THE UNIVERSITY OF CHICAGO

ORGANIZATIONAL NETWORKS AND SCHOOL IMPROVEMENT:

THE SPREAD OF EARLY WARNING INDICATORS IN A

DECENTRALIZED EDUCATIONAL SYSTEM

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ABSTRACT

Research, nonprofit, and philanthropic organizations have increasingly had a larger influence in public educational institutions as they support particular programs, practices, and policy reforms. This study investigates the case of local organizations that have initiated and institutionalized high school dropout prediction systems called ninth grade *early warning indicators* (EWIs), and the strategies these entrepreneurial organizations used in spreading the innovation beyond the school districts they worked in. Situated in Chicago, Philadelphia, and New York City—districts that pioneered EWIs at scale—this research uses in-depth interviews and document analysis to trace the role of this "exoskeleton" of outside organizations in spreading EWIs not only in the cities they were in but also beyond them. With interviews from 73 organizational actors and 22 school staff, the study illustrates the role of entrepreneurial outsiders' agency in influencing structures and cultures promoting human development outcomes, particularly in urban areas with large economically and racially minoritized populations.

The research theorizes the *urban spread of innovation*, where improvements in a decentralized and disjointed system like the United States' public education system, spread less through top-down policy mandates or bottom-up social movements, and more through the influence of "outside" organizations locally connected with various actors in the public school system and interconnected across urban school districts. The case of EWIs in the three cities illustrates the multi-level strategies employed by these organizations. At the macro-level, research and philanthropic organizations working with school district officials were able to bring together various institutional logics to frame EWIs that satisfy different educational stakeholders. At the meso-level, local state and non-state organizations—what many scholars consider as institutional entrepreneurs—were connected as each organization had unique contributions and niches in

spreading the EWI innovation. At the micro-level, school support nonprofits worked directly in schools and with school leaders and teachers to change organizational routines and address resistance on the ground. But these local organizations were not just limited to working in the three cities. These local organizations became influential in spreading EWIs across the United States as the cities became proofs of concept for other districts, as organizations were contracted to work in other places, and as national institutions like the Institute for Educational Sciences and Gates Foundation supported these efforts.

This dissertation expands and furthers the study of educational sociology, institutional change, innovation diffusion, and human development. For the sociology of education, this research highlights the enlarged role of "outside" organizations in influencing educational policies and practices. For the study of institutional change, this research integrates literatures on institutional logics, entrepreneurs, and routines in order to suggest a multi-level conception of the strategies employed to bring about institutional challengers' intentional change. For innovation diffusion, this research emphasizes the less theorized spatial aspect of how innovations spread through the connections of organizations across various local systems. Finally, for the study of human development, this research highlights how "distal" organizational structures and systems interact with "proximal" implementers to bring about positive growth and development among disadvantaged and minoritized students.

Introduction

In 2002, almost a thousand high schools in the United States failed to graduate half of their freshman class. More depressingly, high schools serving racially minoritized students were five times more likely than White-serving schools to be in this group that failed to graduate their students.[1] But in less than twenty years, the graduation rates in large urban school districts have seen double digit increases. In Chicago, high school graduation rates have increased from 54 percent in 2002 to 83.8 percent in 2021.[2] In Philadelphia, less than 50 percent of the class of 2002 graduated within four years, but twenty years later, 80 percent of its class of 2021 graduated within four years.[3] In New York City, high school graduation rates were at 54 percent in 2004 and increased to more than 80 percent in 2021.[4] Despite many legitimate critiques of urban public school systems, these significant increases in these urban school districts offer an opportunity to understand educational change and institutional transformation.

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[1] Robert Balfanz and Nettie Legters, *Locating the Dropout Crisis. Which High Schools Produce the Nation's Dropouts? Where Are They Located? Who Attends Them?* (Baltimore, MD: Center for Research on the Education of Students Placed At Risk, Publications Department, 2004), https://eric.ed.gov/?id=ED484525.

[2] Elaine M. Allensworth, *Graduation and Dropout Trends in Chicago: A Look at Cohorts of Students from 1991 through 2004* (Chicago, IL: Consortium on Chicago School Research, 2005); Tracy Swartz, "CPS Touts Record-High Graduation Rate, Record-Low Dropout Rate," *Chicago Tribune*, October 21, 2021, https://www.chicagotribune.com/news/breaking/ct-chicago-schools-graduation-dropout-rates-20211021-2u3liqwlzre4pchcbh6tvpni64-story.html.

[3] Ruth Curran Neild and Robert Balfanz, *Unfulfilled Promise: The Dimensions and Characteristics of Philadelphia's Dropout Crisis, 2000-2005* (Philadelphia, PA: Philadelphia Youth Network, 2006); Helena Pylvainen, *2020-21 High School Graduation Rates in Philadelphia* (Philadelphia, PA: School District of Philadelphia Office of Research and Evaluation, 2022).

[4] Research Alliance for New York City Schools, "How Have NYC's High School Graduation and College Enrollment Rates Changed Over Time?," 2018, https://steinhardt.nyu.edu/research-alliance/research/spotlight-nyc-schools/how-have-nycs-high-school-graduation-and-college; Reema Amin and Alex Zimmerman, "NYC's 2021 Graduation Rates Inched up as State Eased Requirements," Chalkbeat New York, February 16, 2022, https://ny.chalkbeat.org/2022/2/16/22937322/bucking-national-trends-nycs-2021-graduation-rates-inched-up-as-state-eased-requirements.

Among the practices to which such changes were attributed was the use of high school dropout prediction systems called ninth grade *early warning indicators* (EWIs) that employed data regarding ninth graders' attendance, behavior, and course performance to predict who were at risk of dropping out of high school.[5] Initially used in Chicago, Philadelphia, and New York City in the early 2000s, these systems have since been employed in other school districts with their most distinctive aspects being the use of color-coded indicators for students' on-track status, the creation of teacher teams to discuss student progress, and the provision of tiered interventions.[6] In less than 20 years, these EWIs have proliferated with more than 50 percent of schools having some form of EWI by 2015 and 43 US states have adopted these early warning systems by 2017.[7] Eminent sociologist Charles Payne described this work as one of the most notable transformations in education:

> In the last ten years, what body of research has had the most positive impact on the lives of poor children? The question invites an argument, but I would nominate the work that has led to the prolonged rise to the national graduation rate, which passed 80 percent for the first time in 2012…. The research supporting this work is mostly predictive, not causal,

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[5] Martha Abele Mac Iver and Matthew Messel, "The ABCs of Keeping On Track to Graduation: Research Findings from Baltimore," *Journal of Education for Students Placed at Risk (JESPAR)* 18, no. 1 (January 2013): 50–67, https://doi.org/10.1080/10824669.2013.745207; Laura Wentworth and Jenny Nagaoka, "Early Warning Indicators in Education: Innovations, Uses, and Optimal Conditions for Effectiveness," *Teachers College Record* 122, no. 14 (2020): 1–22; Ruth Curran Neild, Robert Balfanz, and Liza Herzog, "An Early Warning System," *Educational Leadership*, 2007, 28–33.

[6] Elaine M. Allensworth, "The Use of Ninth-Grade Early Warning Indicators to Improve Chicago Schools," *Journal of Education for Students Placed at Risk (JESPAR)* 18, no. 1 (January 2013): 68–83, https://doi.org/10.1080/10824669.2013.745181; Robert Balfanz and Vaughan Byrnes, "Early Warning Indicators and Intervention Systems: State of the Field," in *Handbook of Student Engagement Interventions* (London, UK: Elsevier, 2019), 45–55, https://linkinghub.elsevier.com/retrieve/pii/B9780128134139000048.

[7] US Department of Education, *Issue Brief: Early Warning Systems* (Washington, DC: US Department of Education, Office of Planning, Evaluation, and Policy Development (Policy and Program Studies Service), 2016); Balfanz and Byrnes, "Early Warning Indicators and Intervention Systems."

[but it] is hard to think of a body of research based on random assignment which has been associated with so much meaningful change.[8]

Such transformation in a field so known for its bureaucratic inertia and active resistance to change offers a key space to interrogate questions of the spread and adoption of such a practice.[9]

Most education and organization scholars would investigate either what changes came with policies regarding EWIs or how these systems were practiced on the ground. Studies of educational change often focus on either a top-down understanding of policy effects, or a bottom-up account of changes in schools and classrooms.[10] In the case of EWIs, quasi-experimental and randomized controlled trials have shown positive effects in terms of reductions in chronic absenteeism, improvements in graduation rates, and generally no significant effects for course completion.[11] On the other end, studies have also interrogated how these EWIs were implemented by teachers and schools, emphasizing typical practices and implementation challenges that came along with it.[12]

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[8] Charles M. Payne, "Claim No Easy Victories: Some Notes toward a Fearless Sociology of Education," in *Education in a New Society: Renewing the Sociology of Education*, ed. Jal Mehta and Scott Davies (Chicago and London: University of Chicago Press, 2018), 398–99.

[9] Charles M. Payne, *So Much Reform, So Little Change: The Persistence of Failure in Urban Schools* (Cambridge, MA: Harvard Education Press, 2008).

[10] Martin Carnoy, "Educational Policies in the Face of Globalization," in *The Handbook of Global Education Policy* (John Wiley & Sons, Ltd, 2016), 27–42; John B. Diamond, "Accountability Policy, School Organization, and Classroom Practice: Partial Recoupling and Educational Opportunity," *Education and Urban Society* 44, no. 2 (March 1, 2012): 151–82, https://doi.org/10.1177/0013124511431569; John B. Diamond and James P. Spillane, "High-Stakes Accountability in Urban Elementary Schools: Challenging or Reproducing Inequality," *The Teachers College Record*, 2004, 1145–76; David N. Figlio and Susanna Loeb, "Chapter 8 - School Accountability," in *Handbook of the Economics of Education*, ed. Eric A. Hanushek, Stephen Machin, and Ludger Woessmann, vol. 3 (Elsevier, 2011), 383–421.

