The Foundational Handbook on Improvement Research in Education

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Edited by Donald J. Peurach,
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To all who work so that others may experience the joy, power, and love of learning.

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Donald J. Peurach
Jennifer Lin Russell
Lora Cohen-Vogel
William R. Penuel
January 2022

CHAPTER 1

Introducing Improvement Research in Education

Jennifer Lin Russell and William R. Penuel

The Handbook's Origin Story

The Foundational Handbook on Improvement Research in Education is an essential component of a broader effort to galvanize a community of scholars who are collaborating to build, strengthen, and elevate the field of improvement research. The tie that binds this community is the shared commitment to using disciplined, inclusive improvement approaches grounded deeply in practice contexts, with the goal of advancing quality and equity in students' personal, social, and academic development, and pursuing the organizational and systems change necessary to support sustainable improvement. The handbook is a scholarly primer that takes stock of the foundations, contexts, approaches, and methods of this rapidly developing field of educational research.

A growing community of scholars is engaging in improvement research in education. By evoking the phrase "improvement research," we aim to refer to and elevate research that has a commitment to action and intervention; is aimed at addressing problems, needs, and opportunities that arise in educational practice; and that is undertaken through systematic approaches to support and study intervention. In contrast to traditions of educational research that have the primary aim of producing general knowledge, the primary aim of improvement research is to produce and use knowledge to address specific problems, needs, and opportunities grounded deeply in practice contexts. The past decade has seen growing enthusiasm for (and significant federal and philanthropic investment in) new approaches to improvement research that coordinate disciplined methods of iterative design and inquiry. These approaches are advanced using novel organizational forms in which researchers, educational professionals, and other stakeholders collaborate to understand and improve classrooms, schools, and systems.

The roots of the handbook stretch to a series of meetings sponsored by the Spencer Foundation, the William T. Grant Foundation, and the Carnegie Foundation for the Advancement of Teaching focused on building the field of improvement research in education. The members of the editorial team represent a set of scholars that engaged in these field-level conversations and were interested in further organizing a

community of improvement researchers. As an editorial team, our first step in building the field of improvement research has been to strengthen connections among scholars engaged in this work. We have been working to draw more members of the community of improvement scholars into a tighter professional network, to continue to build common identity and collective voice, and to begin to formalize the network as a self-sustaining, collegially led enterprise.

Our ambition is for this community of scholars to work together to strengthen the standing of and support for improvement research in academic and practice contexts by, among other things, taking responsibility for establishing standards of rigor and quality, advancing norms of mutual respect and accountability, and supporting the professional development and growth of new and continuing members. Our ambition is for members of the community also to work together to strengthen support for improvement research in broader policy, philanthropic, and other educational environments on which the field depends for resources and legitimacy, and to advance improvement research as intrinsically tied to a mission to build more just and equitable education systems.

These commitments became the impetus for the Improvement Scholars Network as an informal collegial group—something of an invisible college—that is taking responsibility for building and advancing the field of improvement research in education. Toward moving beyond aspirational visioning to concrete action, our approach to developing the Improvement Scholars Network has been through joint work aimed at yielding tangible artifacts that represent the breadth and depth of improvement research, the diversity of improvement researchers, and the commitment of members to a field-building agenda. Thus far, these efforts have engaged more than 200 colleagues in conference presentations, publications, and professional meetings.

This series of engagements notably included a structured poster session, "The Scholarship of Improvement: Building Community around an Emerging Tradition of Practice-Focused Research," at the 2019 American Educational Research Association's annual meeting. The session showcased 11 examples of improvement research detailing methods and measurement approaches supporting collaborative, continuous improvement; research-practice partnerships aimed at improving instruction, academic learning, and socioemotional learning; the application of improvement methods in districts, turnaround zones, and state education agencies; and shifts in federal policy establishing the context for all of the preceding. Two distinguished discussants, *Handbook* editor Bill Penuel and Jal Mehta, reflected on the collective contributions of the posters and provided commentary on productive avenues for further developing the field.

Another early collaborative activity of the emerging Improvement Scholars Network was the production of an *Oxford Bibliographies* series on continuous improvement in education. Don Peurach served as editor for this series, including 15 articles that index the research literature on topics related to continuous improvement in the United States and internationally. The articles are structured akin to annotated bibliographies that identify, organize, and briefly synthesize relevant research for each topic and include citations, summaries, and direct links for all cited research. The topics parallel those in this handbook, for example, foundations, contexts, approaches,

and methods of improvement research. Indeed, many of the articles from the *Oxford Bibliographies* series served as the foundation for chapters in this handbook.

Building on these initiatives, two professional meetings catalyzed the handbook project, organized by Don Peurach and Jennifer Russell in their roles as senior fellows with the Carnegie Foundation for the Advancement of Teaching. The first meeting, which engaged more than 30 colleagues in a day-long activity at the 2018 Carnegie Summit on Improvement in Education, focused on identifying domains of improvement scholarship. These domains of scholarship, in turn, served as the basis for developing a draft proposal for the sections and chapters of a foundational handbook for the field. The second meeting also engaged 30 colleagues in a day-long activity at the 2019 Carnegie Summit, which focused on workshopping and refining the handbook outline, and generating peer nominations for handbook authors and editors.

Coming out of the meeting at the 2019 Carnegie Summit, Peurach and Russell began to meet with colleagues that were nominated or self-nominated to serve on the handbook's editorial team. In a series of subsequent meetings in summer and fall 2019, the editorial team used artifacts and feedback from the meeting at the 2019 summit to further refine the design of the handbook, as well as to identify lead authors for each chapter. In pairs, members of the editorial team took responsibility for further refining the outline of chapters for each of the handbook's four sections, getting feedback from the broader team in follow-up meetings. We extended invitations to lead authors for each chapter, who subsequently identified collaborators and developed chapter abstracts. In a meeting at the 2020 Carnegie Summit, held virtually due to the COVID-19 pandemic, we engaged authors in a series of conversations aimed at accelerating authors' initial work on their chapters and creating opportunities for collegial feedback; building coherence within and between sections of the handbook and collective responsibility among authors; and positioning section editors and authors to further advance each section.

Aiming to enhance the quality of the handbook and further advance collegial engagement around its production, we activated a peer review process that had each chapter reviewed by one external reviewer (not a *Handbook* author) and one internal reviewer (author of another chapter). Reviewers attended to both the internal coherence, logic, and content of the chapters as well as their contribution to central cross-cutting themes such as "equity and inclusivity as goals for the work and outcomes of improvement research in education."

Authors subsequently revised their chapters based on reviewer feedback. As the chapters were finalized, the editorial team drafted introductions for each section, and the lead editors drafted the introduction and conclusion for the overall volume. Additionally, the editorial team shared central themes from their handbook sections in an interactive session during the Improvement Science SIG business meeting at the 2021 American Educational Research Association (AERA) annual meeting. During this session, we engaged more than 50 attendees in discussion of the ways that the handbook might be used by target audiences such as improvement researchers and students of improvement. These ideas ultimately informed the final section of this introductory chapter and will be used to plan subsequent engagements related to the handbook.

Given its roots in this extended, collaborative engagement process, we believe that the handbook represents the diversity of conceptions about what it means to do improvement research in education, as well as some commonalities across models. While we worked hard to manage this tension between shared commitments and interests on the one hand and representing a diversity of approaches on the other, it is likely that we did not capture the full range of active approaches in the field. Given the resources and access to networks of power necessary to engage in highly visible improvement research, we have probably overrepresented large, well-funded projects within research universities, and further work to organize the improvement research community should create connections with smaller projects and individual researchers embodying the same commitments. With these cautions in mind, we see the collaborative process undertaken to develop the handbook as an important strategic action in an effort to build a community of improvement researchers in education.

Scope of Improvement Research

An essential function of the collaborative engagement process was the need to grapple with what we mean by improvement research in education. A starting position in this need to define the improvement research terrain was to establish improvement research's primary aim as producing and using knowledge to address specific opportunities, needs, and problems grounded in specific practice and community contexts. This is not to say that improvement research does not also contribute to the field's capacity to addressing practical opportunities, needs, and problems in other contexts: This can be accomplished through development of knowledge and theory that contribute to the research base, and through the development and sharing of tools and routines that can be adapted to support improvement work in other settings (Henrick et al., 2017). Rather, by naming a primary focus on addressing practical opportunities, needs, and problems, sites of education practice and other learning contexts, such as museums and communities, become the primary contexts for the production, use, and refinement of practical knowledge. This feature of improvement research stands in contrast to traditional research enterprises undertaken in universities, labs/centers, intermediary organizations, and other enterprises where research and development take place, and where accountability is to peers in the research community or to funding agencies, rather than to people in schools and communities.

By focusing on practical opportunities, needs, and problems arising in practice-based contexts, the object of inquiry becomes core educational processes such as classroom instruction, after school programming, and counseling and mentoring, which are primary contexts for students' personal, social, and academic development. Improvement researchers productively engage in processes of negotiation with practitioners to arrive at a focus for joint work (Penuel et al., 2013). An opportunity, needs, and problem-centered orientation presses collaborating teams to begin by analyzing the systems and structures that shape practice in a particular context (Bryk et al., 2015). Further, as root causes and systems are interrogated, issues of equity and inclusivity are often illuminated (Hinnant-Crawford, 2020).

