infrastructure** to support a shared vision for instruction by developing and deploying instructional and social resources for improving teaching and learning.
- **Supporting educational infrastructure use in practice** by mobilizing educational infrastructure for teaching and its improvement through such means as coaching, mentoring, and professional learning.
- **Managing performance** by measuring and monitoring progress to support continuous improvement and professional accountability for teaching and learning.
- **Developing and distributing leadership for instruction** by cultivating formal and informal instructional leadership sources, developing people, and creating structures such as teams and routines to enable leadership practice systemwide.

Education system-building efforts, at least based on empirical evidence from the U.S., document a shifting concern as diverse education systems work to manage their changing institutional and technical environments (Spillane et al., 2022). Specifically, as education systems strived to craft systemwide instructional coherence, new challenges surfaced regarding structural inequalities in students’ opportunities to learn. While system leaders sometimes connected these challenges to *pragmatic legitimacy* (e.g., improving test scores and other performance metrics), they also framed them in ways that surfaced moral legitimacy. *Moral legitimacy* centered on system

leaders' sense of what it meant to do the right thing for students, given their understanding of their systems' central mission.

With that, system leaders' understanding of inequities in students' opportunities was no longer just a pragmatic concern (e.g., reducing the achievement gap) but also fundamentally a moral concern—ensuring that all students, regardless of circumstance and background, could learn and develop in their schools. Embracing this moral legitimacy imperative, in turn, required system leaders to reach beyond cognitive development and attend to other aspects of student development including their socio-emotional and physical well-being. In an effort to promote just outcomes (Dowd & Bensimon, 2015), system leaders were compelled to embrace a more holistic student development mission that would address not only the cognitive but also the social, emotional, and physical needs of the children they enrolled.

So, the press for pragmatic legitimacy that has emerged over the past several decades with the prominence of systemic reform is now being matched with a concern for moral legitimacy, a concern no doubt foregrounded by the growing societal inequalities that have been laid bare by the pandemic. These developments create new challenges for education system (re)building as system leaders embrace more holistic student development agendas and figure out how to support these ambitions in instructional practice.

DEMANDS ON EDUCATION LEADERS

The preceding analyses suggest steep demands on system leaders seeking to transform education systems to support holistic student development. One matter is the *novelty of the work*. For example, in school systems in which structures and leadership have historically been only loosely coupled with classrooms, system leaders will need to engage educational work—instruction, teaching, and learning—in new ways and toward much more ambitious ends. Another matter is the *scope of work*. For example, systems will need to sustain existing leadership capabilities to manage customary political and administrative responsibilities while, at the same time, developing and distributing new leadership capabilities to organize, manage, and improve instruction. Yet another matter is the *complexity of the work*. For example, system leaders whose self-interests often center on maintaining stability and harmony will need to openly and willingly engage in uncertain, dilemma-fraught work that aims to disrupt the status quo.

As system leaders embrace systems transformation for holistic student development, they will need to examine their theories of change for doing this work as well as the approaches and perspectives they will use to build capacity for systems (re)building, sustainability, and continuous improvement. Change management theories and studies on reform implementation offer insights for leaders and systems undertaking reform journeys, highlighting potential challenges they may need to overcome.

Engaging in system transformation will require leaders to think through and enact novel ways of supporting the goals of holistic student development, especially around matters of instruction, teaching, and learning. Deep capacity building and knowledge are needed, especially for systems newly embarking on reform toward holistic student development. Capacity building focused on instructional practice for holistic development is crucial. In the U.S., knowledge of how to scale up and sustain systemic reform that improves instructional practice and student learning has been scarce (Cohen & Mehta, 2017). When capacity building is shortchanged and compliance is expected with little support, studies have found that educators implement the surface-level aspects of reform by changing the structure of classes, instructional routines, and materials without understanding the theories and principles that drive those practices (Coburn, 2001; Cuban, 2013; Spillane et al., 2002). Educators are all too often exposed to new instructional approaches through decontextualized training and are then expected to become experts at incorporating new knowledge into their classrooms. Such instructional approaches have typically failed because they do not simply require teachers to implement new tools or activities for learning but require fundamental rethinking of their teaching roles and relationships with students (Cuban, 2013). The vision for holistic student

development further requires educators to rethink their moral obligations to students and families, placing new demands on their role.

Unless systems leaders prioritize the vision for system reform as centered on student learning for holistic development through sustainable capacity-building efforts, new routines and tools may be discarded or lose their intended purpose. No matter how much educators may be initially committed to a particular reform effort, unless they have adequate time, professional learning, and opportunities to hone their instructional craft, the reform may become one more task added to educators' crowded schedules. Educators may easily go through new routines without making meaningful changes in their practice. Or they could make meaningful improvements but lose momentum without sustained time to craft and refine them.

In designing effective professional learning opportunities, insights from research suggest that leaders consider the required changes in practice in conjunction with shifts in thinking and beliefs. Rather than periodic professional development, learning opportunities that not only address schools' specific needs but also take into account student and adult learning processes are more likely to build capacity (Darling-Hammond & McLaughlin, 1995; Garet et al., 2001; Webster-Wright, 2009). Ongoing, job-embedded learning opportunities to practice and experiment with classroom lessons, coupled with support and feedback, have been found to be more impactful for educator development (Desimone & Garet, 2015). Thus, how leaders attend to and create supportive conditions that enable educators and students to engage in ongoing instructional improvement and inquiry will likely influence the sustainability of systems (re)building for holistic student development.