[11] John Hansen, "Information as Intervention: Effects of an Early Warning System" (Cambridge, MA: Center for Education Policy Research at Harvard University, 2018); Martha Abele Mac Iver et al., "An Efficacy Study of a Ninth-Grade Early Warning Indicator Intervention," *Journal of Research on Educational Effectiveness* 12, no. 3 (July 3, 2019): 363–90, https://doi.org/10.1080/19345747.2019.1615156.

[12] Marcia Davis, Liza Herzog, and Nettie Legters, "Organizing Schools to Address Early Warning Indicators (EWIs): Common Practices and Challenges," *Journal of Education for Students Placed at Risk (JESPAR)* 18, no. 1 (January 1, 2013): 84–100, https://doi.org/10.1080/10824669.2013.745210; Emily Krone Phillips, *The Make-or-Break Year: Solving the Dropout Crisis One Ninth Grader at a Time* (New York, NY: The New Press, 2019).

Such ways of investigation hint at how studies of education often focus on the actors within the school system: policymakers, district officers, school leaders, teachers, and students.

The present research, however, interrogates a different set of actors—often less visible, rarely acknowledged, but subtly influencing schools and districts in the United States. Here, I refer to this "outside" infrastructure of research, philanthropic, and nonprofit organizations, which have arguably become increasingly powerful players in education policy, politics, and practices since the beginning of the 21st century.[13] Rather than ask what policies were created or how they were practiced, I ask how EWIs were initiated and pushed by these "outside" organizations in urban locations—and how these dynamics that worked in concert with school actors were critical in spreading educational innovations across the country. More than an investigation of EWIs, this study proposes a different way of viewing education not from policymakers above nor teachers and communities below, but from outsiders who attempt to start and spread innovations in a system characterized by autonomy and decentralization. Using the case of the spread of EWIs, this research explores the strategies used, challenges met, and power wielded by these organizations.

Primarily the research speaks to education researchers and sociologists interested in the process of educational change and school improvement. It highlights how in a decentralized education system, core changes could happen through the initiative of these organizations. More than just about EWIs, the research is part of a larger narrative of how nonprofits and philanthropies have become influential in the spread of innovations such as in the creation of networked

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[13] Janelle Scott and Huriya Jabbar, "The Hub and the Spokes: Foundations, Intermediary Organizations, Incentivist Reforms, and the Politics of Research Evidence," *Educational Policy* 28, no. 2 (March 1, 2014): 233–57, https://doi.org/10.1177/0895904813515327; Janelle Scott et al., "Urban Regimes, Intermediary Organization Networks, and Research Use: Patterns Across Three School Districts," *Peabody Journal of Education* 92, no. 1 (January 2017): 16–28, https://doi.org/10.1080/0161956X.2016.1264800; Janelle Scott, Christopher Lubienski, and Elizabeth DeBray-Pelot, "The Politics of Advocacy in Education," *Educational Policy* 23, no. 1 (January 1, 2009): 3–14, https://doi.org/10.1177/0895904808328530; Elizabeth DeBray et al., "Money and Influence: Philanthropies, Intermediary Organisations, and Atlanta's 2017 School Board Election," *Journal of Educational Administration and History* 52, no. 1 (January 2, 2020): 63–79, https://doi.org/10.1080/00220620.2019.1689103.

improvement communities, the rise of charter schools, the use of teacher value-added measures, the standardization of curriculum in the Common Core State Standards—with some of these more widely practiced and spread than others .[14] It argues that if education scholars want to understand change and stability, improvement and decline, the field's analytical concepts should interrogate the connections and strategies of these outside organizations with each other and with school actors, particularly how they learn in order to adopt, adapt, and transport innovations across local contexts.

In addition to education scholars, this research also speaks to organizational theorists, urban sociologists, and nonprofit practitioners. For researchers studying a variety of organizations, this study attempts to integrate different levels of institutional theory by using a framework for how concepts of institutional logics, entrepreneurship, and complexity are operating across the macro-, meso-, and micro-levels of social life.[15] For scholars interested in urban governance and politics, this research highlights how scale and place figure into interrogating the process of local

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[14] Zachary Griffen and Aaron Panofsky, "Ambivalent Economizations: The Case of Value Added Modeling in Teacher Evaluation," *Theory and Society* 50, no. 3 (April 1, 2021): 515–39, https://doi.org/10.1007/s11186-020-09417-x; Megan E. Tompkins-Stange, *Policy Patrons: Philanthropy, Education Reform, and the Politics of Influence* (Cambridge, MA: Harvard Education Press, 2016); Sarah Reckhow and Megan Tompkins-Stange, "Financing the Education Policy Discourse: Philanthropic Funders as Entrepreneurs in Policy Networks," *Interest Groups & Advocacy* 7, no. 3 (October 1, 2018): 258–88, https://doi.org/10.1057/s41309-018-0043-3; Janelle Scott, "The Politics of Venture Philanthropy in Charter School Policy and Advocacy," *Educational Policy* 23, no. 1 (January 1, 2009): 106–36, https://doi.org/10.1177/0895904808328531; Kerry Kretchmar, Beth Sondel, and Joseph J. Ferrare, "Mapping the Terrain: Teach For America, Charter School Reform, and Corporate Sponsorship," *Journal of Education Policy* 29, no. 6 (November 2, 2014): 742–59, https://doi.org/10.1080/02680939.2014.880812; William H. Schmidt and Richard T. Houang, "Curricular Coherence and the Common Core State Standards for Mathematics," *Educational Researcher* 41, no. 8 (November 1, 2012): 294–308, https://doi.org/10.3102/0013189X12464517.

[15] Patricia H. Thornton, William Ocasio, and Michael Lounsbury, *The Institutional Logics Perspective: A New Approach to Culture, Structure and Process* (Oxford, UK: Oxford University Press, 2012), https://oxford.universitypressscholarship.com/10.1093/acprof:oso/9780199601936.001.0001/acprof-9780199601936; Michael Lounsbury et al., "New Directions in the Study of Institutional Logics: From Tools to Phenomena," *Annual Review of Sociology* 47, no. 1 (2021): 261–80, https://doi.org/10.1146/annurev-soc-090320-111734; Paul Tracey, Nelson Phillips, and Owen Jarvis, "Bridging Institutional Entrepreneurship and the Creation of New Organizational Forms: A Multilevel Model," *Organization Science* 22, no. 1 (February 2011): 60–80, https://doi.org/10.1287/orsc.1090.0522; Walter Powell and Claus Rerup, "Opening the Black Box: The Microfoundations of Institutions," in *The SAGE Handbook of Organizational Institutionalism* (London, UK: SAGE Publications, 2017), 311–37; Royston Greenwood et al., "Institutional Complexity and Organizational Responses," *Academy of Management Annals* 5, no. 1 (June 2011): 317–71, https://doi.org/10.5465/19416520.2011.590299.

innovation spread and institutionalization.[16] Finally, for those working in and studying nonprofits, this research documents various organizational repertoires used to make innovation spread and become taken for granted.[17] By contributing to conversations on education policy, institutional change, and innovation spread, this research highlights the importance of interrogating distinct sources and processes of spreading organizational practices.

Big Question and Central Argument

This study is driven by a core puzzle: *How do innovations spread in the absence of a centralizing authority and grassroots social movement?* When organizational scholars highlight the role of the state and professional organizations on one hand, and often grassroots institutional challengers on the other hand, my study asks why and how "outside" organizations have become so potent a force in US education, a question scholars have more recently attended to.[18] In this study, I focus on the

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[16] Christof Brandtner, "Green American City: Civic Capacity and the Distributed Adoption of Urban Innovations," SSRN Scholarly Paper (Rochester, NY, May 31, 2022), https://papers.ssrn.com/abstract=3581796; Nicole P. Marwell and Shannon L. Morrissey, "Organizations and the Governance of Urban Poverty," *Annual Review of Sociology* 46, no. 1 (2020): 233–50, https://doi.org/10.1146/annurev-soc-121919-054708; Michael McQuarrie and Nicole P. Marwell, "The Missing Organizational Dimension in Urban Sociology," *City & Community* 8, no. 3 (September 1, 2009): 247–68, https://doi.org/10.1111/j.1540-6040.2009.01288.x.

[17] Michael Mintrom, "Policy Entrepreneurs and the Diffusion of Innovation," *American Journal of Political Science* 41, no. 3 (1997): 738–70, https://doi.org/10.2307/2111674; Katrina E. Bulkley and Patricia Burch, "The Changing Nature of Private Engagement in Public Education: For-Profit and Nonprofit Organizations and Educational Reform," *Peabody Journal of Education* 86, no. 3 (July 1, 2011): 236–51, https://doi.org/10.1080/0161956X.2011.578963; Sophie E. Hersberger-Langloh, Sara Stühlinger, and Georg Schnurbein, "Institutional Isomorphism and Nonprofit Managerialism: For Better or Worse?," *Nonprofit Management and Leadership* 31, no. 3 (March 2021): 461–80, https://doi.org/10.1002/nml.21441; Elisabeth S. Clemens, "Organizational Repertoires and Institutional Change: Women's Groups and the Transformation of U.S. Politics, 1890-1920," *American Journal of Sociology* 98, no. 4 (January 1993): 755–98, https://doi.org/10.1086/230089.