Improvement research, as described in this handbook, is characterized by coordinated, disciplined methods of iterative inquiry, design, implementation, and evaluation. The notion of working iteratively toward incremental systemic change is central to improvement research and often embedded in routines that organize cycles of design, intervention, and reflection (Cobb et al., 2018; Lewis, 2015). Typically, the work is participatory, with team members from different backgrounds contributing to multiple aspects of the work—design, testing, and evaluation of change. While the particular methods different models use vary, a common feature is that design and evaluation activities are tightly coordinated with one another, so that evidence from tests of innovations plays an integral role in informing iterative design. Finally, a systemic perspective is fundamental to improvement research: Building on the idea that every system is perfectly designed to produce the results it does, an important first step of teams is to come to see the system as it is and to imagine how it could be (LeMahieu et al., 2017).

Approaches to improvement research include design-based implementation research as enacted in research-practice partnerships (Fishman et al., 2013); improvement science as enacted in networked improvement communities (Bryk et al., 2015; Russell et al., 2017, 2019); interdisciplinary problem solving as enacted in long-term field sites (Donovan et al., 2013); and multi-method analysis and problem solving as enacted in research alliances (Moeller et al., 2018). While the social organization of these approaches vary, each is advanced through arrangements that bring researchers, educational professionals, community members, and other stakeholders together to understand and improve learning and development processes and outcomes.

While improvement research has a commitment to intervention and action, there is much to be gained through positive coordination with other traditions of educational research that aim to contribute to understanding the personal, social, and academic development of students. In other words, there is a lot of valuable education research that falls outside the improvement research paradigm. Learning research, often pursued through design-based research, explores what is possible in new domains of learning such as problem-based learning (Barron et al., 1998). Experimental research on teaching and learning interventions provides a guide for making thoughtful choices about what changes can be integrated and adapted into systems (Dynarski, 2008). More foundational studies grounded in the philosophy and history of education can help define what improvement goals are worth pursuing and locate equity and justice pursuits across scales of time and place (e.g., Moses & Chang, 2006). Descriptive and explanatory research on organizational and institutional processes is important, providing a lens for understanding the systems and structures that enable and constrain improvement efforts (e.g., Bridwell-Mitchell & Sherer, 2017). Consequently, it is crucial not to valorize improvement research to the exclusion of other critical domains and traditions of educational research.

A Member of the Collaborative Research "Family"

Improvement research as described in this handbook is collaborative in its approach, in that it conceptualizes the relation of research and practice as a "two-way street"

(Tseng et al., 2017). Today, most policies and incentives for research are centered on producing evidence and disseminating research to users like local policy makers and educators—a "one-way" street focused on translating research *into* practice. Improvement research conceptualizes the ways research and practice can inform one another differently—that is, as necessitating an ongoing, dynamic relation of research and practice. Bryk et al. (2015) describe the goal of such research as producing "practice-based evidence" grounded in an understanding of how to make powerful interventions and practices work under a wide variety of contexts. In such research, educators are fully engaged *alongside* researchers in developing, testing, and improving the work of supporting learning in educational organizations (Bryk, 2015).

The handbook explores different models of improvement research, in which the forms of collaborative research vary widely, as do the types of collaborators. Some adhere to improvement science methods as articulated by leaders at the Carnegie Foundation for the Advancement of Teaching (e.g., Hannan et al., 2015), while others use forms of design research centered in schools, districts, and communities (e.g., Meléndez et al., 2018; Stosich et al., 2017). Some collaborations involve a single practice organization partnered with a team from a single research organization. Others involve multiple kinds of organizations that either work within a single educational system (such as a district or state) or across many. The focus of the work varies widely as well, from fostering change to classroom practice to redesigning infrastructures for improvement across schools and districts. As Rutledge, Cannata, and Wellborn (this volume) argue in their chapter on principles that unite different models of improvement research, what is common is an assumption that improvement at scale requires collaborative engagement among researchers and practitioners.

One way of understanding what unites improvement research models is by viewing the different models as multiple members of a wider "family" of approaches to collaborative research. Treating different models of improvement research as sharing "family resemblances" (Wittgenstein, 1953) allows us to identify common, overlapping principles among those models. It also can help us identify some of the identities of particular models that might distinguish them from other members, either by the way they foreground particular commitments or principles, or how they organize research and development projects. And it allows for us to put advocates for and practitioners of different models of research into dialogue—much as we have done in developing this handbook—for the purpose of clarifying what particular models of improvement research are good for, their limitations, and their demands—in terms of human capacities, material resources, and ethical commitments.

As part of an earlier effort that informed this handbook, Penuel and colleagues (2020) describe some of the key features of a family of approaches that they call "collaborative research." The approaches reviewed included Carnegie-inspired improvement research, as well as the Strategic Education Research Partnership (SERP) approach (Donovan et al., 2003), design-based implementation research (DBIR; Fishman et al., 2013), and community-based design research (CBDR; Bang et al., 2016). Many of the overlapping principles that Penuel and colleagues identify are ones that are resonant with the scope of improvement research included in this volume. For example, they characterize this family of approaches to collaborative research as being

problem centered and attentive to context. In addition, this family shares the goal of developing knowledge that is of practical value to participants and their organizations and communities, as well as to systematic inquiry.

In addition to the definition above, their framework highlights two principles that complement those that framed this book, which will be seen in a number of chapters in this volume: (1) supporting the agency of participants in research and (2) giving accounts of the roles and contributions of partners. The first of these refers to the potential of collaborative research to expand the sense of possibilities for changing the systems in which participants are working toward ends of equity and justice (Campano et al., 2015). Participation as collaborators in core research activities is one vehicle for supporting the agency of participants, which in improvement research always involves some kind of action or intervention to bring about change. The second principle, giving an account of participants' contributions, is a corollary of the first principle. As Penuel et al. (2020) write, "it is not sufficient to assert that the research is participatory; communication about the research must provide explicit warrants for how the expertise of participants is reflected in the focus, process, and outcomes of research" (p. 648).

These are important principles because they highlight ways in which collaborative research can be both humanizing and accountable. Collaborative research inevitably involves some struggle and, if successful, the development of human capacities of participants in the direction of our shared commitments to change. In that sense, it can be humanizing in ways that Freire (1970/2000) and subsequent scholars have advocated (Paris & Winn, 2014). This is contingent, however, on the care enacted within collaborative research (Riedy, in progress). It also depends on relationships where partners are mutually accountable to one another, whether through closeness of individual relationships (e.g., Stamatis & Lee, 2021) or through political solidarity (e.g., Ishimaru et al., 2018). Still, what it means for improvement research to be "answerable" (Patel, 2015) to participants remains an open question, because institutional incentives and rewards for researchers are unrelated to accountability to schools and communities (Penuel et al., 2020).

Treating improvement research models as members of a single family has some important limitations. What can be lost are the unique histories of different models of collaborative research, which contribute to their diversity and also help explain why different priorities are central to practitioners of improvement research, and also account for relationships that exist among practitioners. For example, participatory action research (Whyte, 1989, 1991) is a long-standing tradition in social science, and some improvement research models incorporate it as an approach to interprofessional collaboration or youth-adult collaboration (see Penuel & Roberts, this volume). It has roots within sociology and community organizing, and it aims for democratizing research and social action. Other models of improvement research, such as improvement science, have their origins in industry and medicine, where the aim is not necessarily advocacy or transformation of systems, but optimizing work processes to achieve given aims. Advocates of each approach might rightly object to being characterized as belonging to a single family of approaches, given these different histories.

Even one commonly used name for collaborative research—research-practice partnerships (Coburn & Penuel, 2016)—does not encompass the full range of models

for collaborative research, much less improvement research. Research-practice partnerships certainly seek to embody the principles of collaborative research outlined by Penuel et al. (2020) in their commitment to mutualism and research that directly informs practice. But other scholars, whose work is centered more strongly in communities and their visions for justice, refer to collaborative research with such aims as "community research collaboratives" or as "community-engaged research" (York et al., 2020). These names signal not only commitments to community in general but also to particular marginalized communities' efforts to gain power and access to valued social, cultural, and economic resources. Such commitments are not evident across traditions of improvement research, though they provide an opening to consider whether and how they might become more central in improvement research in the future.

Equity and Justice in Improvement Research

Defining their work as focused on equity and justice is not something many people linked to improvement research have always done. Notably, in a conference poster session at the 2019 Annual Meeting of the AERA, a commentator noticed the absence of attention in particular to matters of race in improvement research (Mehta, 2019). That is not to say that improvement researchers have been unconcerned with matters of educational equity, such as the success of minoritized students in mathematics in both K–12 settings (Booth et al., 2015) and in community colleges (Yamada & Bryk, 2016). But equity and justice have not been "centered"—that is, brought into the spotlight and kept there throughout the research process. Depending on our own positionality, we may need to "de-center" our own perspectives to do so—both as individuals with particular social identities and in our roles as researchers, educators, or policy makers. Acknowledging our own positionality is crucial from the start of any improvement research project focused on a particular problem—because problem definition is deeply shaped by our location within the world (Hinnant-Crawford & Anderson, this volume).