Leaders may also need to rethink the scope of their work and the means by which they engage in scaling reform beyond management of political and administrative responsibilities to developing and distributing leadership to cultivate broader ownership for system transformation. Conventional definitions of scaling reform often fail to capture the extent to

which principles of a reform have been implemented, the depth of learning acquired, the extent of distributed ownership, and the reform's longevity.

In contrast, Coburn (2003) offers an alternative concept of scaling that encompasses four key dimensions: depth, sustainability, spread, and shift in reform ownership. *Depth* is defined by the quality of implementation, with change that goes beyond surface-level use of materials, procedures, and activities to alterations in beliefs, norms, pedagogy, and social interaction (Coburn, 2003). *Sustainability* is also a key indicator of scale, reflected in the extent to which supportive conditions, resources, and capacity-building efforts enable practitioners to enact reform with shifting policy demands, external pressures, and staff turnover. *Spread* refers to how a reform scales to multiple classrooms, schools, or systems. Related to sustainability is the notion of *shifting reform ownership*, which Coburn distinguishes from simple buy-in or acceptance to "a shift in knowledge of and authority of reform" (p. 7). That is, a key indicator that systems have recultured toward holistic student development may be evidenced by the extent to which system stakeholders, especially educators in the classroom, have the capacity to facilitate, maintain, and grow the change themselves rather than rely on external developers.

System leaders play a key role in shaping supportive conditions that enable multiple stakeholders to engage in system transformation efforts that are sustainable, focused, and scalable. As Fullan (2016) noted, "Top-down change doesn't work because it fails to garner ownership of, commitment to, or even clarity about the nature of the reform. Bottom-up change—the so-called 'let a thousand flowers bloom'—also does not produce success on any scale" (p. 10). Diverse stakeholders may need ownership of an improvement idea but they also need systemic conditions, resources, and leadership that support sustainability and continuous improvement of their work. To support capacity building for continuous improvement, the field of education has recognized that rather than top-down versus bottom-up change, a mixture of both is necessary.

Pursuing holistic student development places new demands on leaders to recognize, adapt to, and manage the complexity of engaging in system transformation. Over time, the literature on organizational and educational change has moved away from linear models to ones that are more multifaceted. Traditional models tend to assume that the change process has a linear trajectory or occurs in steps (Armenakis & Bedeian 1999; Kuipers et al., 2014). These steps generally start with developing a vision, then adoption, followed by implementation, and finally institutionalization (Armenakis & Bedeian, 1999; Fullan, 2016; By, 2005). In reality, change trajectories may be more spiral or open-ended (Weick & Quinn, 1999), especially if change is expected to be continuous rather than an episodic event (By, 2005). To deepen knowledge of how change does or does not happen, understanding the role of context, time, and history as key factors in determining outcomes is necessary—factors that many studies have largely neglected (Kuipers et al., 2014; Pettigrew et al., 2001).

With growing understandings of such early limitations, scholars studying organizational improvement increasingly highlight the importance of examining change as a multidimensional construct with four broad, interrelated aspects (Armenakis & Bedeian, 1999; Kuipers et al., 2014; Pettigrew et al., 2001; Whelan-Berry & Somerville, 2010):

- **Context**, an organization's external and internal environments.
- **Content**, such as change strategies, structures, and systems.
- **Process** of implementation.
- **Outcomes**, including changes in attitudes, behaviors, and practices.

In general, approaches to education reform have been critiqued for overemphasizing the technical dimensions of change and underestimating the influence of the socio-cultural, cognitive, and political contexts (Cuban, 2013; Datnow & Park, 2009; Hargreaves & Goodson, 2006; Honig, 2006; Hubbard et al., 2006; Payne, 2008; Sarason, 1996). In his analysis of urban school reform over the course of three decades in the U.S., Payne

(2008) identifies one of the multifaceted reasons for the “predictable failures of implementation” as the rapid pace of implementation, with little attention paid to the learning needs and capacity building of those closest to implementing the improvement efforts or to the local cultural and political contexts that constrain the reform. The politics of reform, existing capacities, and ideologies have consistently shaped the implementation process of new education programs and policy (Datnow, 2005; Firestone et al. 1999; Fullan & Pomfret, 1977; Hargreaves & Goodson, 2006; McLaughlin, 1987; Oakes, 1992; Tyack & Cuban, 1995).

Leading and facilitating equity-focused education reform especially means attending to the technical, normative, and political dimensions of change (Oakes, 1992). Contested perceptions about the purpose of education, definitions of equity, and ideologies about what counts as learning are among the challenges that system leaders grapple with as they engage with diverse stakeholders toward a vision for holistic student outcomes. Leaders undertaking system (re)building efforts for holistic transformation must tackle such challenges as they strive to achieve moral legitimacy and equity while being willing to disrupt the status quo if necessary.