[18] W Richard Scott, *Organizations: Rational, Natural, and Open Systems* (Upper Saddle River, NJ: Pearson Education, 2003); Andrew Abbott, "Linked Ecologies: States and Universities as Environments for Professions," *Sociological Theory* 23, no. 3 (2005): 245–74, https://doi.org/10.1111/j.0735-2751.2005.00253.x; Neil Fligstein, "Social Skill and the Theory of Fields," *Sociological Theory* 19, no. 2 (July 1, 2001): 105–25, https://doi.org/10.1111/0735-2751.00132; Eva Boxenbaum and Stefan Jonsson, "Isomorphism, Diffusion and Decoupling: Concept Evolution and Theoretical Challenges," in *The SAGE Handbook of Organizational Institutionalism*, ed. Royston Greenwood et al. (London: SAGE Publications Ltd, 2017), 77–97, http://sk.sagepub.com/reference/sage-handbook-of-organizational-institutionalism-2e/i760.xml.

(inter)urban *processes* and interorganizational *interactions* that led to the use of EWIs. Answering this question about the spread of a practice has wide-ranging theoretical and practical significance for those who care about improving education and changing institutional arrangements.

A foreign observer in the United States would note a number of interesting aspects regarding its educational system: When many countries have their own national curriculum and corresponding secondary school exit exams like the O Levels in the United Kingdom and college entrance exams like the *gaokao* in China, it is curious that the United States has nothing mandated for all students.[19] When developing countries like the Philippines pays its teachers through a national salary system that does not change from one district to another, one is surprised that in a developed country like the United States, teachers could have widely ranging salaries depending on which district they worked in. These examples highlight themes that have run across education studies regarding the lack of a central governing structure in US public education, the incoherence of often faddish school reform efforts, and the wide variety of practices across states, districts, schools and even classrooms within the same school.[20] In such a space characterized with wide decentralization, how can a specific practice spread? Moreover, given the autonomy of schools, can such practices be easily transposed or should they always be contextualized?

This study's argument is that in the absence of a centralizing authority and grassroots social movement in US education, ideas are spread, innovations pushed, and practices

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[19] Hongbiao Yin, "Implementing the National Curriculum Reform In China: A Review of the Decade," *Frontiers of Education in China* 8, no. 3 (January 1, 2013): 331–59, https://doi.org/10.3868/s110-002-013-0023-3; Bill Green, "Introduction – National Curriculum: International Perspectives," *Curriculum Perspectives* 39, no. 2 (September 1, 2019): 179–80, https://doi.org/10.1007/s41297-019-00078-0.

[20] David K. Cohen and Susan L. Moffitt, *The Ordeal of Equality: Did Federal Regulation Fix the Schools?* (Cambridge, MA: Harvard University Press, 2009); Brian Rowan, "The Ecology of School Improvement: Notes on the School Improvement Industry in the United States," *Journal of Educational Change* 3 (2002): 283–314; David K. Cohen, Stephen W. Raudenbush, and Deborah Loewenberg Ball, "Resources, Instruction, and Research," *Educational Evaluation and Policy Analysis* 25, no. 2 (June 1, 2003): 119–42, https://doi.org/10.3102/01623737025002119.

standardized by networks of "outside" school improvement organizations, many of which are concentrated in urban settings and employ strategies to spread within and beyond these spaces. The coming together of these various organizations—research, philanthropic, and nonprofit—can be thought of as their creation of an *adjacent field* to support (or challenge) the *primary field* of public education. Three core elements should be emphasized in this argument: (1) the power and influence of these organizations that work across levels of local education systems from district leaders to school teachers, (2) the concept of networks of individuals and organizations, and (3) the importance of urban scales and dynamic histories. While this research is empirically concentrated on the spread of dropout prediction systems called early warning indicators, I propose a theoretical perspective for the investigation of innovations that have similarly spread because of networks of "outside" organizations in urban areas, whose connections have led to the adoption and adaption of similar innovations. Moreover, this theorization can be applied to a broader understanding of how "outside" organizations and organizing have influenced public education specifically and public policies more generally in decentralized and disjointed systems.

My main argument proposes the concept of *interorganizational webs of improvement*: In a context absent of centralizing authority and grassroots mobilization, the *connections* of "outside" organizations and their "inside" public education counterparts help in spreading and standardizing practices. The agglomeration of individuals, organizations, and social problems in urban areas provides an opportunity for such webs to arise, and together with state actors, these organizations are able to spread specific innovations within a particular local area. Across spatial contexts, new practices spread through formal and informal interorganizational connections as well as through proofs of concept illustrated in the initial local spread of innovation. The reference to "webs," however, does not only refer to connections among organizations. Rather, I conceive of webs as

subtle and invisible ties binding individuals and organizations at the meso-level, logics and meanings at the macro-level, and routines and technologies at the micro-level. These webs are spun by entrepreneurial agents as they create various meanings for different stakeholders, as they connect with various entities across levels and spaces, and as they attempt to institutionalize practices through everyday routines that affect the technical core of schools.

This research is not specifically about EWIs nor is it an evaluation of their effectiveness. It is also not a study of their implementation. It is not an exhaustive investigation of nonprofits and philanthropies in Chicago, Philadelphia, and New York City. It is neither critique nor praise of the work of these organizations. Rather, this is a way of understanding educational innovations being initiated and supported by these school improvement organizations. And the story of the spread of EWIs provides a rich account of such a dynamic. By theorizing interorganizational webs and the urban spread of innovation, this research complements and challenges accounts of institutional change that focus on top-down or bottom-up stimuli, explanations that concentrate on individual actions rather than interpersonal interactions, and reasons that fail to attend to spatial dynamics.

I explore three key ideas in this dissertation: the *source* of innovation being that of "outside" organizations more than top-down or bottom-up agents; the *scales* of action being in the macro-level of logics, meso-level of interactions, and micro-level of school routines; and the *space* of diffusion not through discrete schools and organizations but through local systems of connected organizations, often starting within large urban school districts (see Figure I.1). This introduction proceeds by first explaining the importance of school improvement organizations, the ninth grade early warning indicators, and the decision to concentrate on the three cities. Afterwards, I detail the theoretical stakes and contributions of this research for institutional theory and educational sociology—highlighting how each chapter relates with a broader literature.

Source **Scale** **Space**

Macro
changes to culture/logics

Problem Framing + Institutional Logics

Meso
local interorg networks

Research Org

District   Philanthropy

Sch support

Resource networks

Interorganizational networks

School networks

National support

Interorg Links

City as proof

Micro
changes in schools

School Resistance and Organizational Routines
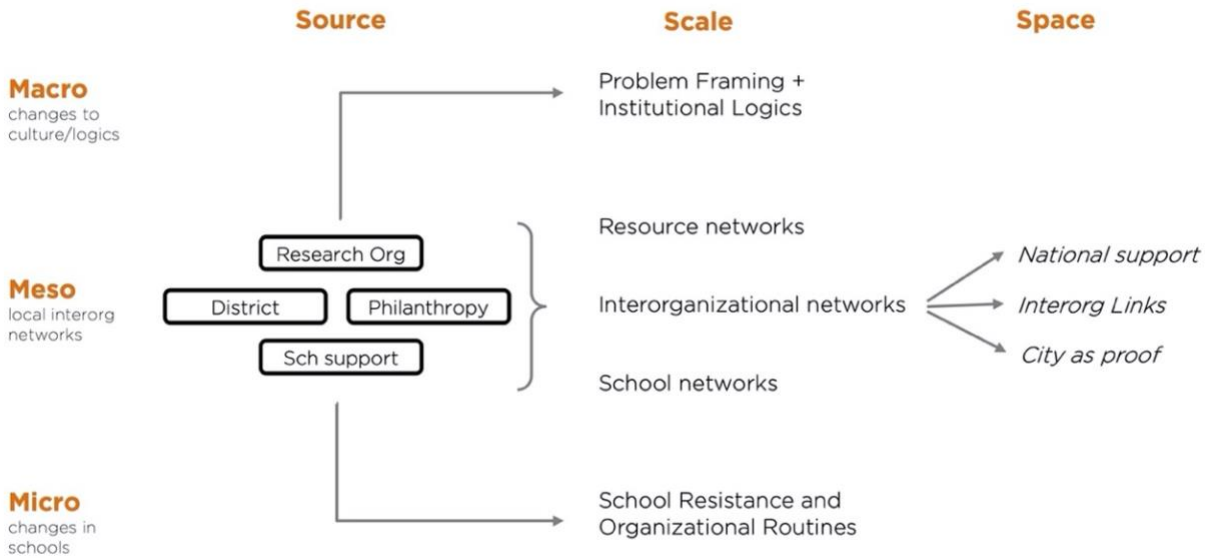
Figure I.1. Visual Summary of the Research

Explaining the Role of School Improvement Organizations

One way to understand institutional change is by interrogating individuals and organizations that initiate these changes, whom scholars often call institutional entrepreneurs.[21] In the case of initiatives in schools and districts, many of these have been started and pushed forth by organizations that do not necessarily belong to the formal education bureaucracy. For example, research organizations regularly provide suggestions for new evidence-based practices to be adopted.[22] Universities collaborate with school districts to test educational practices, curricula, and

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[21] Julie Battilana, Bernard Leca, and Eva Boxenbaum, "How Actors Change Institutions: Towards a Theory of Institutional Entrepreneurship," *Academy of Management Annals* 3, no. 1 (January 2009): 65–107, https://doi.org/10.5465/19416520903053598; Jens Beckert, "Agency, Entrepreneurs, and Institutional Change. The Role of Strategic Choice and Institutionalized Practices in Organizations," *Organization Studies* 20, no. 5 (September 1, 1999): 777–99, https://doi.org/10.1177/0170840699205004.