Within improvement research, there are a variety of ways that scholars do take up issues of equity. For example, across different kinds of research-practice partnerships, nearly all partnerships define equity principally in terms of relationships among partners, seeking to share decision-making power among educators and researchers, but not all aim specifically for equitable outcomes for children, youth, their families, and their communities (Farrell, 2021). Those that do, however, vary in how they think of equity, with some highlighting the need for reduced achievement gaps, others emphasizing the need for equitable access to high-quality instruction (Cobb & Wilhelm, this volume), and still others who argue that what is needed is to integrate more culturally relevant teaching, address systemic issues such as poverty and racism, and partner more with marginalized student populations and their communities (Jabbar & Childs, this volume). Similarly, Campano, Ghiso, and Thakurta (this volume) argue that equal access to the same academic opportunities only results in equity when teachers challenge their own deficit thinking about students and work to become antiracist in their teaching.

There are examples presented in this volume and elsewhere of bringing equity and what it means to participants to the fore. The three cases of projects used to explore model variation in improvement research in the volume—the Chicago Alliance for Equity in Computer Science, San Francisco Unified School District's Lesson Study Initiative, and the Un Buen Comienzo networked improvement community—all center equity in their ongoing work from problem formulation to design and testing of innovations. Some have begun by focusing early efforts on generating shared understanding of and commitments to educational equity, as well as to working toward relationships of solidarity among partners that are grounded in politicized notions of trust. For example, in the California Tinkering Afterschool Network, researchers and educators in this design research partnership began their work by "coming to terms"—that is, coming to a common understanding of equity and what it would mean for their work (Ryoo et al., 2015). As Woulfin and Allen (this volume) argue, common understandings of equity are important to coordinating improvement efforts across levels of educational systems. Vakil et al. (2016) describe a design research project in which their team directly addressed the politics and power that exist within all collaborations between researchers and communities and pursued the development of *politicized trust* based on relations of solidarity among collaborators.

Just as equity is a term that can take on different meanings within improvement research in education, so can the term *justice*. To name three perspectives offered in the volume, Peurach et al. (this volume) present justice as that which results from effective pursuits of educational equity, where there has been equal voice and participation in defining and advancing quality. Hinnant-Crawford and Anderson (this volume) argue that pursuing justice requires working against assimilation into normative ways of thinking and acting. And Campano and colleagues (this volume) define justice in relation to "epistemic cooperation"—partners working together across boundaries of various kinds—ways of knowing, social worlds, and institutional structures. Justice, in this context, entails addressing epistemic oppression through both active listening and appreciation, as well as dismantling hierarchies of knowledge and forms of expression that limit our ability to hear and cooperate across divides. Justice can also mean attending to the fair distribution of educational opportunities (Oakes & Rogers, 2007), collective activity to open up possibilities for reimagining how and where learning takes place (Gutiérrez et al., 2020), and work toward Indigenous presence, sovereignty, and rematriation (Tuck, 2011).

For improvement research in education to become more equity and justice focused, scholars must engage with critical perspectives, argue Jabbar and Childs (this volume). Critical theories invite us to consider how improvement efforts—and improvement researchers—are embedded within interlocking, hierarchically structured organizations, institutions, and social systems that are organized principally to reproduce inequality (Stanton-Salazar & Dornbusch, 1995). They invite us to engage directly with issues of power, politics, and ideology, as well as the ways that interactions in organizations are raced, classed, and gendered (Kincheloe & McLaren, 2011). Critical theories invite us to deeper reflexivity about the purposes toward which we work and to greater appreciation for the power of systems to resist efforts to promote educational equity and justice. As Fishman and Herrenkohl (this volume) ask us to

consider, are we in improvement research about the work of "doing things better" or "doing better things"—that is, working toward transformation and not just improvement of systems? (Engeström, 2017).

In their chapter in this volume, Jabbar and Childs argue that critical theories are needed to help us understand different levels of the systems in which we are embedded: classroom, organizational, community, and policy. Their chapter describes several candidate theories that span the disciplines of learning sciences (e.g., Politics of Learning Writing Collective, 2017), organizational studies (e.g., Ray, 2019), geography (e.g., Tate, 2012), and critical policy analysis (e.g., Kincheloe & McLaren, 2011). The chapter in this volume by Hopkins et al. gives us a sense of what this can look like in practice, applying a critical approach to social network analysis to reveal the operation of power in networks and to describe how inequities are both reproduced and challenged within a cross-community collaborative in environmental education.

There are important implications of centering equity and justice in improvement research in education for both how we organize ourselves and for the purposes we work toward. In cultivating trust and relationships, partnerships can attend to equity by addressing historical imbalances of power among participating individuals, organizations, or communities. In supporting the aims of practice and community partners, partnerships can attend to equity and justice by defining and pursuing goals that reflect the concerns of stakeholders with historically limited social power. And as part of their work, partners can come to shared agreements about how findings will be shared and with whom, with specific attention to the concerns of those with historically limited social power.

Tensions in Improvement Research

All design involves competing goals that must be balanced. That is to say, improvement research—insofar as it involves the design of innovations and infrastructures—involves wrestling with design tensions (Tatar, 2007). These tensions arise from the fact that there are inevitably multiple goals and values to be brought into relationship with one another in design. They also arise from the fact that all design must wrestle with existing infrastructures—it does not take place outside the very systems that design is intended to change (Star & Ruhleder, 1996). Because improvement research in education is fundamentally concerned with changing educational systems, the specific sociopolitical and historical dimensions of schooling and the relationships of schools to society are a key source of design tensions with which the authors of these chapters and project teams have engaged.

GOALS OF IMPROVEMENT AND TRANSFORMATION

A key design tension within improvement research is one related to considerations of equity and justice—namely, balancing the goals of working toward *improvement* and *transformation*. Improvement research is often driven by a pragmatic concern with

implementing a highly specified change to work practice and doing so in a way that is measurable and within a specific time period (Bryk et al., 2015). Such work necessarily operates within existing systems as they are seeking leverage points where small changes can effect more broadscale change over time.

A number of scholars in this volume and in the field more broadly call for a more radical transformation of systems, rather than improvement. They call attention to the need to fundamentally rethink institutions of schooling that have ill served Black and Indigenous students, immigrant students, students with disabilities, among other communities of students. Many express skepticism that a system that is "perfectly designed to get the results it does" and that systematically produces failure for these groups of students, or seeks their cultural erasure, can ever be reformed (e.g., Dunn et al., 2021).

These different goals can be in tension with one another. When they are in tension, they lead teams to consider important questions about who is at the table defining the problems to be solved and aims of improvement research, how the work is organized, and to whom the work is accountable. It also raises questions about where work should take place inside, alongside, or outside existing institutional structures, as well as about which existing structures to work within and which structures to challenge.

PROMOTING RELIABILITY OF OUTCOMES AND SUPPORTING AGENCY OF IMPLEMENTERS

Values are also a source of design tensions when they come into conflict with one another in the context of building partnerships and establishing concrete goals for joint work. An enduring tension is between valuing "reliability" in outcomes of innovations and "supporting the agency of participants." Underlying the concern for reliability is an important value: ensuring that the benefits of an innovation are realized by all who are expected to benefit, no matter who they are or where they happen to experience that innovation. Getting to reliable outcomes is a key aim of certain continuous improvement models, such as Six Sigma (LeMahieu et al., 2017), and it is behind enduring concerns about implementation fidelity (O'Donnell, 2008). A concern with reliability is present even in the ideals of implementation integrity (LeMahieu, 2011) and adaptive integration (Hannan et al., 2015), where there is concern for the need of implementers to adhere to the key principles of a designed intervention in order to realize its benefits.

At the same time, improvement research values supporting the agency of participants in making adaptations to innovations they deem necessary (e.g., Buxton et al., 2015). Supporting the agency of participants is valued for different reasons by different improvement researchers: it acknowledges the need for any innovation to be customized to its institutional context and to the students being served; it builds support among implementers for its spread; and it recognizes that implementers should have a say in the ways that innovations they are expected to implement are enacted.

These values can come into tension with one another in the context of specific improvement projects at different points. For example, when preparing teachers to

implement an innovation, should the goal be to promote fidelity of implementation, or productive adaptation (DeBarger et al., 2013)? And when designing an intervention, should it be fully specified ahead of time, or should innovations be purposefully "under-designed" so as to support the agency of participants in completing them (Downing-Wilson et al., 2011; Fischer, 2009)? And when studying implementation, whose perspectives should be privileged, those of designers or those of the actors who implement them (Penuel et al., 2014)? These are enduring tensions that improvement projects must navigate.

ROLE FLEXIBILITY AND ROLE CLARITY

A third recurring design tension within improvement research pertains to roles. On the one hand, role flexibility is highly valued within improvement research (Coburn et al., 2013). Seeing everyone as "an improvement researcher," committed to and involved in all aspects of the work, is valued because role flexibility embodies the idea that everyone brings relevant expertise to solving complex educational problems. Flexibility in roles also can support learning within a community of practice, by helping people see how different activities fit together (Laferrière & Gervais, 2008). At the same time, role clarity is also a key value within improvement research, where people work within defined roles to contribute in ways that are transparent to everyone on a team (Penuel et al., 2007). Further, when there is role ambiguity or role confusion, partnerships can founder without explicit negotiation of roles (Farrell et al., 2019). When people are simply expected to pitch in without clear roles and compensation, much work remains invisible and goes unrecognized and uncompensated, creating conditions for exploitation of participants in improvement research. This particular tension is relatively enduring, because of the long-standing divisions of labor between research and practice, which are reflected in the different incentives and rules of researchers' and practitioners' respective organizations (Lagemann, 1997).