The research on educational change and reform suggests that system transformation will require policymakers, educators, and stakeholders to consider the multifaceted nature of leading change—at the field, organizational, group, and individual levels—as well as the required shifts in beliefs and behaviors. They will need to consider and reconsider novel ways of approaching their work, broadening the scope of how and in what ways they engage in system transformation. Education system transformation efforts will need to enable the integration of these new understandings with knowledge of how to support building capacity and managing change of the social-political contexts that educational systems are embedded within.

THE GLOBAL CONTEXT

Although the preceding sections were anchored largely in the U.S., there is evidence that this press for system (re)building to support holistic student development and consideration of the multidimensional nature of transformation are also playing out globally. Systems leaders are attending to how they coconstruct coherence for system transformation given their unique histories and contexts.

An examination of reports on system change written over the past decade shows that studies of global systems share similarities in focusing on what distinguishes high-performing school systems across the world, noting themes such as leadership, coherence, and support of quality teaching. Even so, there is a noticeable shift in emphasis over time. More recent reports focus on system efforts to address a breadth of skills for students, including but not limited to academic development, whereas earlier reports focused primarily on efforts to improve student achievement in core subjects. Current reports also emphasize shifts in instruction that will be required for schools to become more learner-centered, and some also use a “systems thinking” focus that acknowledges the ways in which different components of different systems interact.

For example, almost a decade ago, in their narrative review of research and system improvement across international contexts, Hopkins et al. (2014, p. 257) pinpointed five phases of reform foci over time. They noted that early research in the 1940s to 1970s sought to understand the organizational culture of the school. In subsequent decades, research progressed to a focus on action research and research initiatives at the school level; later, on managing change and on comprehensive approaches to school reform; and, finally, on building capacity for student learning at the local level—all with continuing emphasis on school leadership. The current phase of research on systemic improvement reflects a shift from previous approaches to understanding and implementing educational change. The authors note that “system transformation depends on excellent practice being developed, shared, demonstrated, and adopted across and between schools” (p. 273). This emphasis has drawn attention to improvement initiatives that address systemic change yet are also adaptive to local contexts and needs.

Hopkins et al. (2014) also summarized the elements of high-performing international systems, noting that effective systems “ensure that student achievement is the central focus of systems’, schools’, and teachers’ professional lives” (p. 272). As a consequence, these systems locate the enhancement of the quality of teaching and learning as central themes in their improvement strategies. Although their conclusions are reminiscent of the points outlined by recent reports on global systems improvement, they do not include the same focus on cultivating a breadth of skills. We continue to see an emphasis on teaching and learning in recent accounts of high-performing systems, and we also see broadening of the dimensions of student outcomes to encompass goals and indicators beyond numeracy and literacy.

Numerous recent reports of education systems across the globe show an increasing “system thinking” focus, with attention to how elements and levels of the education systems align, cohere, and work together to shape students’ experiences (Spivak, 2021). For example:

- The Research on Improving Systems of Education (RISE) program examines system change in developing countries. RISE is guided by a systems framework that acknowledges the actors within a system (e.g., government agencies, public and private sector organizations, and people at all levels) and the need to focus on how they interact. One particular focus of RISE’s work is supporting instructional coherence across levels, given evidence that instructional incoherence is one of the main barriers to improving student outcomes (Kaffenberger et al., 2022).
- The Improving Learning at Scale study, which focuses on education systems in low- to middle-income countries, also underscores the importance of reorienting a system—including communication channels, organizational structures, and capacity building—around reinforcing desired instructional changes (Stern et al., 2021).
- The report, *Transforming Education: Why, What, and How*, also adopts a systems focus, arguing that system transformation requires three critical steps (Sengeh & Winthrop, 2022): “Purpose (developing a broadly shared vision and purpose), Pedagogy (redesigning the pedagogical core), and Position (positioning and aligning all components of the system to support the pedagogical core and purpose)” (p. 2).
- Along similar lines, Goddard et al.’s (n.d.) report identifies three drivers of system transformation in education: purpose (redefining goals around current challenges and stakeholder values); practice (unlocking the potential of shared innovation); and power (expanding who has voice and agency).

- A report by the National Center on Education and the Economy (NCEE) identifies several components of high-performing systems across the globe: including effective teachers and principals, a rigorous and adaptive learning system, equitable foundation of supports, and coherent and aligned governance. Notably, “the most important feature of a high-performing education system is not that it contains all of these components. It is that the components are aligned and designed to work together as a system” (National Center on Education and the Economy, 2021, p. 9).

In a study that represents a joint effort of NCEE and the Australian Council of Educational Research, Masters (2022) includes similar elements of school systems across the globe and delves into additional features in more detail. Masters characterizes numerous jurisdictions—British Columbia, Estonia, Finland, Hong Kong, and South Korea—as continually improving systems. These systems are striving to be learner-centered, to be flexible about when and how students learn, and to engage students in deeper learning experiences. They have also broadened their goals of schooling to encompass the development and well-being of the whole child, and their focus on academic skills to include personal and social skills. In doing so, these systems have acknowledged that pedagogy must shift to allow for experiential, interdisciplinary learning and real-world problem solving. Although the systems differ in their specification of curricula, they have realized that schools require autonomy and flexibility.