[22] Caitlin C Farrell et al., *Research-Practice Partnerships in Education: The State of the Field* (New York, NY: William T. Grant Foundation, 2021); Caitlin C. Farrell et al., "Learning at the Boundaries of Research and Practice: A Framework for Understanding Research–Practice Partnerships," *Educational Researcher* online first (January 11, 2022), https://doi.org/10.3102/0013189X211069073.

instructional systems.[23] Philanthropic foundations have sponsored new ideas like test score-based evaluations of teachers and funded new organizational forms like charter management organizations.[24] Groups like Teach for America have created new models for alternative teacher certification and become a space to create networks for specific educational agendas. [25] Internationally, education nonprofits are critical actors that initiate programs and policies like improving access to teacher training, leadership development, additional instructors, and student resources like food and medication.[26] Thus, despite their often being behind the scenes, these organizations have had a significant influence on educational changes and are key spaces for institutional interrogation.

Brian Rowan refers to these organizations collectively as forming the *school improvement industry*, defined as "a group of organizations that provide schools and governing agencies with information, training, materials, and programmatic resources relevant to problems of instructional improvement."[27] These school improvement organizations can at times be called intermediary organizations because of how they operate between policymakers and policy implementers, such as between district officials and schoolteachers. Meredith Honig noted how the designation

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[23] William R. Penuel and Douglas A. Watkins, "Assessment to Promote Equity and Epistemic Justice: A Use-Case of a Research-Practice Partnership in Science Education," *The ANNALS of the American Academy of Political and Social Science* 683, no. 1 (May 1, 2019): 201–16, https://doi.org/10.1177/0002716219843249.

[24] Rand Quinn, Megan Tompkins-Stange, and Debra Meyerson, "Beyond Grantmaking: Philanthropic Foundations as Agents of Change and Institutional Entrepreneurs," *Nonprofit and Voluntary Sector Quarterly* 43, no. 6 (December 1, 2014): 950–68, https://doi.org/10.1177/0899764013488836; Sarah Reckhow, Megan Tompkins-Stange, and Sarah Galey-Horn, "How the Political Economy of Knowledge Production Shapes Education Policy: The Case of Teacher Evaluation in Federal Policy Discourse," *Educational Evaluation and Policy Analysis* 43, no. 3 (September 1, 2021): 472–94, https://doi.org/10.3102/01623737211003906; Scott, Lubienski, and DeBray-Pelot, "The Politics of Advocacy in Education."

[25] Kretchmar, Sondel, and Ferrare, "Mapping the Terrain"; Steven Glazerman, Daniel Mayer, and Paul Decker, "Alternative Routes to Teaching: The Impacts of Teach for America on Student Achievement and Other Outcomes," *Journal of Policy Analysis and Management* 25, no. 1 (2006): 75–96, https://doi.org/10.1002/pam.20157.

[26] Alejandro J. Ganimian and Richard J. Murnane, "Improving Education in Developing Countries: Lessons From Rigorous Impact Evaluations," *Review of Educational Research* 86, no. 3 (September 1, 2016): 719–55, https://doi.org/10.3102/0034654315627499.

[27] Rowan, "The Ecology of School Improvement: Notes on the School Improvement Industry in the United States," 284.

"intermediary" has also been loosely applied to professional development organizations, school coaches, technical assistance providers, and school contractors.[28] Scholars have often included research organizations, advocacy groups, think tanks, whole-school reform organizations, charter management firms, and philanthropic foundations as constituting this ecosystem of intermediary school improvement organizations—making the term a catch-all for a lot of organizations working in schools.[29] Such catholic definition, however, of these organizations make it hard to analytically define and categorize their work.

To address this, I suggest clustering these school improvement organizations into three broad groups. The first consists of organizations that provide direct school support: from those that provide long-term, whole-school management to those that provide ad hoc professional development or training. The second group consists of organizations that provide indirect support through research, advocacy, and policymaking. The third group consists of philanthropic foundations that provide funding for school improvement efforts, either directly funneled to the public school system or channeled through nonprofit organizations.[30] Often, studies on these organizations have focused on either their contribution to public education or their potential risks to public institutions.

On one hand, scholars have highlighted the positive contributions of these organizations, particularly as research and school support organizations have pioneered and tested instructional improvements and innovations.[31] For example, comprehensive school reform organizations like

[28] Meredith I. Honig, "The New Middle Management: Intermediary Organizations in Education Policy Implementation," *Educational Evaluation and Policy Analysis* 26, no. 1 (March 1, 2004): 65, https://doi.org/10.3102/01623737026001065.

[29] Scott et al., "Urban Regimes, Intermediary Organization Networks, and Research Use."

[30] Jose Eos Trinidad, "Rethinking School Improvement Organizations, and Their Potentials, Risks, and Future Directions" (SocArXiv, October 2, 2022), https://doi.org/10.31235/osf.io/qpkdz.

[31] Phillips, *The Make-or-Break Year*; Donald J. Peurach, *Seeing Complexity in Public Education: Problems, Possibilities, and Success for All* (New York, NY: Oxford University Press, 2011).

Success for All have contributed to large-scale school improvements across different schools and districts.[32] Similarly, organizations like the Carnegie Foundation for the Advancement of Teaching have led efforts on networked improvement communities contributing to significant advances in using improvement science in education.[33] While not always successful in scaling their work, they nonetheless also perform critical roles in providing focused expertise and additional resources to educational systems.[34] Others have also emphasized the role these organizations play in furthering place-based research-practice partnerships and influencing the use of social networks within schools and their governing agencies.[35]

On the other hand, other scholars have taken a more critical stance on these organizations, particularly as these organizations have at times created jurisdictional "challengers" to public institutions, arguing that these organizations are taking resources away from public schools and into private organizations. Moreover, foundations have been shown to support incentivist, market-based reform efforts that challenge and compete with traditional public schools rather than help traditional public schools.[36] Others also highlight the danger with letting public institutions be

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[32] Donald J. Peurach and Joshua L. Glazer, "Reconsidering Replication: New Perspectives on Large-Scale School Improvement," *Journal of Educational Change* 13, no. 2 (May 1, 2012): 155–90, https://doi.org/10.1007/s10833-011-9177-7.

[33] Anthony S. Bryk, "2014 AERA Distinguished Lecture: Accelerating How We Learn to Improve," *Educational Researcher* 44, no. 9 (December 1, 2015): 467–77, https://doi.org/10.3102/0013189X15621543; Anthony S. Bryk, Louis M. Gomez, and Alicia Grunow, "Getting Ideas into Action: Building Networked Improvement Communities in Education," in *Frontiers in Sociology of Education*, ed. Maureen T. Hallinan, Frontiers in Sociology and Social Research (Dordrecht: Springer Netherlands, 2011), 127–62, https://doi.org/10.1007/978-94-007-1576-9_7; Donald J. Peurach, "Innovating at the Nexus of Impact and Improvement: Leading Educational Improvement Networks," *Educational Researcher* 45, no. 7 (October 1, 2016): 421–29, https://doi.org/10.3102/0013189X16670898.

[34] Sarah L. Woulfin and Jessica G. Rigby, "Coaching for Coherence: How Instructional Coaches Lead Change in the Evaluation Era," *Educational Researcher* 46, no. 6 (August 1, 2017): 323–28, https://doi.org/10.3102/0013189X17725525.

[35] Cynthia E. Coburn, Willow S. Mata, and Linda Choi, "The Embeddedness of Teachers' Social Networks: Evidence from a Study of Mathematics Reform," *Sociology of Education* 86, no. 4 (October 1, 2013): 311–42, https://doi.org/10.1177/0038040713501147; Farrell et al., *Research-Practice Partnerships in Education: The State of the Field*.

[36] Scott and Jabbar, "The Hub and the Spokes"; Tina Trujillo, Janelle Scott, and Marialena Rivera, "Follow the Yellow Brick Road: Teach For America and the Making of Educational Leaders," *American Journal of Education* 123, no. 3 (May 2017): 353–91, https://doi.org/10.1086/691232.

influenced by private organizations that are accountable neither to the voting public nor to the state bureaucracy.[37] Finally, studies critical of these school improvement organizations highlight less the inefficiency of their programs, and more the outsized power they wield that can subsequently lead to the loss of community input in schools. This was the case when Mark Zuckerberg gave 100 million dollars to Newark schools, with communities and schools saying they were not consulted.[38] More recently, studies on school improvement attend to the role of *networks* of philanthropists, advocacy groups, and research organizations, particularly as they impact urban school policies and politics.[39]

My research extends the theorization of school improvement organizations by attending to how specifically they work to gain influence and spread innovations within and beyond the spaces they inhabit. Rather than judge whether their programs and policies were effective, my goal is to look at the process of how change happened and how they attempted to make these innovations taken for granted. Such a processual understanding can open opportunities for understanding how to spread similar programs and how to leverage the role of networks.

The Case of Early Warning Indicators

Early warning indicators (EWIs) are yearly data points, just-in-time data tools, and preventative data systems used to address the problem of dropping out of high school. Also known as Freshman or Ninth-Grade On-Track, EWIs have been credited for increasing high school graduation rates, improving student attendance, enhancing school processes, and addressing dropout inequities.[40]

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[37] Tompkins-Stange, *Policy Patrons*; Sarah Reckhow, *Follow the Money: How Foundation Dollars Change Public School Politics* (Oxford, UK: Oxford University Press, 2013).