BUILDING EXPANSIVE NETWORKS AND REDESIGNING INFRASTRUCTURES

Another pair of goals that can come into tension are the impetus to create expansive networks of people and organizations focused on a common improvement aim and the need to redesign infrastructures within a single educational system. Creating networks is a core activity within many models of improvement research, specifically networks focused on the "improvement of improvement"—that is, on improving how we go about the work of improving systems (Bryk et al., 2015; Russell et al., 2017). Such networks are built around a shared goal or common problem, and they bring in relevant expertise from different disciplines and contexts as needed to support the work (Bryk et al., 2011). Most of them, moreover, span organizational boundaries, and some spread across vast distances as well (e.g., Hannan et al., 2015). The benefit of an approach is that networks that cross organizational boundaries can facilitate the

spread of innovations (Greenhalgh et al., 2004) and address problems of limited access to resources and expertise within public sector organizations (Weber & Khademian, 2008).

Some models of improvement research prize the design and redesign of existing infrastructures within systems. As an example, in design-based implementation research (DBIR; Fishman et al., 2013), teams often work to redesign instructional guidance infrastructures within districts and states, so as to support particular visions for teaching and learning. A key goal in this work is to create guidance systems that give consistent support for teachers and ones that support equitable implementation of innovations (see, e.g., Hall et al., 2021; Penuel et al., 2018). A potential advantage of infrastructure redesign is that it establishes a way to sustain particular innovations within a system, particularly when those innovations are codesigned (Bakah et al., 2019; Bødker et al., 2018).

There are trade-offs in each approach, which is why the goals of network building and infrastructure work can be in tension in improvement research. On the one hand, outside expertise can be a valuable resource for innovation and change, but it is not readily available to make on-the-spot decisions that matter and that might benefit from situated judgment of an outsider as a co–problem solver. In addition, for any system actor, the ability to make use of that expertise depends on their organization's ability to absorb and make use of the knowledge of outside experts (Farrell & Coburn, 2017). Working inside the system with available expertise can be more sustainable but, like many closed networks, can hinder innovation due to interlocking relationships among people, processes/routines, and policies that tend to reproduce existing systems.

Handbook Structure

The handbook is divided into four major sections. The first section ("Foundations of Improvement Research in Education") introduces five foundational ideas that inform improvement research in education—work, learning, schooling, democracy, and equity—and explicates theories that help improvement scholars conceptualize these big ideas. By making connections to social science and learning theories, we see how improvement research extends from and contributes to deep scholarly traditions that explain how learning is embedded in social relations and institutionalized structures of schooling, and how collaborative improvement work can be productively organized. We also gain inspiration for the ways that improvement research can contribute to more just, equitable, and democratic education systems by imagining new possible relationships among researchers, educators, and communities. In so doing, the section demonstrates the "deep, broad, and tangled roots" of improvement research and provides a theoretical toolkit for conceptualizing improvement research projects.

The second section ("Contexts of Improvement Research in Education") addresses the "where" of improvement research—that is, the multiple, interdependent contexts in which improvement research in education is enacted and on which it focuses. By marking that improvement work is embedded in and shaped by school, district/

intermediary, community, and policy contexts, this section's chapters raise important questions about whose knowledge is recognized and valued, how to build systemic capacity to mobilize practice- and community-based knowledge, and the ways that innovation and improvement agendas are driven by political interests, initiatives, and movements. The section concludes with a critical examination of the extent to which improvement research in education in and across these contexts is living up to its aspirations for equity and inclusivity.

The third section ("Mapping Improvement Research in Education") gets to the heart of improvement research by exploring different models and attending to both what they have in common and what makes them distinct. The chapters unpack four defining principles: improvement research focuses on solving practical problems, engages multiple stakeholders, is anchored in evidence and inquiry processes, and takes place in dynamic social and political contexts. Each chapter explores how the defining principles are enacted in cases that represent varied models, including a networked improvement community, a design-based research-practice partnership, and lesson study. This deep attention to the pursuit of common values in the cases enables critical points of variations in practice to come into focus with respect to focal problem definition, the social organization of improvement enterprises, and the way inquiry processes are designed and enacted.

Finally, the fourth section ("Designs, Tools, and Methods for Improvement Research in Education") addresses the practice of improvement research, offering up some of the specific methods used to operationalize core principles of improvement research with an eye toward innovation. The section does not aim to comprehensively map the specific methods employed in improvement research, given it is a highly diverse space methodologically. Rather, the chapters spotlight innovative methods that are particularly well suited to support evidence generation for inquiry processes that are problem driven, collaborative, and aimed at building more just and equitable education systems.

Audiences for the Handbook

With our twin goals in mind—establishing the foundations and key attributes of improvement research as a form of scholarship and catalyzing the formation of a defined community of improvement researchers—we see many audiences that can make productive use of the handbook. Practitioners of improvement researchers will find this handbook useful as they articulate the rationale for engaging in this form of scholarship. As improvement research breaks from traditions of experimental design and researcher objectivity, it is important to have strong arguments for the value and legitimacy of this way of organizing research enterprises. The chapters in the first section describe some of the theoretical roots of this emerging tradition and will be particularly helpful in grounding arguments for improvement research in a broad interdisciplinary set of concepts, approaches, and methods with longer histories such as community-engaged research, sociocultural learning theory, organizational theories, and pragmatist philosophies.

Scholars engaged in improvement research can also gain inspiration for ways to design and organize their inquiry approaches and selection of research methods. Section III outlines the commonalities and variations in approaches to improvement research, ranging from design-based implementation research, improvement science, and community-based design. And section IV explores a discrete set of methodological approaches and tools that address key issues in improvement research such as solidarity-driven codesign as a methodology for engaging familial and community expertise, and critical social network analysis as a method for examining how power is embedded in networks of social relationships. In this way, the handbook is a resource for improvement researchers aiming to further hone or expand their practice.

As improvement research is an emergent field, it is also important that scholars study the novel forms of organizing educational research enterprises recognized as improvement research. Consequently, the handbook is intended to support the work of *scholars of improvement research* by providing a volume to locate and extend their scholarly contributions. Several of the contributions, particularly those in sections II and III, include a disciplined examination of cases of improvement research. For example, in chapter 7, Cobb and Wilhelm present five projects in education that exemplify joint attention to what it takes to investigate and support improvement in classroom teaching and learning at scale. And all four chapters in the third section analyze the same three cases of improvement research, representing different approaches and models. Building the field will require robust dialogue and innovation in research methodologies to support ambitious improvement aims and collaborative engagement with schools and communities.

Other primary audiences include *teachers and students of improvement research*. We present the handbook as a resource for professors who can utilize the volume in formal training programs aimed at preparing the next generation of improvement scholars and scholarly practitioners. The comprehensive nature of the volume—covering theoretical underpinnings, critical contexts, approaches, and methods—presents a structure for potential graduate courses and a foundation for joining a scholarly community committed to improvement research. Examination of rich cases of improvement research throughout the volume provides a concrete opportunity for students to learn about organizing and practicing improvement research. And students can utilize the compiled references and structure of each chapter as an entry point for engaging with a rich and varied literature that frames and presents the emerging improvement research field.

In addition to these primary audiences, further building the field of improvement research, will require the development of a supporting ecology of practice, policy, and philanthropic actors. By field building we refer to the structures, legitimacy, and momentum catalyzed when a critical mass of organizations engage in interdependent improvement activity. For example, Peurach and Cohen-Vogel argue in the concluding chapter of this volume that policy actors can support the institutionalization of improvement research by creating incentives for K–12 districts and schools to engage in practice-focused continuous improvement. Philanthropic organizations can contribute by framing discourse, setting agendas, allocating resources, and catalyzing improvement research activity. We hope that the handbook will inspire funders and

policy actors to recognize this as a field worthy of investment and infrastructuring, and provide further grounding for a growing community of improvement researchers in the field of education.

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CHAPTER 21

Conclusion

BUILDING THE FIELD OF IMPROVEMENT RESEARCH IN EDUCATION

Donald J. Peurach and Lora Cohen-Vogel

We conclude this volume by returning to its purpose: building the field of improvement research in education. At the time of this writing, this is work in which the invisible college that we call the Improvement Scholars Network is actively engaged. This is work in which others invested in improvement research are engaged, as well: the Carnegie Foundation for the Advancement of Teaching, the National Network of Education Research Practice Partnerships, the Strategic Education Research Partnership, and the Bill and Melinda Gates Foundation, among others.

Indeed, since the early 2010s, we have participated in no small number of convenings among researchers, educational professionals, and policy actors where all in attendance nod in agreement at the ambition of "building the field." After all, the idea presents as straightforward and commonsensical: that there is an imperative in public education to develop and advance disciplined approaches to collaborative, continuous learning and improvement at a large scale; that doing so is beyond the reach of any single organization and, instead, will require a community of organizations working in coordination; and that cultivating and coordinating this community will require leadership and agency among a subset of its members.

Yet for all of this nodding agreement, the concept and ambition of "building the field" remain surprisingly soft. These gatherings have proceeded largely absent explicit, consensus understandings of what "building the field" might mean and what it might take.