As noted above, reports aimed at understanding system change across the globe are increasingly conceptualizing instruction as work that is coenacted by teachers and students. This conceptualization is also important for fostering equity and positive individual and cultural identities (International Commission on the Futures of Education, 2021; Masters, 2022; Sengeh & Winthrop, 2022). For example, a report for UNESCO by the International Commission on the Future of Education underscores the need for “pedagogies of cooperation and solidarity” that heal injustices, honor diversity, and in which students find their own purpose (International Commission on

the Future of Education, 2021). In the collaborative enactment of instruction, “(b)oth teachers and learners are transformed through the pedagogical encounter as they learn from each other” (p. 51). The aim is for students and teachers to become knowledge seekers together to address the problems of the world.

Other reports also acknowledge instruction as a coenacted process, at least as a goal. Masters (2022) explains that the continually improving global systems he studied are in the process of moving from “teacher-centric” instruction to collaborative approaches in which students exercise choices about their learning and teachers gear instruction to their individual needs. While the intent is to shift instruction in this direction, organizational challenges follow, such as the typical time-based ways that students progress through grades and curricula (Masters, 2022). It also bears noting that although the recommendation of student-centered instruction is common in calls to transform global education, Istance and Paniagua (2019) argue that most reports are vague on what this might entail.

Numerous recent reports also make clearer explicit connections between holistic student development and students’ learning, highlighting how each enables the other. For example:

- Sengeh and Winthrop (2022) discuss how numerous systems around the world, such as in Sierra Leone, aim to address students’ holistic development through teaching and learning. While focusing on helping students achieve numeracy and literacy goals, Sierra Leone also launched a new civics curriculum with the goal of students becoming globally engaged citizens. The country has invested in training and support for teachers to “strengthen the pedagogical core” to ensure that the new curricula are implemented effectively and to meet their goals of 21st century skills and sustainable development.
- A LEGO Foundation report that examines system (re)building toward social and emotional learning and learning through play describes the journey of seven education systems: Australia, Colombia,

Finland, Peru, South Africa, and South Korea (LEGO Foundation, 2022). The authors argue that socio-emotional learning is critical for system transformation, noting that the COVID-19 pandemic exacerbated concerns in this arena: “We believe that social and emotional learning is fundamental for education and well-being, it helps children develop and maintain positive relationships, and become creative, engaged, lifelong learners” (p.7). Some countries (e.g., Colombia and Peru) have also introduced social and emotional skills as a means of supporting societal well-being toward peace, reducing conflict, and fostering citizenship competencies.

A feature of global systems work we have not yet discussed is the importance of attending to context, both in terms of where systems are in their reform journeys and the challenges they face concerning educational and national infrastructure. In *How the World’s Most Improved School Systems Keep Getting Better*, a study sponsored by McKinsey & Company, Mourshed et al. (2010) analyzed 20 systems across the globe. The report categorizes systems in terms of their location on the reform journey. Systems moving from poor to fair focused on achieving basic literacy and numeracy, whereas systems moving from fair to good focused on getting the system foundations in place. Systems that were aspiring to move from good to great placed their efforts on shaping the teaching profession, whereas those seeking to move from great to excellent focused on learning through peers and innovation.

As such, Mourshed et al. (2010) provide another lens on what systems prioritize in their transformation efforts. Not surprisingly, low-performing systems tend to focus on basic skills. Meanwhile, Sengeh and Winthrop (2022) noted, “through redesigning the pedagogical core . . . it is possible to provide even the most marginalized children access to learning experiences and simultaneously support their foundational learning and acquisition of 21st century and citizenship skills” (p. 20). Thus, recent accounts have challenged the notion that students’ holistic development is something to be pursued only when basic skills have already been addressed.

A lesson we can glean about systems transformation across the world is the importance of developing and sharing knowledge across and between systems, as opposed to a singular approach that downplays the importance of context. While it is critical to acknowledge the differences in education between developing and developed countries, different types of systems have much to learn from one another. “When it’s shown as an average number of years in school and levels of achievement, the developing world is about 100 years behind developed countries” (Winthrop & McGivney, 2015, p. 3). However, Winthrop and McGivney also point out that although students in developing countries may lag behind developed countries in traditional measures of numeracy and literacy, it is quite possible that students in these countries also may be developing a breadth of skills (e.g., engagement with the environment, as well as resilience) in their education and that those in developed countries with high levels of academic stress are the least happy.

CONTINUING OUR EXPLORATION

Again, this research review functions as a companion to *Transforming Education for Holistic Student Development: Learning from Education System (Re)building Around the World* (Datnow et al., 2022), which explores seven efforts to build and rebuild education systems to support holistic student development. They include national initiatives in Singapore, Ireland, and Chile; provincial, territorial, and local initiatives in Canada, India, and the U.S.; and a cross-national initiative in the International Baccalaureate.

The preceding review provides a foundation for playing out more deeply the thought exercise that motivates and frames our analysis of (re)building education systems for holistic student development. It also provides a foundation for thinking and reasoning, both empathetically and critically, about the journeys and the work of the seven education initiatives on which we focus our empirical analysis.