[38] Dale Russakoff, *The Prize: Who's in Charge of America's Schools?* (New York, NY: Houghton Mifflin Harcourt, 2015).

[39] DeBray et al., "Money and Influence"; Scott and Jabbar, "The Hub and the Spokes."

[40] Elaine M. Allensworth, "The Use of Ninth-Grade Early Warning Indicators to Improve Chicago Schools," *Journal of Education for Students Placed at Risk (JESPAR)* 18, no. 1 (January 2013): 68–83,

At the turn of the 21st century, researchers discovered that these indicators were predictive of high school graduation, which led to its being used as an accountability metric in Chicago and a real-time tool to identify students at risk of dropping out in a few Philadelphia schools.[41] Although concentrated in a few schools in Chicago and Philadelphia in the early 2000s, the use of these indicators have spread nationally in less than 20 years. By the early 2010s, these prediction systems were being used not only in Philadelphia and Chicago but also in large urban school districts like New York City, Los Angeles, Milwaukee, Portland, Baltimore, and Houston.[42] By 2015, a national survey of high schools done by the US Department of Education found that 52 percent of public high schools had implemented early warning systems, which included measures of attendance, behavior, and course performance to "trigger" interventions.[43] By 2017, a study has documented

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https://doi.org/10.1080/10824669.2013.745181; Marcia H. Davis et al., "Implementation of an Early Warning Indicator and Intervention System," *Preventing School Failure: Alternative Education for Children and Youth* 63, no. 1 (January 2, 2019): 77–88, https://doi.org/10.1080/1045988X.2018.1506977; Wentworth and Nagaoka, "Early Warning Indicators in Education: Innovations, Uses, and Optimal Conditions for Effectiveness."

[41] Elaine M Allensworth and John Q Easton, *The On-Track Indicator as a Predictor of High School Graduation* (Chicago, IL: Consortium on Chicago School Research at the University of Chicago, 2005); Elaine M. Allensworth and John Q. Easton, *What Matters for Staying On-Track and Graduating in Chicago Public High Schools: A Close Look at Course Grades, Failures, and Attendance in the Freshman Year. Research Report* (Chicago, IL: Consortium on Chicago School Research, 2007), https://eric.ed.gov/?id=ED498350; Phillips, *The Make-or-Break Year*; Neild, Balfanz, and Herzog, "An Early Warning System"; Robert Balfanz, Liza Herzog, and Douglas J. Mac Iver, "Preventing Student Disengagement and Keeping Students on the Graduation Path in Urban Middle-Grades Schools: Early Identification and Effective Interventions," *Educational Psychologist* 42, no. 4 (November 2, 2007): 223–35, https://doi.org/10.1080/00461520701621079.

[42] James J. Kemple, Micha D. Segeritz, and Nickisha Stephenson, "Building On-Track Indicators for High School Graduation and College Readiness: Evidence from New York City," *Journal of Education for Students Placed at Risk (JESPAR)* 18, no. 1 (January 2013): 7–28, https://doi.org/10.1080/10824669.2013.747945; Lyndsay Pinkus, *Using Early-Warning Data to Improve Graduation Rates: Closing Cracks in the Education System* (Washington, DC: Alliance for Excellent Education, 2008); Meredith Phillips et al., "Using Research to Improve College Readiness: A Research Partnership Between the Los Angeles Unified School District and the Los Angeles Education Research Institute," *Journal of Education for Students Placed at Risk* 20, no. 1–2 (2015): 141–68, https://doi.org/10.1080/10824669.2014.990562; Bradley Carl et al., "Theory and Application of Early Warning Systems for High School and Beyond," *Journal of Education for Students Placed at Risk (JESPAR)* 18, no. 1 (January 2013): 29–49, https://doi.org/10.1080/10824669.2013.745374; Daniel Stid, Kate O'Neill, and Susan Colby, "Portland Public Schools: From Data and Decisions to Implementation and Results on Dropout Prevention" (Boston, MA: Bridgespan Group, January 2009), https://eric.ed.gov/?id=ED535867; Mac Iver and Messel, "The ABCs of Keeping On Track to Graduation"; Sarah Frazelle and Aisling Nagel, *A Practitioner's Guide to Implementing Early Warning Systems* (Washington, DC: U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, Regional Educational Laboratory Northwest, 2015).

[43] US Department of Education, *Issue Brief: Early Warning Systems*.

that 43 out of the 50 states had engaged in the development of early warning systems—with some states doing analysis of historical data records, some providing supports for district EWI initiatives, and most having systems that show which students "have shown signs of falling offtrack and are in need of additional support."[44] By 2022, a group of nine nonprofit organizations with a $13 million grant from the Gates Foundation had begun collaborating with each other to further spread and improve student support systems.[45]

In the early 2000s when EWIs started and when dropout rates were particularly high in urban school districts, these EWIs were first thought of as an accountability metric to motivate schools to increase the number of ninth graders on-track to graduation. Given the predictiveness of these indicators at ninth grade, the theory was that increasing on-track rates can also increase eventual graduation.[46] However, the metric's inclusion in the school accountability system in Chicago in 2003 did not show any discernible increases in the on-track rates. One researcher pointed out that it was not until five years later that they saw increases. Chicago researcher Elaine Allensworth said,

> In the 2008–2009 school year, the district started issuing its *individual student data reports* that schools could use to monitor students and develop intervention plans that targeted specific students. In that year, there was a large increase in on-track rates, up to 64%, much higher than any of the previous 8 years. In the following year, on-track rates rose again to 69%, and in the following year, to 73%.[47] (emphasis added)

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[44] Balfanz and Byrnes, "Early Warning Indicators and Intervention Systems," 47.

[45] Andrew Myers, "GRAD Partnership Aims to Keep Students on Track for Graduation," *JHU School of Education* (blog), February 24, 2022, https://education.jhu.edu/2022/02/grad-partnership-aims-to-keep-students-on-track-for-graduation/.

[46] Allensworth and Easton, *The On-Track Indicator as a Predictor of High School Graduation*.

[47] Allensworth, "The Use of Ninth-Grade Early Warning Indicators to Improve Chicago Schools," January 2013, 80.

These student data reports provided a list of ninth graders with their "on track" status every five weeks, about mid-way through the school quarter. The theory was that the ninth grade was an important period for the adolescent's cognitive development, given the presence of risks and peer pressures, and equally important was their successful transition into often new and larger high schools.[48] By having tools to identify students who needed support during this period, teachers and school staff may provide additional guidance and help—catching students earlier to prevent them from falling off track. Many studies highlight the importance of three sources of data, what some have called the ABCs to keep students on track: attendance, behavior, and course performance.[49] These were data schools already had, but which were often not organized, not collated across different teachers, and thus, did not lead to meaningful conversations.

While the theoretical reasoning for the use of these early warning systems and data reports seem sound, empirical evidence on the effect of EWIs on high school graduation is not as clear and not as robust as other studies with short-term outcomes. First, many of the studies in Chicago and Philadelphia—where these EWIs were initiated—were studies of how predictive the indicators were rather than how effective the data tools could be. Second, studies touting the positive effect on graduation rates have largely relied on aggregate increases in graduation numbers rather than finding random variations across schools that adopted or did not adopt these data tools.[50] This is

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[48] Jessica B. Heppen and Susan Bowles Therriault, *Developing Early Warning Systems to Identify Potential High School Dropouts. Issue Brief* (Washington, DC: National High School Center, American Institutes of Research, 2008), https://eric.ed.gov/?id=ED521558; Melissa Roderick et al., *Preventable Failure: Improvements in Long-Term Outcomes When High Schools Focused on the Ninth Grade Year. Research Summary* (Chicago, IL: University of Chicago Consortium on Chicago School Research, 2014), https://eric.ed.gov/?id=ED553174; Drew Bailey et al., "Persistence and Fadeout in the Impacts of Child and Adolescent Interventions," *Journal of Research on Educational Effectiveness* 10, no. 1 (2017): 7–39, https://doi.org/10.1080/19345747.2016.1232459.

[49] Mac Iver and Messel, "The ABCs of Keeping On Track to Graduation."

[50] Eliza Moeller, Alex Seeskin, and Jenny Nagaoka, *Practice-Driven Data: Lessons from Chicago's Approach to Research, Data, and Practice in Education* (Chicago, IL: UChicago Consortium on School Research, 2018).

understandable since these data tools became available at about the same time across high schools like in Chicago. Third, the advent of ninth-grade EWIs was accompanied by other trends in education like the presence of accountability, data-driven decision-making, and professional communities focused on continuous improvement.[51] Because of these concurrent policy changes, it is difficult to attribute constructive changes in school improvement to a single policy.

Despite the limitations of this research, some rigorously-designed experimental and quasi-experimental evidence suggests the positive direction of the effects of EWIs on factors like attendance and course performance. A randomized controlled trial among 73 Midwestern schools found that schools with early warning systems, when compared to control schools that received the treatment one year later, had reduced percentages of students chronically absent and lower rates of students who failed at least one course.[52] In New York, a program that used data to create early warning flags and provided mentoring for students at risk had led to students in treatment schools being nine percent less likely to be chronically absent than in comparison schools.[53] In Massachusetts, a quasi-experimental research found that there were no negative effects of students being labeled "at risk" of dropping out and showed that "high school graduation rates increased 1-2 percentage points for districts that accessed the risk data more frequently."[54] In a study of 41 southern high schools, researchers found that being in treatment schools had led to significantly lower levels of chronic absence.[55] However, the same study did not find a significant impact in

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[51] Wentworth and Nagaoka, "Early Warning Indicators in Education: Innovations, Uses, and Optimal Conditions for Effectiveness."