One consequence is that it often is not clear what different people mean when they say, "the field" or "building the field"; why they view "building the field" as important; or what they hope to accomplish by doing so. Another consequence is that people often talk past each other, absent recognition that they are using the same words to talk about different things, for different reasons, and with different motivations. Yet another consequence is that the type of collective, coherent, intentional action suggested by the commonsense notion of "building the field" never fully materializes.

Thus, we do not conclude this volume in the customary way: by reviewing the chapters and nominating an agenda for future research. The section summaries throughout the volume carry much of that load. Rather, we conclude this volume by more fully explicating its purpose: building the field of improvement research in

education. One aim is to bring further form and discipline to broader field-building conversations and efforts, in hopes of channeling growing enthusiasm and commitment in positive directions. Another aim is to strategize about further organizing and positioning the Improvement Scholars Network as a leader and vested collaborator in these conversations and efforts.

We develop our perspective by tacking among three sets of sources. The first is the collection of perspectives on field building represented in this volume and its antecedent, a series of articles on continuous improvement in education published in the *Oxford Bibliographies* in 2020 and 2021 (Peurach, 2021).[1] The second is organizational research on institutional fields, drawing heavily on current syntheses (e.g., Greenwood et al., 2017; Lawrence et al., 2009; W. R. Scott, 2013). The third is practical guidance for field building advanced since the early 2010s by leading philanthropies, consultants, and nongovernmental organizations (NGOs), much of which elaborates central themes and principles introduced by Kania and Kramer (2011) in their seminal article on collective impact.

We begin with an examination of the cause: that which gives rise to, motivates, and warrants building the field of improvement research in education. We continue by reframing the notion of a single, monolithic field of improvement research as three nested *fields* of improvement research, each engaged in essential, analytically distinct activity aimed at advancing the cause. We then discuss field building as work enacted by multiple actors within and across these three fields to build membership, guide collective action, and structure interaction.

If not already apparent, our perspective is that the concept and ambition of building the field of improvement research in education is anything but straightforward and commonsensical. But neither is it so complicated as to be intractable and immobilizing. We close, thus, by considering the implications of our analysis for further organizing and positioning of the Improvement Scholars Network.

The Cause

Again, we begin with the cause: that which gives rise to, motivates, and warrants field building. In practical guidance on field building, the cause is often framed as a "wicked problem" (Rittel & Webber, 1973) or complex issue of obvious social importance, the solving of which functions as a common goal and drives the development of a common vision and agenda for change (Farnham et al., 2020; James Irvine Foundation, 2009; Kania & Kramer, 2011). In organizational research on institutional fields, the cause is often framed in terms of interdependent practical activity that draws organizations into patterned relations and through which they make meaning, be it by producing categories of products, providing categories of services, or tackling complex issues (DiMaggio & Powell, 1983; Greenwood & Suddaby, 2006; W. R. Scott, 2013).

The cause is that with which diverse and independent organizations identify, thus establishing boundary conditions: which organizations are in, and which organizations are out (Cohen-Vogel et al., 2018; Laumann et al., 1983; Ogawa et al., 1999; Pfeffer & Salancik, 1974). Among those that are in, the cause is beyond the reach and

control of any single organization, thus establishing interdependence among them and motivating their interaction. The cause is also a frame through which broader society apprehends and values these organizations and their interactions, and accords their collective activity legitimacy, resources, and influence (or not).

The cause that motivated this volume is the development, advancement, and institutionalization of improvement research in education, such that it is integral to the culture, function, and political structure of public education in the United States and beyond. As conceptualized throughout the volume, improvement research is

- grounded in practice and community contexts;
- focused on aspirations, needs, and problems in educational practice and communities;
- characterized by the production and use of practical knowledge through formal, iterative methods of inquiry, theorizing, design, implementation, and evaluation; and
- advanced using novel organizational forms in which researchers, educational professionals, community members, and/or other stakeholders collaborate to understand and improve classrooms, schools, systems, and other learning contexts.

Thus conceptualized, improvement research in education sits within the broader collection of approaches to continuous improvement that enjoy currency within and beyond the education sector, some of which involve the engagement of researchers and others that do not.[2] Common among them is a central focus on practice-focused, practice-grounded knowledge production and use.

Yet, as many contributors to this volume have noted, integrating improvement research into the culture, function, and political structure of public education in the United States, let alone globally, is a complex issue crossed by multiple, complex problems. Among these problems are historical differentiation, competition, and balkanization among proponents of improvement research in its various guises; the lack of legitimacy as compared to more established traditions of educational research; and broader perceptions of improvement research as niche, faddish, and marginal among many in academic, policy, and professional communities (Peurach, 2016; Peurach et al., 2018).

These problems have motivated efforts within the Improvement Scholars Network to conceptualize improvement research in ways that both represent it as a big tent under which to gather and establish its broader legitimacy: a *common* cause with which many disparate and potentially kindred actors would identify, associate, and engage jointly, cast in language that conveys commitments to rigor and democratic engagement valued in academic, policy, and practice contexts.

Both in practical guidance and organizational research, this commonality, mutuality, and shared purpose are foundations and hallmarks of field building. By that measure, the production of this volume and its antecedent, the *Oxford Bibliographies* series on continuous improvement, are markers of progress. These initiatives drew more than 75 diverse scholars into collective engagement, from graduate students to full professors spanning academic disciplines and identities, with the shared purpose of conceptualizing, making meaning of, and legitimizing improvement research in education.

Yet foregrounding commonality, mutuality, and shared purpose is not to mask the flip side: Fields and field building are also contexts for disagreement, contention, and influence-garnering, as individuals and organizations debate the terms of shared issues, compete for resources, and seek power (Fligstein & McAdam, 2012; Hinings et al., 2017). Indeed, developments in organizational research have featured a recent focus on the ways in which institutional fields are often characterized by plural perspectives, motivations, and aims among organizations, federations, and networks (Kraatz & Block, 2017; Lawrence et al., 2009). These organizations, federations, and networks, in turn, are often bound by different *logics*: systems of understandings, beliefs, values, and practices that justify perspectives, provide meaning, and structure reasoning and action (Alford & Friedland, 1985; Friedland & Alford, 1991; Thornton & Ocasio, 2008; Thornton et al., 2012).[3]

These different logics can be more or less legitimate and viable. They can be more or less contentious and complementary. Differences among them can be resolved justly, in ways that establish and advance consensus understandings, motivations, and aims. They can be resolved unjustly, in ways that privilege the understandings, motivations, and aims of a few, especially those with uncommon position, power, and resources. And they can remain unresolved, and ongoing sources of disagreement and contention.

From this perspective, then, to gather around a common cause is to occasion complexity. That has been the case with the myriad convenings to which we allude in the introduction of this chapter. That has been the case with production of this volume and the *Oxford Bibliographies* series. To say that these initiatives drew many disparate actors into collective engagement is not to say that they obviated differences among them. To the contrary, these initiatives created spaces in which to speak those differences, with different contributors drawing on different logics for developing, advancing, and institutionalizing improvement research. These logics can be understood as complementary, and not necessarily conflicting: a web of rationales and warrants, stronger together. Yet they are distinct and, thus, possibly competing for priority in inducing membership, legitimizing interactions, and garnering resources and influence. These include the following:

- A *technical* logic. This logic holds that institutionalized national education research-and-development infrastructure in education privileges basic science; that it is thus disconnected from the practical work of classrooms, schools, and districts; that new approaches to practical problem solving anchored in principles of distributed, coordinated design and engineering hold greater promise for improving educational quality and reducing disparities; and that advancing these approaches will require new, national-level infrastructure to support the large-scale production and use of practical knowledge.
- A *professional* logic. This logic holds that the work of classroom instruction is contextualized deeply in specific organizations and communities, and anchored in endemic uncertainty and complexity; that managing endemic, context-specific uncertainty and complexity is only partially served by general scientific knowledge and externally provided resources; and that filling that gap will require developing

and supporting teachers and leaders, as professionals, in collaborating in the local production, use, and exchange of practical knowledge.

- An *egalitarian* logic. This logic holds that, by design, primary responsibility for educational innovation and improvement is delegated to (and distributed among) communities, districts, schools, and classrooms; that this is consistent with democratic principles underlying US public education; that capabilities for such work are widely assumed but generally weak and inequitably distributed; and that new sources and layers of policy support and technical assistance are needed to empower families, community stakeholders, educational leaders, and teachers to collaborate in leveraging new approaches to disciplined, place-based, practice-grounded knowledge production and use.
- An *open systems / world systems* logic. This logic holds that an information and knowledge revolution is spanning and crossing disciplines, sectors, and the globe; that integral to this revolution are new technologies and methods for the widely distributed, socially coordinated production, use, and exchange of knowledge; that this revolution has profound implications not only for the meaning of "public education" but also for the pursuit of innovation and improvement in public education; and that accelerating and spreading these developments globally will require bridging between (a) education and other sectors and (b) national education systems.
- A *moral* logic. This logic holds that the function of public education is to equalize social, economic, and political opportunity and engagement; that inequity and injustice have been rife in public education and in broader society since the nation's founding and have been institutionalized as the two have coevolved, thus disempowering and marginalizing many students, families, and communities; that educational innovation and improvement, thus, must privilege equity and justice both as means and ends; and that one primary means is via inclusive, participatory approaches to the production and use of knowledge.