If nothing else, our review makes clear that these seven initiatives sit at the leading edge of education research, policy, and practice and that they are blazing trails that others will soon travel. These seven initiatives are:

- Centering holistic student development.
- Engaging instruction as collective, situated practice coenacted by teachers and students.
- (Re)building education systems by managing environments, developing educational infrastructure, and developing and distributing instructional leadership.
- Enacting leadership strategies and approaches responsive to the steep demands of systems transformation.

With insights from this review, we encourage readers to read our summary report of the efforts of these seven systems; to engage earnestly in the thought exercise that motivates and frames our exploration; and to consider ways in which the work of these seven initiatives elaborates, extends, and possibly complicates what we have represented here as leading theory and research bearing on (re)building education systems to support holistic student development.

References

- Ainscow, M. (2005). Developing inclusive education systems: What are the levers for change? *Journal of Educational Change*, 6(2), 109–124. <http://dx.doi.org/10.1007/s10833-005-1298-4>
- Armenakis, A. A., & Bedeian, A. G. (1999). Organizational change: A review of theory and research in the 1990s. *Journal of Management*, 25(3), 293–315.
- Au, W. (2007). High-stakes testing and curricular control: A qualitative metasynthesis. *Educational Researcher*, 36(5), 258–267.
- Austin, J. E., Grossman, A. S., Schwartz, R. B., & Suesse, J. (2006). *Managing at scale in the Long Beach Unified School District*. Harvard Business School Publishing.
- Baker, D. (2014). *The Schooled Society: The Educational Transformation of Global Culture*. Stanford University Press.
- Becker, G. S. (1962). Investment in human capital: A theoretical analysis. *Journal of Political Economy*, 70(5, Part 2), 9–49.
- Blair, C. (2002). School readiness: Integrating cognition and emotion in a neurobiological conceptualization of children's functioning at school entry. *American Psychologist*, 57(2), 111–127.
- Brophy, J., & Good, T. (1986). Teacher behavior and student achievement. In M. C. Wittrock (Ed.), *Handbook of research on teaching* (3rd ed., pp. 376–391). McMillan.
- By, R.T. (2005). Organisational change management: A critical review. *Journal of Change Management*, 5(4), 369–380.
- Clycq, N., Ward Nouwen, M. A., & Vandenbroucke, A. (2014). Meritocracy, deficit thinking and the invisibility of the system: Discourses on educational success and failure. *British Educational Research Journal*, 40(5), 796–819. <https://doi.org/10.1002/berj.3109>
- Coburn, C. E. (2001). Collective sense-making about reading: How teachers mediate reading policy in their professional communities. *Educational Evaluation and Policy Analysis*, 23(2), 145–170.
- Coburn, C. E. (2003). Rethinking scale: Moving beyond numbers to deep and lasting change. *Educational Researcher*, 32(6), 3–12.
- Cohen, D. K. (1988). Teaching practice... plus ça change... In Jackson, P. (Ed.), *Contributing to educational change: Perspectives on research and practice* (pp. 27–84). McCutchan.
- Cohen, D. K. (2011). *Teaching and its predicaments*. Harvard University Press.
- Cohen, D. K., & Ball, D. L. (1999). *Instruction, capacity, and improvement*. (Consortium for Policy Research in Education Rep. No. RR-43). University of Pennsylvania, Graduate School of Education.
- Cohen, D. K., & Mehta, J. D. (2017). Why reform sometimes succeeds: Understanding the conditions that produce reforms that last. *American Educational Research Journal*, 54(4), 644–690.
- Cohen, D. K., Peurach, D. J., Glazer, J. L., Gates, K. E., & Goldin, S. (2014). *Improvement by design: The promise of better schools*. University of Chicago Press.
- Cohen, D., Raudenbush, S., & Ball, D. (2003). Resources, instruction, and research. *Educational Evaluation and Policy Analysis*, 25(2), 1–24.