[52] Ann-Marie Faria et al., *Getting Students on Track for Graduation: Impacts of the Early Warning Intervention and Monitoring System after One Year* (U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, Regional Educational Laboratory Midwest, 2017).

[53] Robert Balfanz and Vaughan Byrnes, "Using Data and the Human Touch: Evaluating the NYC Inter-Agency Campaign to Reduce Chronic Absenteeism," *Journal of Education for Students Placed at Risk (JESPAR)* 23, no. 1–2 (April 3, 2018): 107–21, https://doi.org/10.1080/10824669.2018.1435283.

[54] Hansen, "Information as Intervention: Effects of an Early Warning System," 2.

[55] Davis et al., "Implementation of an Early Warning Indicator and Intervention System."

terms of number of course credits earned and number of course failures.[56] Authors explained this as resulting from EWI practices being diffused and some control schools implementing similar interventions even in the absence of externally-funded coaches. Taken altogether, although there are limitations of attributing increases in graduation rates simply on EWIs, these data systems have shown positive effects on factors like attendance and course completion that are important building blocks for high school graduation.

An important question that remains though focuses on the potential mechanisms for these improvements. Qualitative studies regarding the implementation of EWIs show the importance of focusing conversations on actionable problems, identifying students for intervention, and using data tools to motivate teacher interactions with each other and with their students.[57] Research also suggests the importance of data being easy to use, having biweekly meetings to discuss students' progress, and creating tiered interventions for students.[58] In a study of a large urban school district in California, researchers found how early warning lists were able to identify students that needed help but that there was great variety regarding the types of interventions provided. Some schools had staff meet with students individually; some had students participate in "success groups" for goal setting and healthy habits; and others had school staff triage students based on perceived urgency of needs.[59] Aside from the routines for student identification and intervention, another factor that had been suggested to be critical was the support of school leadership.[60] As one review

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[56] Mac Iver et al., "An Efficacy Study of a Ninth-Grade Early Warning Indicator Intervention."

[57] Allensworth, "The Use of Ninth-Grade Early Warning Indicators to Improve Chicago Schools," January 2013.

[58] Hank Fien, David J. Chard, and Scott K. Baker, "Can the Evidence Revolution and Multi-Tiered Systems of Support Improve Education Equity and Reading Achievement?," *Reading Research Quarterly* 56, no. S1 (2021): S105–18, https://doi.org/10.1002/rrq.391; Davis et al., "Implementation of an Early Warning Indicator and Intervention System."

[59] Hadar Baharav and Laurel Sipes, "Early Warning Indicator Systems in Action: Considerations From Identification to Supports," *Teachers College Record* 122 (2020): 1–24.

[60] Phillips, *The Make-or-Break Year*.

of early warning systems have suggested, the most important aspect of EWIs was not so much their identification of students at risk but their power to "shed light into the reasons for the disengagement and increase the effectiveness of interventions."[61] It was about using the technical tool to motivate a relational change among teachers and their students.

As with many educational initiatives, these early warning systems were not without their fair share of dissenters and skeptics. These critics detailed how so many factors outside of school could affect dropping out such as gangs, drugs, teen pregnancy, and lack of family support—many of these factors the school had little power over! Skeptics also questioned the veracity of the data being used and how schools may be incentivized to finagle with their on-track metrics. For teachers, the pushback came from the additional amount of work EWIs entailed as they had to meet with each other, look at data, and device intervention strategies for specific students. For principals, the opposition came from their schools supposedly being judged and evaluated because of the students they received.[62] Yet these concerns and criticisms were slowly addressed, not just by evidence that showed the fears unfounded but also by relationships with people outside the schools, individuals who were crucial in focusing efforts on EWIs.

Chicago, Philadelphia, and New York City

Urban schools and urban school districts have often been characterized as failing students, particularly students of color who form the majority in these places.[63] Research shows that low-income, low-achieving, and non-white students in urban schools often find themselves in classes

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[61] Brian M. McMahon and Sabrina F. Sembiante, "Re-Envisioning the Purpose of Early Warning Systems: Shifting the Mindset from Student Identification to Meaningful Prediction and Intervention," *Review of Education* 8, no. 1 (2020): 296, https://doi.org/10.1002/rev3.3183.

[62] Phillips, *The Make-or-Break Year*.

[63] Wanda J. Blanchett, Vincent Mumford, and Floyd Beachum, "Urban School Failure and Disproportionality in a Post-Brown Era: Benign Neglect of the Constitutional Rights of Students of Color," *Remedial and Special Education* 26, no. 2 (March 2005): 70–81, https://doi.org/10.1177/07419325050260020201.

with the least skilled teachers.[64] Urban schools also often go through a rigmarole of new reforms, but with little discernible improvements to the whole system.[65] To be fair, the "problem" of urban schools is not just about the schools, as sociologist Pedro Noguera pointed out how larger social forces like demographic change, poverty, drug trafficking, violence, and social inequities contribute to outcomes often associated with schools.[66] Thus, urban centers have continued to become core analytic cases for sociological studies.

Yet inasmuch as urban schools have these problems—and potentially even because of these very problems—these cities, I argue, have also become fertile grounds for innovations and creative problem-solving. On the one hand, the presence of nonprofits, research organizations, universities, and philanthropic foundations based in large urban areas offers opportunities to improve the local school system. One can call this the *supply side* explanation for urban schools as sites of innovation. On the other hand, the large scale problems of urban education make the work of these organizations more compelling and more urgent, thus fueling greater work in this field. One can call this the *demand side* explanation for urban innovation. In both cases, these realities challenge the often dreary picture painted about public education in large cities by showing how they can become places that go against the odds of urban education's entropic tendencies if organizations use them as seedbeds for new innovations.

Given my focus on early warning indicators and their initiation by "outside" improvement organizations, this research looks at three cities that were early pioneers of these metrics. The decision to focus on Chicago, Philadelphia, and New York City relied on a number of factors. First,

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[64] Hamilton Lankford, Susanna Loeb, and James Wyckoff, "Teacher Sorting and the Plight of Urban Schools: A Descriptive Analysis," *Educational Evaluation and Policy Analysis* 24, no. 1 (March 1, 2002): 37–62, https://doi.org/10.3102/01623737024001037.
[65] Payne, *So Much Reform, So Little Change*.
[66] Pedro Noguera, *City Schools and the American Dream: Reclaiming the Promise of Public Education* (New York and London: Teachers College Press, 2003).

the three cities had researched and created early warning systems before 2010, and they help historically situate the development of these EWIs. Second, the development of EWIs in the three cities was not so much started by the district offices but by research and nonprofit organizations that worked with and in schools. In Chicago, it was started by a research organization while in Philadelphia and New York, it was initiated by organizations helping with whole-school reform efforts. Third, these cities have the most extensive written documentation about EWIs, available in research studies, journal articles, and annual reports. In connection to this, many subsequent studies have referred to the research done in these places as they created their own early warning systems. Finally, these cities did not rely on single organizations working on EWIs but had created a field of research, nonprofit, and philanthropic organizations that worked with the local school district. This creation of a field of organizations is critical in the present theorization about the urban spread of school innovation.

Inasmuch as the three cities had considerable similarities, there are also salient differences among them. One was the size of the three school districts: In the most recent digest from the National Center for Education Statistics, New York was the largest school district with almost a million students, Chicago had more than 300,000 students, while Philadelphia had close to 150,000.[67] In the same digest, poverty rates for 5- to 17-year-olds in New York and Chicago were at 23.1 percent while poverty rate for Philadelphia was at 32.3 percent.[68] In a 2021 report by the Brookings Institution, which included racial demographics of students under 18 years old, the proportion of Black youth was 20.5 percent in New York, 31.1 percent in Chicago, and 43.8

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[67] National Center for Education Statistics, "Digest of Education Statistics, 2020," National Center for Education Statistics, 2020, https://nces.ed.gov/programs/digest/d20/tables/dt20_215.30.asp.

[68] Poverty thresholds are based on the size of the family and number of children. The US Census Bureau has a matrix for the poverty threshold every year available at census.gov/data/tables/time-series/demo/income-poverty/historical-poverty-thresholds.html

percent in Philadelphia. For Hispanic youths, it was 33.6 percent in New York, 40.6 percent in Chicago, and 21.7 percent in Philadelphia. Taken together, these suggest large minority population in these urban school districts but their racial ethnic proportions differ considerably.[69] Moreover, the organizations working in these three cities differ with each other as different local universities, research institutions, philanthropies, and nonprofits work with the school district. One interesting similarity across these three districts, however, was the mayoral control of district's education board when many local district boards have elected school boards. This means that the mayor handpicks the majority or entirety of the district school board.[70]

By highlighting the similarities and differences across the school districts, I show the facility of using these cases to investigate and interrogate the role of research, philanthropic, and nonprofit organizations in the spread of school innovations. Particularly for dropout prediction systems, these three cities provide an opportune way of understanding the strategies for starting and sustaining these initiatives because of their extensive engagement with the project. By showing the differences across the three cities, I also suggest that certain strategies may be similarly shared adapted despite the significant population size, demographic, and organizational differences.

Theoretical Stakes

Explaining Institutional Change

This story of the spread of dropout prediction systems in the United States fits into a larger one about institutional change, that is, the process for how certain practices, technologies, and

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[69] William H. Frey, *2020 Census: Big Cities Grew and Became More Diverse, Especially among Their Youth* (Washington, DC: Brookings Institution, 2021), https://www.brookings.edu/research/2020-census-big-cities-grew-and-became-more-diverse-especially-among-their-youth/.