One could argue that the preceding list misrepresents or understates the range of logics spanning this volume and the *Oxford Bibliographies* series, or that the logics as represented confound two or more logics that could otherwise be considered distinct. But to argue this position is to make our point: There is much more to gathering around the cause of developing, advancing, and institutionalizing improvement research in education than meets the eye. Even if the cause is common, the understandings, motivations, and aims of those supporting it are many. Differences of this sort could be interpreted as a rich resource from which to forge collective understandings, motivations, and aims. Differences of this sort could also be interpreted as symptomatic of designed fragmentation and resulting incoherence in US public education—and an endemic pull against which field-building efforts will forever be in tension.

The Field(s)

Our consideration of the cause provides grist for imagining the "field of improvement research in education." In broad strokes, this would be a group of individuals

and organizations that identify with the cause of developing, advancing, and institutionalizing improvement research in education; that see themselves as having a role and a stake in doing so, and as expecting a return; and that collaborate with some level of coordination to legitimize improvement research broadly, to secure resources and influence, and to represent (and advocate for) improvement research beyond the group. Subsets of these individuals and organizations would hold different logics by which they understand improvement research and work to advance it; pursue their own interests alongside the collective interest; and compete for influence, legitimacy, and resources.

Indeed, one trick to the business of field building is to acknowledge that, among other things, it is an exercise in imagination: in other words, an exercise in transcending the "paradox of embedded agency"; shedding the cognitive, normative, and regulative constraints of the status quo as internalized and as externally reinforced; and using evidence, ideas, and reason to fashion a sense, schema, or blueprint of what does not yet exist, but might (Garud et al., 2007). In further imagining the field of improvement research in education, different sources—this volume and the *Oxford Bibliographies* series, practical guidance for field building, and organizational research—give us different purchase.

For example, just as organizational research reminds us that many institutional fields feature multiple logics, it also reminds us that fields are often overlapping and embedded within other fields and, thus, function in dependent and interdependent relationships. One possible configuration leverages the metaphor of Russian dolls to represent smaller collectivities as nested within larger collectivities that are, in turn, nested within still-larger collectivities, with different domains or categories of activity the focus of collective engagement among different actors at different levels (Fligstein & McAdam, 2012).

Reading across this volume and the *Oxford Bibliographies* series, and minding our positions as US-based scholars, the notion of embedded fields and the nested "Russian dolls" metaphor have us further imagining the field of improvement research in education not as monolithic but, instead, as three distinct fields: an *academic field* of improvement research; a national *policy field* of improvement research; and a *global field* of improvement research. Each of these fields would be characterized by categorically different practical pursuits that draw different organizations into relation to develop, advance, and institutionalize improvement research (specifically) and continuous improvement (broadly).

From our position as researchers in the United States, we imagine these three fields both as nested and as in reciprocal relationship, with influence flowing both out (from the academic field to the national policy field, and from the national policy field to the global field) and in (from the global field to the national policy field, and from the national policy field to the academic field). These nested relationships also have us imagining boundary-spanning organizations, federations, and networks that have representation in two or more fields, and that function to represent, translate, interpret, and negotiate among them.

The *academic field* would establish and sustain improvement research as a legitimate academic endeavor. This academic field would elaborate the theoretical and

philosophical principles of improvement; develop improvement approaches and methods and leverage them in practice contexts; provide professional and continuing education for researchers and practitioners; establish quality criteria and standards for the design, conduct, and dissemination of improvement research, as well for professional and continuing education; and establish journals, conferences, and other means of sharing knowledge, building collective identity, and engaging in debate.

This academic field would enlist (or require the creation of) one or more organizing bodies (i.e., academic societies or associations), as well as universities (and their departments and programs), publishers, funders, and accrediting bodies. It would also enlist academic societies or associations from other disciplines and fields that identify with some conception of practice-focused, practice-grounded continuous improvement.

The *national policy field* would integrate practice-focused, practice-grounded continuous improvement into the broader K–12 public education enterprise in the United States, with improvement research being one category. This policy field would provide incentives and funding for districts and schools to develop capabilities and to leverage support for practice-focused, practice-grounded continuous improvement; technical resources and sources of technical assistance for K–12 districts and schools; quality standards, both for district and school improvement initiatives and for providers of technical resources and assistance; and sources of operating, intellectual, and human capital to support all of the preceding.

This national policy field would include the academic societies and associations sketched earlier. It would also enlist (or require the creation of) associations of K–12 educational professionals and other interest groups, government agencies (federal, state, and regional), philanthropies, commercial organizations, quasi-governmental organizations (e.g., federally funded educational laboratories and centers), nonprofit organizations, local districts, and improvement networks.

The *global field of educational improvement* would legitimize and advance practice-focused, practice-grounded continuous improvement cross-nationally. After all, as represented in this volume and the *Oxford Bibliographies* series, improvement research is being developed and advanced in multiple national contexts, in interaction with global phenomena beyond the education sector (none the least of which is the information and knowledge revolution).

This global field would include representation from the academic society/association of improvement research as imagined above (and developing it as an international organizing body), as well as from leading national policy fields beyond the United States that are also organizing in ways that support improvement research. It would also include representation from global policy elites and think tanks with the legitimacy, convening power, and resources to establish a cross-national agenda and to influence international education development and reform, both established (e.g., the World Bank, the Organization for Economic Cooperation and Development, and the United Nations Educational, Scientific and Cultural Organization) and emerging (e.g., organizations leveraging information technologies to influence and advance K–12 and higher education cross-nationally, chief among them being leading online program management firms).

With these three fields in mind, we turn our imagination toward envisioning the fundamental, underlying conditions, resources, and structures needed for them to function alone and together to advance the cause of improvement research (specifically) and continuous improvement (generally). In organizational research, practical guidance, and prior scholarship on improvement research, this matter has been framed in terms of establishing *institutional infrastructure* (Bryk, 2009; Farnham et al., 2020; Hinings et al., 2017; Kania & Kramer, 2011; Peurach et al., 2018; Van de Ven et al., 1999).

Synthesizing across these sources, we imagine this infrastructure developing along three dimensions: (1) representation and participation among categories of actors that, together, have the collective will, capabilities, and resources to advance novel solutions to complex social and technical problems; (2) "connective tissue" that draws members into relation, both informal (e.g., social networks and affinity groups) and formal (e.g., events, media, communication platforms, contracts, and shared work); and (3) governance structures that support productive collaboration, capture consensus, and balance the pursuit of individual and collective interests, both informal (e.g., norms, values, and moral dispositions) and formal (e.g., certification, standards, incentives, and sanctions).

On the matter of representation and participation, our reading of organizational research and practical guidance on institutional fields has us imagining six categories of actors as of particular importance in and across each of our three fields:

- Membership organizations (e.g., academic societies, professional associations, and industry groups) that draw subsets of actors into relation, build consensus on research priorities and standards of practice, establish agendas, and represent and assert collective interests.
- Advocacy organizations that gather, represent, and give voice to those directly experiencing the problems and issues that animate the cause, and that are often marginalized and excluded.
- Philanthropies that set agendas, frame discourse, allocate resources, and catalyze activity.
- Government organizations that engage and represent plural interests, serve as loci of contention and debate, have the legitimacy and power to make and enforce decisions, and marshal public resources.
- Thought leaders (e.g., think tanks, institutes, and consortia) that engage in and support visioning and discourse that challenge the status quo and encourage alternatives.
- Independent "backbone organizations" (Kania & Kramer, 2011) accorded widespread legitimacy and whose sole purpose is to forge coordination, cooperation, and transparency within the field.

We do not imagine these three fields as emerging quickly or without challenge. As countercultural developments in plural, fragmented, and incoherent policy contexts, we imagine that they will form over decades along a progression suggested by practical guidance and organizational research: from a current emerging stage characterized by low membership, uneven participation, and variety in understandings and agendas; to

a forming stage characterized by increasing membership and engagement, collective agenda development, and broader investment; and, from there, to a sustaining stage characterized by full membership, elaborated and adaptive infrastructure, and broader recognition and legitimacy (Farnham et al., 2020; Hinings et al., 2017; Van de Ven et al., 1999).

Building

Our analysis thus far is hopeful: this image of an academic field, national policy fields, and a global field structured and working synergistically to develop, advance, and institutionalize improvement research in education (specifically) and continuous improvement in education (generally). Our analysis is hazy. Admittedly, images begin to blur in progressing from an academic field to national policy fields to a global field. And our analysis is honest. Focusing as keenly as possible on one or all of these fields, they are clearly in the earliest stages of formation and facing formidable challenges in developing further.

Even among proponents, these challenges might appear sufficiently daunting that stepping back from them would be understandable, on the assumption that they would somehow work themselves out. After all, as recounted throughout this volume and the *Oxford Bibliographies* series, some of the strongest influences pressing for improvement research and continuous improvement in education are from outside the education sector: some centuries-old (e.g., public education as integral to nation building, with educational access, quality, and equity as enduring policy priorities); some more recent (e.g., the rapid onset of the global information and knowledge revolution, and its societal consequences); and none showing signs of easing in the foreseeable future. Under such conditions, organizational researchers might predict that these fields would form and gain structure organically, both through the micro-level actions and interactions of individual organizations as they co-engage improvement research and through macro-level processes of diffusion and isomorphism.