- Cohen, D. K., & Spillane, J. P. (1992). Chapter 1: Policy and practice: The relations between governance and instruction. *Review of Research in Education*, 18(1), 3–49.
- Cohen, D. K., Spillane, J. P., & Peurach, D. J. (2018). The dilemmas of educational reform. *Educational Researcher*, 47(3), 204–212.
- Cuban, L. (2013). *Inside the black box of classroom practice: Change without reform in American education*. Harvard Education Press.
- Darling-Hammond, L., & McLaughlin, M.W. (1995). Policies that support professional development in an era of reform. *Phi Delta Kappan*, 76(8), 597–604.
- Datnow, A. (2005). The sustainability of comprehensive school reform models in changing district and state contexts. *Educational Administration Quarterly*, 41(1), 121–153.
- Datnow, A., & Park, V. (2009). Conceptualizing policy implementation: Large-scale reform in an era of complexity. In G. Sykes, B. Schneider, & D. Plank (Eds.), *American educational research association handbook of education policy research* (pp. 348–361). Routledge.
- Datnow, A., Park, V., Peurach, D. J., & Spillane, J. P. (2022). *Research foundations: Transforming education for holistic student development – Learning from around the world*. The Brookings Institution.
- Delpit, L. (1995). *Other people's children: Cultural conflict in the classroom*. The New Press.
- Desimone, L., & Garet, M. S. (2015). Best practices in teachers' professional development in the United States. *Psychology, Society & Education*, 7(3), 252–263.
- Dowd, A. C., & Bensimon, E. M. (2015). *Engaging the "race question": Accountability and equity in U.S. higher education*. Teachers College Press.
- Dunkin, M. J., & Biddle, B. (1974). *The Study of Teaching*. Holt, Rinehart and Winston.
- Farkas, G., Grobe, R., Sheehan, D., & Shaun, Y. (1990). Cultural resources and school success: Gender, ethnicity, and poverty groups within an urban district. *American Sociological Review*, 55, 127–142.
- Firestone, W.A., Fitz, J., & Broadfoot, P. (1999). Power, learning, and legitimation: Assessment implementation across levels in the United States and the United Kingdom. *American Educational Research Journal*, 36(4), 759–793.
- Freire, P. (1970). *Pedagogy of the oppressed*. Continuum Publishing.
- Fullan, M. (2016). *The new meaning of educational change* (5th ed). Teachers College Press.
- Fullan, M. (2021). *The right drivers for whole system success*. Centre for Strategic Education.
- Fullan, M., & Pomfret, A. (1977). Research on curriculum and instruction implementation. *Review of Educational Research*, 47(1), 335–397.
- Fullan, M., & Scott, G. (2014). *Education PLUS: The world will be led by people you can count on, including you!* New Pedagogies for Deep Learning white paper. Collaborative Impact.
- García, S. B., & Guerra, P. L. (2004). Deconstructing deficit thinking: Working with educators to create more equitable learning environments. *Education and Urban Society*, 36(2), 150–168. <https://doi.org/10.1177/0013124503261322>
- Garet, M., Porter, A. C., Desimone, L., Birman, B. F., & Yoon, K. S. (2001). What makes professional development effective? Results from a national sample of teachers. *American Educational Research Journal*, 38(4), 915–945.
- Goddard, C., Chung, C. K., Keiffenheim, E., & Temperley, J. (n.d.) A new education story: *Three drivers to transform education systems*. Big Change.
- Hargreaves, A., & Goodson, I. (2006). Educational change over time? The sustainability and nonsustainability of three decades of secondary school change and continuity. *Educational Administration Quarterly*, 42(1), 3–41.
- Hawkins, D. (2007). *The informed vision: Essays on learning and human nature*. Algora Publishing.

- Honig, M. (2006). Complexity and policy implementation: Challenges and opportunities for the field. In M. Honig (Ed.), *New directions in education policy implementation: Confronting complexity* (pp.1–23). State University of New York Press.
- Hopkins, M., Spillane, J. P., Jakopovic, P., & Heaton, R. M. (2013). Infrastructure redesign and instructional reform in mathematics: Formal structure and teacher leadership. *The Elementary School Journal*, 114(2), 200–224.
- Hopkins, D., Stringfield, S., Harris, A., Stoll, L., & Mackay, T. (2014). School and system improvement: A narrative state-of-the-art review. *School Effectiveness and School Improvement*, 25(2), 257–281. doi: 10.1080/09243453.2014.885452
- Hubbard, L. A., Stein, M. K., & Mehan, H. (2006). *Reform as learning: School reform, organizational culture, and community politics in San Diego*. Routledge.
- Huppert, F. A. (2009). Psychological well-being: Evidence regarding its causes and consequences. *Applied Psychology: Health and Well-Being*, 1(2), 137–164.
- Immordino-Yang, M. H., & Damasio, A. (2007). We feel, therefore we learn: The relevance of affective and social neuroscience to education. *Mind, Brain, and Education*, 1(1), 3–10.
- International Commission on the Futures of Education. (2021). *Reimagining our futures together: A new social contract for education*. UNESCO.
- Istance, D., & Paniagua, A. (2019). *Learning to leapfrog: Innovative pedagogies to transform education*. The Brookings Institution.
- Jackson, P. W. (1968). *Life in classrooms*. Teachers College Press.
- Jennings, J. L., & Bearak, J. M. (2014). “Teaching to the test” in the NCLB era: How test predictability affects our understanding of student performance. *Educational Researcher*, 43(8), 381–389.
- Johnson, S. M., Marietta, G., Higgins, M. C., Mapp, K. L., & Grossman, A. S. (2014). *Achieving coherence in district improvement: Managing the relationship between the central office and schools*. Harvard Education Press.
- Kaffenberger, M., Silberstein, J., & Spivack, M. (2022). *Evaluating Systems: Three Approaches for Analyzing Education Systems and Informing Action*. RISE Working Paper Series 22/093. https://doi.org/10.35489/BSG-RISE-WP_2022/093
- Kaser, L., and Halbert, J. (2017). Teachers leading reform through inquiry learning networks: A view from British Columbia. In A. Harris, M. Jones, & J. B. Huffman (Eds.), *Teachers Leading Educational Reform* (pp. 32–50). Routledge.
- Kuipers, B. S., Higgs, M., Kickert, W., Tummers, L., Grandia, J., & Van der Voet, J. (2014). The management of change in public organizations: A literature review. *Public Administration*, 92(1), 1–20.
- Ladson-Billings, G. (1995). Toward a theory of culturally relevant pedagogy. *American Educational Research Journal*, 32(3), 465–491.
- Ladson-Billings, G. (2006). From the achievement gap to the education debt: Understanding achievement in US schools. *Educational Researcher*, 35(7), 3–12.
- Learning Policy Institute. (n.d.) *Whole Child Education*. <https://learningpolicyinstitute.org/issue/whole-child-education>
- Lee, C. D. (1995). A culturally based cognitive apprenticeship: Teaching African American high school students skills in literary interpretation. *Reading Research Quarterly*, 608–630.
- LEGO Foundation. (2022). *Rebuilding systems – national stories of social and emotional learning reform*. The LEGO Group.
- Lortie, D. C. (1975). *Schoolteacher: A sociological study*. University of Chicago Press.