[70] Kari Lydersen, "Over Mayor Lightfoot's Objections, Chicago Is Set to Finally Enact an Elected School Board," *In These Times*, July 6, 2021, https://inthesetimes.com/article/chicago-elected-school-board-lightfoot-ctu-democracy.

organizational forms become distributed and adopted across different organizations.[71] More than the ubiquity of these practices, however, a core aspect of institutional change is its legitimacy—a shorthand for how much a practice is generally accepted, widely practiced, and often taken for granted.[72] In examples as diverse as the transformation of photography from a specialized activity to an everyday part of life, and the abandonment of French classical cuisine for nouvelle cuisine, institutional change entails both a technical shift and cultural change in people's acceptance.[73] It involves not only a simple change from one technology to another but a shift towards a different of thinking about an "institution."

Institutions are defined as "macro sociocultural and structural phenomena that organize actors, resources, and authority systems."[74] Institutions may include large societal institutions like politics, religion, economy, and education, and smaller ones like medicine, science, and arts.[75] An institution may also develop with the creation of a *field* as organizations increase their interactions through new structures of domination and coalition, through greater information sharing, and through mutual awareness of belonging to the same field.[76] One then can talk about the institution of public education as the field of public schools and bureaucratic agencies that impact the work

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[71] Marc Schneiberg and Elisabeth S. Clemens, "The Typical Tools for the Job: Research Strategies in Institutional Analysis*," *Sociological Theory* 24, no. 3 (2006): 195–227, https://doi.org/10.1111/j.1467-9558.2006.00288.x.

[72] Jeannette A. Colyvas and Stefan Jonsson, "Ubiquity and Legitimacy: Disentangling Diffusion and Institutionalization," *Sociological Theory* 29, no. 1 (March 2011): 27–53, https://doi.org/10.1111/j.1467-9558.2010.01386.x.

[73] Kamal A. Munir and Nelson Phillips, "The Birth of the 'Kodak Moment': Institutional Entrepreneurship and the Adoption of New Technologies," *Organization Studies* 26, no. 11 (November 1, 2005): 1665–87, https://doi.org/10.1177/0170840605056395; Hayagreeva Rao, Philippe Monin, and Rodolphe Durand, "Institutional Change in Toque Ville: Nouvelle Cuisine as an Identity Movement in French Gastronomy," *American Journal of Sociology* 108 (January 1, 2003): 795–843, https://doi.org/10.1086/367917; Hayagreeva Rao, *Market Rebels: How Activists Make or Break Radical Innovations* (Princeton, NJ: Princeton University Press, 2008), https://www.degruyter.com/document/doi/10.1515/9781400829743/html.

[74] Seth Abrutyn, "Toward A Theory of Institutional Ecology: The Dynamics of Macro Structural Space," *Review of European Studies* 4, no. 5 (November 26, 2012): 168, https://doi.org/10.5539/res.v4n5p167.

[75] Ibid.

[76] Paul J. DiMaggio and Walter W. Powell, "The Iron Cage Revisited: Institutional Isomorphism and Collective Rationality in Organizational Fields," *American Sociological Review* 48, no. 2 (1983): 147–60, https://doi.org/10.2307/2095101.

in these schools. However, an adjacent field may also arise like that of the school improvement industry whose constitutive organizations work, collaborate, and/or compete with each other to influence the primary field of public education.[77] In this conceptualization, institutional changes may happen to both the primary field and the adjacent field.

One of the core questions asked by organizational theorists and sociologists is regarding the sources and drivers of institutional change. On a practical standpoint, this is important for incorporating strategic actions that bring about the spread of new reforms, changes of old habits, and positive transformations that can benefit individuals and organizations.[78] On a theoretical standpoint, institutional change offers a puzzle since institutions often support and constrain organizational structures and activities, and so the question goes, "How can organizations or individuals innovate if their beliefs and actions are all determined by the very institutional environment they wish to change?"[79] It is about the interaction of *social structures* and institutions that confine behaviors, and *human agency* and strategic choice that bring about new repertoires of action.[80]

Explaining institutional change drawing inspiration from classic institutional theory, German sociologist Jens Beckert suggests four mechanisms for such changes: coercive, competitive, normative, and mimetic. The first one is about *power,* where a central authority or organization exerts formal and informal pressures leading to the spread of particular practices. The second is about *competition*, where inefficient institutional solutions are eliminated and thus lead

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[77] Rowan, "The Ecology of School Improvement: Notes on the School Improvement Industry in the United States"; Brian Rowan, "The New Institutionalism and the Study of Educational Organizations: Changing Ideas for Changing Times," in *The New Institutionalism in Education*, ed. Heinz-Dieter Meyer and Brian Rowan (Albany, NY: State University of New York Press, 2006).

[78] M Tina Dacin, Jerry Goodstein, and W. Richard Scott, "Institutional Theory and Institutional Change: Introduction to the Special Research Forum," *The Academy of Management Journal* 45, no. 1 (2002): 45–56.

[79] Julie Battilana, "Agency and Institutions: The Enabling Role of Individuals' Social Position," *Organization* 13, no. 5 (September 1, 2006): 654, https://doi.org/10.1177/1350508406067008.

[80] Clemens, "Organizational Repertoires and Institutional Change."

to a convergence for a particular institutional arrangement. The third is about *attraction*, where organizations and individuals actively imitate models that larger professions and fields deem as worth imitating. Finally, the last one is about *mimesis,* where organizations look onto others for templates of action, particularly in a situation of greater uncertainty.[81] In such varied explanations of institutional changes, the focus is on the role of actors within an institutional field. For example, government agencies regulate the work in a particular industry, and professional groups push for specific organizational arrangements. In particular for schools, the common sources of institutional changes are often either top-down mandates like school accountability systems, or bottom-up social movements like demands by teachers' unions.[82]

In his theorization of institutional fields, Neil Fligstein draws distinction between *incumbents* and *challengers*, where the former have incentives to maintain the status quo while the latter try to take advantage of opportunities and crises that can subvert power relations. He argues that the "transformation of fields is possible when current arrangements start to break down, which is usually precipitated by some form of crisis."[83] In many of these cases, the challengers are still endogenous to the system—that is, they are individuals or organizations from a particular field that have sufficient resources to initiate and implement divergent changes.[84] Organizational sociologists and theorists often refer to these challengers as *institutional entrepreneurs* who leverage resources to create new institutions or transform existing ones.[85] This conceptualization

[81] Jens Beckert, "Institutional Isomorphism Revisited: Convergence and Divergence in Institutional Change," *Sociological Theory* 28, no. 2 (June 1, 2010): 150–66, https://doi.org/10.1111/j.1467-9558.2010.01369.x.

[82] David Hursh, "Assessing No Child Left Behind and the Rise of Neoliberal Education Policies," *American Educational Research Journal* 44, no. 3 (September 1, 2007): 493–518, https://doi.org/10.3102/0002831207306764; Corey DeAngelis and Christos Makridis, "Are School Reopening Decisions Related to Union Influence?," SSRN Scholarly Paper (Rochester, NY: Social Science Research Network, September 1, 2020), https://papers.ssrn.com/abstract=3684867.

[83] Fligstein, "Social Skill and the Theory of Fields," 109.

[84] Battilana, Leca, and Boxenbaum, "2 How Actors Change Institutions."

[85] Paul J. DiMaggio, "Interest and Agency in Institutional Theory," in *Institutional Patterns and Organization*, ed. L Zuker (Cambridge, MA: Ballinger, 1988), 3–22; Steve Maguire, Cynthia Hardy, and Thomas B.

is not without critique, however, since these "entrepreneurs" are themselves embedded in the institutions they seek to transform and thus constrained by institutional arrangements.

One way this study suggests explaining institutional changes is through the work of individuals and organizations that are often outside a given field. Some research suggests the importance of what has been called "extra-institutional entrepreneurs," which are external agents that attempt to reconfigure meaning systems and institutional logics on which the main institution is based on. In a study of activist movements, researchers found that protestors and social movements can act as extra-institutional entrepreneurs that impact corporations and their stock prices.[86] However, inasmuch as complete outsiders offer advantages such as exposure to and provision of fresh ideas, outsiders may also be disadvantaged by their peripheral status and lack of legitimacy.[87] Thus, I investigate the potential for institutional changes to be driven not so much by organizations completely outside the institution but by organizations that have created a field that had one foot in and another foot out of the core institution. For this study, it is the *field of school improvement* initiated by research, nonprofit, and philanthropic organizations that are considered external to school bureaucracy but still intimately connected to them.[88]

This research shows how institutional changes are influenced not only by institutional entrepreneurs endogenous to a given field but by individuals and organizations "outside" the field that coordinate with each other. Chapter 1 highlights the roles of these organizations and actors,

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Lawrence, "Institutional Entrepreneurship in Emerging Fields: HIV/AIDS Treatment Advocacy in Canada," *The Academy of Management Journal* 47, no. 5 (2004): 657–79, https://doi.org/10.2307/20159610.

[86] Brayden G King and Sarah A. Soule, "Social Movements as Extra-Institutional Entrepreneurs: The Effect of Protests on Stock Price Returns," *Administrative Science Quarterly* 52, no. 3 (September 1, 2007): 413–42, https://doi.org/10.2189/asqu.52.3.413.

[87] Jiao Luo, Jia Chen, and Dongjie Chen, "Coming Back and Giving Back: Transposition, Institutional Actors, and the Paradox of Peripheral Influence," *Administrative Science Quarterly* 66, no. 1 (March 1, 2021): 133–76, https://doi.org/10.1177/0001839220929736.