Yet there is much in the history of public education in the United States and beyond to suggest that all will not necessarily turn out well, or equally well for all, or well at all for many. As captured in accounts of education reform throughout this volume and its antecedents, advancing new ambitions and visions in plural policy contexts amid countervailing institutions has taken leadership and work exercised in and across multiple levels of the public education enterprise over time: stepping up, not back.

This is the *building* in building the field(s) of improvement research in education: the assumption of leadership and the exercise of agency in directing, guiding, and accelerating the development of these fields from emergent to forming to sustaining, in ways that thread a steady through-line amid multiple logics, plural policy contexts, and countervailing institutions. These—the assumption of leadership and the exercise of agency—are the primary focus of practical guidance on field building, a keen focus of organizational research on institutional fields, and essential for building nested academic, national policy, and global fields of improvement research in education.

One specific dimension of this organizational research centers on *institutional entrepreneurs*: "actors who have an interest in particular institutional arrangements and who leverage resources to create new institutions or to transform existing ones" (Maguire et al., 2004, p. 657).[4] Institutional entrepreneurs can be individuals, organizations, formal collectives (e.g., associations, interest groups, and networks), and informal collectives (e.g., social movements and coalitions). They operate in their own interests and in ways that advance the collective. They can leverage political, financial, material, organizational, and cultural resources, as well as rhetoric, argument, evidence, and knowledge. They can be organizations with power, status, and position (e.g., the membership organizations, advocacy organizations, philanthropies, government agencies, thought leaders, and backbone organizations mentioned previously), as well as marginal organizations and movements with limited power and status but strong incentives to challenge the status quo (Martí & Mair, 2009).

What distinguishes institutional entrepreneurs from other actors in a field is their leadership and agency in *institutional work*. Such work is framed in strategic terms, as "the purposive action of individuals and organizations aimed at creating, maintaining, and disrupting institutions" (Lawrence & Suddaby, 2006, p. 215). It is also framed in more pragmatic terms, as "the efforts of individuals and collective actors to cope with, keep up with, shore up, tear down, tinker with, transform, or create anew the institutional structures within which they live, work, and play, and which give them their roles, relationships, resources, and routines" (Lawrence et al., 2011).[5]

Institutional work can vary in its substantive focus. For example, it can include *technical* work focused on developing capabilities and improving performance; *cultural* work focused on both establishing and challenging norms, values, and beliefs; and *political* work focused on garnering influence, establishing regulations, allocating resources, and resisting and rebelling (Lawrence & Suddaby, 2006; Perkmann & Spicer, 2008; W. R. Scott, 1995). Institutional work can also vary its orientation. For example, it can include inward-facing work focused on framing alternatives to the status quo, encouraging membership, building institutional infrastructure, and cultivating coherence; outward-facing work focused on representing, publicizing, and legitimizing the field broadly; and boundary-spanning work focused on translating, interpreting, modifying, and accommodating perspectives among fields and sectors. And, as it proceeds, institutional work can create new opportunities and needs for institutional entrepreneurship.

For example, in building an academic field of improvement research, inward-facing work could include explicating shared principles among plural traditions of improvement research (Penuel et al., 2020). Outward-facing work could include transforming tenure processes to value research that yields measurable improvement on the lives of students, and not simply the number of articles published (Cohen-Vogel, 2019). And boundary-spanning work could include establishing an improvement presence in the program evaluation community.

Looking back on this volume and the *Oxford Bibliographies* series, both provide evidence of institutional entrepreneurship and institutional work aimed at developing, advancing, and institutionalizing improvement research in academic, national policy, and global contexts. The institutional entrepreneurs include operating

foundations (e.g., the Carnegie Foundation for the Advancement of Teaching); nonprofit organizations (e.g., the SERP Institute); research centers (e.g., the National Center on Scaling Up Effective Schools); divisions and special interest groups in professional associations (e.g., the American Educational Research Association's section on Policy Implementation and Going to Scale and its Improvement Science SIG); informal associations (e.g., Learning DBIR; the Improvement Scholars Network); bridging organizations (e.g., the National Network of Education Research-Practice Partnerships); and philanthropies (e.g., the Annie E. Casey Foundation; the Bill and Melinda Gates Foundation; the Hewlett Foundation; the Spencer Foundation; the Wallace Foundation; and the William T. Grant Foundation). The institutional work has included grant programs, convenings and conferences, advocacy and promotional activity, research and scholarship, and co-engagement in improvement activity in practice and community contexts.

Yet several essential and strong candidates for institutional entrepreneurship have yet to emerge. These include the following:

- A formal academic association or society that would function as a catalyst and center of gravity for the academic field of improvement research in education, and that would function as a boundary-spanning organization that represents the academic field in broader national policy and global fields.
- Membership organizations that organize and represent professional educators leading and practicing improvement research in classrooms, schools, districts, and networks, and that would function as an essential complement to an academic association or society and as an essential voice in national policy and global fields.
- Advocacy organizations that organize and represent students, families, and communities as collaborators in (and presumed benefactors of) improvement research and continuous improvement, and that would provide essential perspective in understanding, defining, and pursuing opportunities, needs, and problems for improvement.
- An independent backbone organization with the legitimacy, resources, and influence needed to forge cooperation, coordination, and continued engagement within and among academic, national policy, and global fields, and that would represent improvement research and continuous improvement in broader educational and social policy contexts.

We are not alone in recognizing the importance and absence of these potential institutional entrepreneurs, nor are we alone in imagining the forms that they might take and the work that they might do. For example, in earlier writing, editors of this volume suggested the Society for Research on Educational Effectiveness as a possible model from which to fashion a vision for a complementary academic society to advance improvement research (Peurach, 2016; Peurach et al., 2018). In addition to the Improvement Scholars Network, the Carnegie Foundation for the Advancement of Teaching has initiated a Professional Practice Learning Group as a potential precursor to a professional membership organization advancing improvement research, as well as the Improvement Leadership Education and Development (iLEAD) network

as spanning the boundary between academic and professional contexts. With advocacy in the foreground, a collaboration between the Carnegie Foundation and the Aspen Institute has recognized a need to bring students and families together with policy makers, community organizers, practitioners, and researchers in a multiyear "listening and learning community" to explore the intersection of equity and improvement (Gonzalez & Vasudeva, 2021). And Bellwether Education Partners has imagined the possibility of an "Institute for Educational Improvement" as an analog to the Institute for Healthcare Improvement, and as field-spanning backbone organization (Davis, 2021).

The continued emergence of these and other possible institutional entrepreneurs is likely to depend, in part, on philanthropic engagement in field building. As detailed in this volume and the *Oxford Bibliographies* series, the "improvement movement" in US public education has been fueled and directed largely by a group of leading philanthropies, including those listed above. With continued and expanded engagement, philanthropies have the potential to function as a superordinate category of instructional entrepreneur controlling the resources needed to create and catalyze other institutional entrepreneurs.

Yet a central theme running through practical guidance on field building is that functioning in this capacity will require a fundamental shift in the mind-sets, strategies, and operations of philanthropies: away from structuring and managing short-term competitive grant programs serving their own visions and agendas—and toward long-term investment in organizations and relationships through which to co-construct and advance shared visions and agendas (Farnham et al., 2020; Isaacs & Knickman, 2005; James Irvine Foundation, 2009; Kania & Kramer, 2011).

The continued emergence of these and other possible institutional entrepreneurs is likely to depend, also, on increasing federal government engagement in improvement research (specifically) and continuous improvement (generally). As detailed in this volume and other of our writing, since the 1950s, the US federal government has also functioned as a superordinate institutional entrepreneur in establishing, expanding, and sustaining macro-level institutional infrastructure to support the production and use of scientific research in educational innovation and improvement (e.g., Penuel et al., 2020; Peurach, 2016; Peurach et al., 2018). By contrast, federal engagement in establishing complementary macro-level infrastructure to support improvement research has been modest and episodic (at best), and focused not on long-term investment in organizations and relationships but on conventional, short-term grant making subject to conventional standards of evaluation.

There is little in either organizational research, practical guidance, or this volume to suggest that field building of the scope imagined here is possible absent deeper federal engagement that heeds the same fundamental shift in mind-sets, strategies, and operations required of philanthropies. Moreover, absent federal engagement, there is much to caution against an exclusive dependence on philanthropies as superordinate institutional entrepreneurs operating beyond democratic control and, instead, via a form of plutocratic control.

Organizing and Positioning the Improvement Scholars Network

The preceding mix of analysis and imagination—drawn from this volume and the *Oxford Bibliographies* series, organizational research, and leading philanthropies and NGOs—both brings clarity to and embraces the complexity of building a field of improvement research in education. It suggests that doing so will require a diverse array of institutional entrepreneurs to work across at least three fields (academic, national policy, and global) in and beyond the United States to develop, advance, and institutionalize improvement research in the function, culture, and political structure of public education. That, in turn, will require building institutional infrastructure at each level that encourages plural membership, draws members into relation, and establishes means of formal and informal governance. It will also require navigating among varied logics to forge and pursue shared visions, common agendas, and productive collective action.

All of the preceding provides a foundation for considering the further organization, positioning, and work of the emergent, heretofore-invisible college that we call the Improvement Scholars Network. More specifically, it suggests a need to address three key questions:

1. What would it take to establish the Improvement Scholars Network more firmly as an institutional entrepreneur contributing to the creation and transformation of institutions supporting improvement research in education?
2. In which of the three fields would the Improvement Scholars Network be best positioned, and in what relation to the others?
3. How could the Improvement Scholars Network encourage diverse individuals, groups, and organizations to gather around the cause of developing, advancing, and institutionalizing improvement research in education, and how could it catalyze and structure productive engagement among them?