- Marsh, J. A., Kerr, K. A., Ikemoto, G. S., Darilek, H., Suttorp, M., Zimmer, R. W., & Barney, H. (2005). *The role of districts in fostering instructional improvement lessons from three urban districts partnered with the institute for learning*. Rand Corporation.
- Masters, G. (2022). *Building a world-class learning system*. Center for Strategic Education. <https://ncee.org/quick-read/building-world-class-learning-systems/>
- McKinney de Royston, M., Lee, C., Nasir, N. S., & Pea, R. (2020). Rethinking schools, rethinking learning. *Phi Delta Kappan* 102(3), 8–13.
- McLaughlin, M. W. (1987). Learning from experience: Lessons from policy implementation. *Educational Evaluation and Policy Analysis*, 9(2), 171–178.
- Mehta, J., & Fine, S. (2019). *In search of deeper learning: The quest to remake the American high school*. Harvard Education Press.
- Melnick, H., Cook-Harvey, C. M., & Darling-Hammond, L. (2017). *Encouraging social and emotional learning in the context of new accountability*. Learning Policy Institute.
- Meyer, J. W., & Rowan, B. (1977). Institutionalized organizations: Formal structure as myth and ceremony. *American Journal of Sociology*, 83(2), 340–363.
- Mitzel, H. E. (1960). Teacher effectiveness. In C. W. Harris (Ed.), *Encyclopedia of Educational Research* (3rd ed., pp. 1481–1486). Macmillan.
- Mourshed, M., Chijioke, C., & Barber, M. (2010). *How the world's most improved school systems keep getting better*. McKinsey & Company.
- Nasir, N. I. S. (2002). Identity, goals, and learning: Mathematics in cultural practice. *Mathematical Thinking and Learning*, 4(2–3), 213–247. https://doi.org/10.1207/S15327833MTL04023_6
- Nasir, N. S., & Saxe, G. B. (2003). Ethnic and academic identities: A cultural practice perspective on emerging tensions and their management in the lives of minority students. *Educational Researcher*, 32(5), 14–18. <https://doi.org/10.3102/0013189X032005014>
- National Center on Education and the Economy. (2021). *NCEE's blueprint for a high-performing education system*. NCEE.
- Nieto, S. (2006). *Teaching as political work: Learning from courageous and caring teachers*. Child Development Institute, Sarah Lawrence College.
- Oakes, J. (1992). Can tracking research inform practice? Technical, normative, and political considerations. *Educational Researcher*, 21(4), 12–21.
- Payne, C. M. (2008). *So much reform, so little change: The persistence of failure in urban schools*. Harvard Education Press.
- Peurach, D. J., Cohen, D. K., Yurkofsky, M. M., & Spillane, J. P. (2019). From mass schooling to education systems: Changing patterns in the organization and management of instruction. *Review of Research in Education*, 43(1), 32–67.
- Peurach, D. J., Foster, A. T., Lyle, A. M., & Seeber, E. R. (2022). Democratizing educational innovation and improvement: The policy contexts of improvement research in education. In D. J. Peurach, J. L. Russell, L. Cohen-Vogel, & W. R. Penuel, *The foundational handbook on improvement research in education* (pp. 211–240). Rowman and Littlefield.
- Pettigrew, A. M., Woodman, R. W., & Cameron, K. S. (2001). Studying organizational change and development: Challenges for future research. *Academy of Management Journal*, 44(4), 697–713.
- Polikoff, M. S. (2012). Instructional alignment under No Child Left Behind. *American Journal of Education*, 118(3), 341–368.
- Rosenshine, B., & Stevens, R. (1986). Teaching functions. In M. C. Wittrock (Ed.), *Handbook of research on teaching* (3rd ed., pp. 376–391). Macmillan.

- Rowan, B., & Miskel, C. G. (1999). Institutional theory and the study of educational organizations. In J. Murphy & K. S. Louis (Eds.), *Handbook of research on educational administration* (2nd ed., pp. 359–383). Jossey-Bass.
- Sarason, S. B. (1996). *Revisiting the culture of the school and the problem of change*. Teacher College Press.
- Saunders, M., Martínez, L., Flook, L., & Hernández, L. E. (2021). *Social Justice Humanitas Academy: A Community School Approach to Whole Child Education*. Learning Policy Institute.
- Saxe, G. B. (1988). Candy selling and math learning. *Educational Researcher*, 17(6), 14–21. <https://doi.org/10.3102/0013189X017006014>
- Schultz, T. W. (1961). Investment in human capital. *The American Economic Review*, 51(1), 1–17.
- Sengeh, D., & Winthrop, R. (2022). *Transforming education systems: Why, what, and how*. The Brookings Institution. <https://www.brookings.edu/research/transforming-education-systems-why-what-and-how/>
- Smith, M. S., & O'Day, J. (1990). Systemic school reform. *Journal of Education Policy*, 5(5), 233–267. <https://doi.org/10.1080/02680939008549074>
- Smith, M. S., & O'Day, J. A. (1991). Systemic school reform. In S. H. Fuhrman and B. Malen (Eds.), *The politics of curriculum and testing: The 1990 yearbook of the Politics of Education Association* (pp. 233–267). Falmer Press.
- Spillane, J. P., Blaushild, N. L., Neumerski, C. M., Seelig, J. L., & Peurach, D. J. (2022). Striving for coherence, struggling with incoherence: A comparative study of six educational systems organizing for instruction. *Educational Evaluation and Policy Analysis*. <https://doi.org/10.3102/01623737221093382>
- Spillane, J. P., Hopkins, M., & Sweet, T. M. (2018). School district educational infrastructure and change at scale: Teacher peer interactions and their beliefs about mathematics instruction. *American Educational Research Journal*, 55(3), 532–571.
- Spillane, J. P., Morel, R. P., & Al-Fadala, A. (2019). *Educational leadership: A multilevel distributed perspective*. World Innovation Summit for Education. <https://www.wise-qatar.org/app/uploads/2019/10/wise-rr.6.2019-report-web.pdf>
- Spillane, J. P., Reiser, B. J., & Reimer, T. (2002). Policy implementation and cognition: Reframing and refocusing implementation research. *Review of Educational Research*, 72(3), 387–431.
- Spillane, J. P., Shirrell, M., & Sweet, T. M. (2017). The elephant in the schoolhouse: The role of propinquity in school staff interactions about teaching. *Sociology of Education*, 90(2), 149–171.
- Spivack, M. (2021). *Applying systems thinking to education: The RISE systems framework*. Research on Improving Systems of Education. https://doi.org/10.35489/BSG-RISE-RI_2021/028
- Stern, J., Jukes, M., Piper, B., DeStefano, J., Mejia, J., Dubeck, P., Carrol, B., Jordan, R., Gatuyu, C., Nduku, T., Punjabi, M., Van Keuren, C. H., & Tufail, F. (2021). *Learning at scale: Interim report*. Research Triangle Institute. <https://ierc-publicfiles.s3.amazonaws.com/public/resources/Learning%20at%20Scale%20Interim%20Report%20-%20Final%20Draft.pdf>
- Taylor, E. V. (2009). The purchasing practice of low-income students: The relationship to mathematical development. *The Journal of the Learning Sciences*, 18(3), 370–415.
- Tyack, D., & Cuban, L. (1995). *Tinkering towards utopia: A century of public school reform*. Harvard University Press.
- Valencia, R. R. (2012). Contextualizing “rethinking compensatory education”: The value of a temporal continuity analysis. *Teachers College Record*, 114(6), 1–5. <https://doi.org/10.1177/016146811211400603>
- Weast, J. (2014). Confronting the achievement gap: A district level perspective. In K. McCartney, H. Yoshikawa, & L. B. Forcier (Eds.), *Improving the odds for America's children: Future directions in policy and practice* (pp. 101–120). Harvard Education Press.

- Webster-Wright, A. (2009). Reframing professional development through understanding authentic professional learning. *Review of Educational Research, 79*(2), 702–739.
- Weick, K. E. (1976). Educational organizations as loosely coupled systems. *Administrative Science Quarterly, 21*(1), 1–19. <https://doi.org/10.2307/2391875>
- Weick, K. E., & Quinn, R. E. (1999). Organizational change and development. *Annual Review of Psychology, 50*(1), 361–386.
- Whelan-Berry, K. S., & Somerville, K. A. (2010). Linking change drivers and the organizational change process: A review and synthesis. *Journal of Change Management, 10*(2), 175–193.
- Winthrop, R., Barton, A., & McGivney, E. (2018). *Leapfrogging inequality: Remaking education to help young people thrive*. Brookings Institution Press.
- Winthrop, R., & McGivney, E. (2015). *Why wait 100 years? Bridging the gap in global education*. The Brookings Institution.
- World Bank. (1999). *Education sector strategy*. World Bank.
- Yosso, T. J. (2005). Whose culture has capital? A critical race theory discussion of community cultural wealth, *Race Ethnicity and Education, 8*(1), 69–91.

BROOKINGS

1775 Massachusetts Ave NW,
Washington, DC 20036
(202) 797-6000
www.brookings.edu

©The Brookings Institution, September 2022. All Rights Reserved.