Regarding the first question, the Improvement Scholars Network has emerged as a loose federation of colleagues advancing improvement research in its various guises in different contexts, with some members moving among other initiatives aimed at building collective identity, purpose, and presence. It has benefited directly from initiating support from the Carnegie Foundation for the Advancement of Teaching, and it has benefited indirectly from the support of these other initiatives. Above all, it has benefited from the voluntarism and sweat equity of colleagues who have bought into (and contributed to) a strategy of building community and collective identity through shared work, including participating in meetings and convenings, collaborating in conference sessions and symposia, and contributing to (and reviewing for) this volume and the *Oxford Bibliographies* series. That much of this shared work played out on schedule amid a global pandemic and social and political unrest is testimony to their commitment.

Yet our analysis suggests that building the fields of improvement research in education will be a long-term undertaking likely to play out along an emerging/forming/sustaining trajectory over decades, in the United States and in other countries. Moreover, it will likely involve interdependent activities among a broad, diverse array of interests and organizations, with power and resources distributed unevenly among them.

More firmly establishing and sustaining the Improvement Scholars Network as a collaborator in these activities then will require moving beyond an informal, collegial network of primarily US-based colleagues to a formal, cross-national organization with capabilities to garner the resources needed to manage and maintain its agenda and activities over time. For example, we imagine a broad-based organizational development strategy within the Improvement Scholars Network aimed at securing funding and recruiting members from philanthropies, universities, publishers, government agencies, community groups, and think tanks in and beyond the United States, as well as international and transnational organizations and foundations.

Such plural membership would also help broaden the substantive focus areas of institutional work in and beyond the United States. As discussed earlier, institutional work can vary in terms of its substantive focus, with some entrepreneurs attending primarily to developing capabilities (technical) and others focused on challenging existing norms and beliefs (cultural) or garnering influence (political). The self-supporting Improvement Scholars Network may choose to begin its work on one of these—say, a technical focus aimed at supporting the preparation or continuing education of improvement specialists. Yet the diverse expertise, skills, and connections from the academic, national policy, and global fields will likely create opportunities for the institutional work to shift over time to encompass cultural and political foci as well, chief among them being influencing investment among agencies and philanthropies that fund educational innovation and improvement.

Regarding the second question, we argued, again, that the work of developing, advancing, and institutionalizing improvement research in education is likely to play out over decades not in a single, monolithic field but, instead, in and among a nested set of fields: academic, national policy, and global. Formal professional networks with causes pertaining to research are most often situated in what we have called the academic field—that is, they generally manifest as professional associations with faculty scholars or universities themselves comprising the bulk of the membership and working in partnership with publishers, funders, and accrediting bodies. Yet there is mounting evidence and, with it, a growing awareness that research use and uptake may be stifled by this traditional way of organizing—a way that tends to reinforce separate lanes and a disconnect between what's known and what professional educators want to know to improve their practice (Cohen-Vogel et al., 2015; Penuel et al., 2017; Tseng & Nutley, 2014).

By contrast, emerging research suggests that multiscaled networks, both formal and informal, can promote the diffusion and use of research evidence at the policy system and school levels (e.g., Finnigan et al., 2018; J. Scott, 2017). Consequently, we argue that the Improvement Scholars Network may best be positioned as a field-spanning organization, one that recruits partners from the academic, national policy,

and global spheres right from the start. We are not suggesting a coalition model here, as coalitions are, by definition, temporary in nature. Instead, we are suggesting a permanent organization that deliberately positions itself as a collective, one that recognizes that too many organizations with a common cause or agenda are working in siloes, isolated from one another, and that to achieve educational or social change more broadly, they need to come together in a structured way.

One example of such an organization is the Collective Impact Forum, an initiative of the Foundation Strategy Group (known as FSG) and the Aspen Institute Forum for Community Solutions. With international, cross-sector membership, the Forum places a keen focus on the technical dimensions of institutional work by curating tools and providing training to those practicing collective impact in the field. Indeed, the Forum describes itself as "an expanding network of like-minded individuals coming together from across sectors to share useful experience and knowledge and thereby accelerating the effectiveness, and further adoption, of the collective impact approach as a whole" (Collective Impact Forum, 2021). The Forum also engages in political and cultural dimensions of institutional work through its association with US-based and international "co-catalysts," partners, and funders, as well as through the sponsorship of (and association with) FSG and the Aspen Institute.

Regarding the third question, the Improvement Scholars Network as imagined thus far will depend on its capabilities to manage a fundamental tension endemic to field building. On the one hand, a core strength of this formal, independently resourced, field-spanning Improvement Scholars Network would lie in plural, cross-national membership with potential to engage in technical, cultural, and political work. On the other hand, this plural membership would increase the likelihood that collaborating in coordinated ways to advance collective interests will require forging a common, shared logic from multiple, member-specific logics: different systems of understandings, beliefs, values, and practices that justify perspectives, provide meaning, and structure reasoning and action. In a broader educational research enterprise in which balkanization and differentiation is the norm, and in academic, funding, and policy environments that often favor competition over collaboration among researchers, managing this tension is sure to be a first-order challenge for the Improvement Scholars Network.

One consequence is the need to take great care in mission development, strategy planning, and communications to represent and reconcile among the multiple, possibly complementary, and possibly competing understandings, motivations, and aims of members. Such care, for example, might include strategy and communication processes that are overseen by a leadership team whose members privilege different logics and developed with focus groups assembled with members who bring different perspectives and who represent different national education contexts.

Even as mission development, strategy planning, and communications should honor diverse perspectives, the Improvement Scholars Network will also do well to set in motion a member-sourcing and member-review process for establishing a common language. The *Oxford Bibliographies* series moves in this direction; future projects could include the publication of a glossary or encyclopedia along the lines of the *Oxford Research Encyclopedia* series, for example. The development of a common

language will be important not only for community building but also for advancing the establishment of training opportunities necessary for any field-building effort.

Key to encouraging diverse individuals and groups to gather around the cause of developing, advancing, and institutionalizing improvement research in education will be membership drives that leverage improvement research champions, employ a staged approach to ensure membership does not outpace the network's own resources, and provide members access to valued programs, services, and resources that have the express purpose of forging a shared logic, common language, and collective agenda—resources that may include this volume, the *Oxford Bibliographies* series, and the proposed encyclopedia.

We close, finally, by returning to the matter of equity in building the fields of improvement research in education. As we together consider how an imagined Improvement Scholars Network can link and leverage expertise, skills, and resources in and among nested fields to build the technical, cultural, and political capital necessary to institutionalize improvement research in education, it is important that this field-building work be what the Ford Institute for Community Building calls "profoundly inclusive." Indeed, among the findings of the Bridgespan Group in a comprehensive study of field building for social problem solving is that the success of such efforts turns on their commitment to equity, and to empowering often-marginalized individuals, groups, and organizations closest to those problems to co-lead and cocreate solutions (Farnham et al., 2020).

As the Improvement Scholars Network takes its next steps in establishing itself as an institutional entrepreneur, much must be done to engage the hard to reach, and even more must be done to build an organization with and in service to communities that have been historically excluded or overlooked. Taking coordinated actions to ensure that all voices are engaged in the positioning and work of the Improvement Scholars Network and the practice of improvement research more broadly will help build our collective commitment and capability for working responsibly in communities who have long suffered historical injustices. Elevating the unique strengths and talents of people from different races, abilities, linguistic backgrounds, regions, and cultures is essential to elevating the impact of improvement research in education.

Notes

1. As described in chapter 1, the *Oxford Bibliographies* series on continuous improvement in education was another collaborative project of the Improvement Scholars Network. It includes 15 articles that index the research literature on topics related to continuous improvement in the United States and internationally. The articles are structured akin to annotated bibliographies that identify, organize, and briefly synthesize relevant research for each topic. The articles include citations, summaries, and direct links for all cited research. The topics parallel those in this handbook (i.e., foundations, contexts, approaches, and methods of improvement research). Indeed, many of the articles from the *Oxford Bibliographies* series served as the foundation for chapters in this handbook.

2. For example, see LeMahieu et al. (2017) for an introduction to a special issue of *Quality Assurance in Education* examining design-based implementation research, improvement science, and networked improvement communities in relation to deliverology, Lean, Six Sigma, and Positive Deviance.

3. Despite the sources on which we draw, we refrain from evoking the concept of *institutional* logics here, because the logics to which we refer are provisional, contested, and evolving, with their institutional standing an open question. Moreover, our emphasis on the existence of multiple, competing logics in the early stages of field building is not to challenge aspirations for a shared logic that would anchor a developed field (Cohen-Vogel, 2019) but, instead, to be transparent about conditions that complicate pursuing those aspirations. We return to aspirations for a shared logic in the last section of this chapter.

4. See also DiMaggio (1988); Fligstein (1997); Garud et al. (2002, 2007); Lawrence (1999); Nelson (1994); and Zucker (1988).

5. See also Garud et al. (2007); Hampel et al. (2017); Lawrence et al. (2011); and Lawrence et al. (2013).

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