[88] Scott et al., "Urban Regimes, Intermediary Organization Networks, and Research Use."

and how they have come to prominence during a particular historical point in US public education. It explains institutional change through the creation of new fields by "outsiders."

Multiple Levels of an Inhabited Institution

A common critique of institutional theory is its focus on large abstract institutions and fields that emphasize macro-cultural logics, large structural constraints, and a seeming determinism towards homogeneity and isomorphism.[89] In some sense, individual actions and organizational behaviors are explained by the institutional arrangements and symbolic systems that order the reality of individuals and organizations on the ground. For example, classic formulations of new institutional theory often highlight the significance of the institutional environment and interorganizational processes at the macro-level, often inattentive to micro-interactional processes.[90] Even in more recent conceptualizations like institutional logics, scholars have often concentrated on industry- and field-level analyses that show how logics change over time, how they influence innovation, and how different logics compete with each other.[91] However, more recent theorizations seek to

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[89] Tim Hallett and Marc J. Ventresca, "Inhabited Institutions: Social Interactions and Organizational Forms in Gouldner's Patterns of Industrial Bureaucracy," *Theory and Society* 35, no. 2 (April 2006): 213–36, https://doi.org/10.1007/s11186-006-9003-z.

[90] John W. Meyer and Brian Rowan, "Institutionalized Organizations: Formal Structure as Myth and Ceremony," *American Journal of Sociology* 83, no. 2 (September 1, 1977): 340–63, https://doi.org/10.1086/226550.

[91] Michael Lounsbury and Eva Boxenbaum, "Institutional Logics in Action," in *Institutional Logics in Action, Part A*, ed. Michael Lounsbury and Eva Boxenbaum, Research in the Sociology of Organizations (London, UK: Emerald Group Publishing Limited, 2013), 3–22, https://doi.org/10.1108/S0733-558X(2013)0039AB004; Heather A. Haveman and Hayagreeva Rao, "Structuring a Theory of Moral Sentiments: Institutional and Organizational Coevolution in the Early Thrift Industry," *American Journal of Sociology* 102, no. 6 (1997): 1606–51, https://doi.org/10.1086/231128; Emily Cox Pahnke, Riitta Katila, and Kathleen M. Eisenhardt, "Who Takes You to the Dance? How Partners' Institutional Logics Influence Innovation in Young Firms," *Administrative Science Quarterly* 60, no. 4 (December 1, 2015): 596–633, https://doi.org/10.1177/0001839215592913; Nicola Mountford and Yuzhuo Cai, "Towards a Flatter Ontology of Institutional Logics: How Logics Relate in Situations of Institutional Complexity," *International Journal of Management Reviews* online first (2022): 1–21, https://doi.org/10.1111/ijmr.12313.

"inhabit" these institutions by taking seriously the role of interactions, local meanings, and institutional complexity.[92]

By integrating institutional theory and symbolic interactionism, *inhabited institutionalism* argues that institutional arrangements become manifest and are interpreted in "social interactions that occur inside of and across organizations."[93] It draws on a meso-sociological approach that views struggles over meaning as key spaces for interests to be set, contested, and constructed. Moreover, institutional changes are explained not only through large structural or cultural changes but through everyday practices and interactions as well as through negotiated meanings and interpretations.[94] In this sense, one can argue that an inhabited institutional approach to studying organizations and interorganizational fields spans different levels of the institutional environment, moving between the macro-level of shared meaning systems and the micro-level of everyday routines, resistances, and communications.

To make sense of the various levels that play and operate in an inhabited institution like the school improvement field, I bring together key literatures in institutional and organizational theory to mark the levels. At the macro-level, I draw on the concept of *institutional logics* that focuses on the values, beliefs, and rules that influence and give meaning to individuals' and organizations' behaviors.[95] At the meso-level, I use the concept of *institutional entrepreneurship* that highlights the power, role, and agency of actors to introduce institutional changes through strategic actions and the leveraging of resources.[96] At the micro-level, I employ the concept of

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[92] Hallett and Ventresca, "Inhabited Institutions."

[93] Tim Hallett and Amelia Hawbaker, "The Case for an Inhabited Institutionalism in Organizational Research: Interaction, Coupling, and Change Reconsidered," *Theory and Society* 50, no. 1 (January 2021): 10, https://doi.org/10.1007/s11186-020-09412-2.

[94] Beth A. Bechky, "Making Organizational Theory Work: Institutions, Occupations, and Negotiated Orders," *Organization Science* 22, no. 5 (October 2011): 1157–67, https://doi.org/10.1287/orsc.1100.0603.

[95] Lounsbury et al., "New Directions in the Study of Institutional Logics."

[96] Battilana, Leca, and Boxenbaum, "2 How Actors Change Institutions"; Tracey, Phillips, and Jarvis, "Bridging Institutional Entrepreneurship and the Creation of New Organizational Forms."

organizational routines to show how institutions are produced and reproduced through everyday actions that become taken for granted.[97] While these concepts can each span various levels, I situate them in one of the three sociological levels of analysis to create an easy mnemonic to frame the research. One of the contributions of this present research is this attempt to tie together these different levels of analysis in the study of an empirical case of institutional change.

The literature on institutional logics has often underscored the power of "logics" to influence individual actions, organizational behaviors, and the meaning-making people do. Logics can include large institutional orders such as the *market logic* that emphasizes competition and quantification, or the *community logic* that emphasizes cooperation and mutual support.[98] Logics may also be more narrowly set such as the *care* and *science logics* in medical education, or the *professional* and *business logics* for health centers.[99] In a sense, institutional logics are a means for making coherent sense of discrete actions and decisions. Literature has focused on shifts in the dominant logics and the consequences for specific organizations or larger fields of organizations.[100] In this theorization, institutional changes happen when there is a shift in the logic for a field. For example, there had been an increased employment of the care logic in medical education with the increasing numbers of women and the rise of managed care.[101] Such then has larger consequences for the institutions of medical education and the medical profession.

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[97] Claus Rerup and Martha S. Feldman, "Routines as a Source of Change in Organizational Schemata: The Role of Trial-and-Error Learning," *Academy of Management Journal* 54, no. 3 (June 2011): 577–610, https://doi.org/10.5465/amj.2011.61968107; Jennifer Zoltners Sherer and James P. Spillane, "Constancy and Change in Work Practice in Schools: The Role of Organizational Routines," *Teachers College Record* 113, no. 3 (March 1, 2011): 611–57, https://doi.org/10.1177/016146811111300302.

[98] Thornton, Ocasio, and Lounsbury, *The Institutional Logics Perspective*.

[99] Mary B. Dunn and Candace Jones, "Institutional Logics and Institutional Pluralism: The Contestation of Care and Science Logics in Medical Education, 1967–2005," *Administrative Science Quarterly* 55, no. 1 (March 1, 2010): 114–49, https://doi.org/10.2189/asqu.2010.55.1.114; Trish Reay and C.R. Hinings, "Managing the Rivalry of Competing Institutional Logics," *Organization Studies* 30, no. 6 (June 1, 2009): 629–52, https://doi.org/10.1177/0170840609104803.

[100] Lounsbury et al., "New Directions in the Study of Institutional Logics."

[101] Dunn and Jones, "Institutional Logics and Institutional Pluralism."

In the present study, I draw on the institutional logics literature to show how different logics can be employed to understand the same program initiative. With the example of researchers who helped clarify the theory of change and of school district officials who implemented these changes, I show that various institutional logics were used to make EWIs accessible and resonant to different audiences. In Chapter 2, I argue that these changes at the macro-level of discourse was one of the factors in bringing about the spread of dropout prediction systems.

The literature on institutional entrepreneurship often centers on the role of specific individuals and organizations—called *entrepreneurs*—in facilitating institutional changes. Such actors have also been called policy entrepreneurs and educational entrepreneurs, denoting how the process of changing organizational arrangements can apply to these specific domains.[102] Although these entrepreneurs have a role to play in macro-level changes in logics and micro-level shifts in routines, these entrepreneurs' influence is most proximately felt at the meso-level of organizational actions and interorganizational connections. For example, leaders and institutional entrepreneurs build, design, and advocate for innovations that have an immediate impact on organizations.[103] Furthermore, entrepreneurs facilitate negotiations and collaborations among stakeholders that lead to organizational policies that influence or extend institutional-level changes.[104]

In this study, I take inspiration from the literature on institutional entrepreneurship to characterize the work of these "outside" organizations and the individuals working in them. Through the work of their leaders who are often connected with each other, I show how different strategies and collaborative networks facilitate institutional changes. However, I move away from

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[102] Mintrom, "Policy Entrepreneurs and the Diffusion of Innovation"; Quinn, Tompkins-Stange, and Meyerson, "Beyond Grantmaking."

[103] Tracey, Phillips, and Jarvis, "Bridging Institutional Entrepreneurship and the Creation of New Organizational Forms."

[104] Emily Handsman, Caitlin Farrell, and Cynthia Coburn, "Solving for X: Constructing Algebra and Algebra Policy During a Time of Change," *Sociology of Education* online first (2022): 1–17.

the concept of individual entrepreneurs as I argue for the role of entrepreneurial interactions—i.e., the strategic webs of relationships that start and sustain institutional changes. In Chapter 3, I argue that meso-level connections among organizations and interactions among individuals are analytic spaces to interrogate how institutional changes happen.

Finally, the literature on organizational routines has shifted its emphasis *from* one that understands routines as leading to inertia *to* a conception of routines as key to organizational changes.[105] Researchers have argued how routines and the enactment of these routines are key not only for behavioral changes but also schematic changes within an organization.[106] This suggests that organizational routines influence both external observable actions and internal latent dispositions—potentially leading to cultural changes. In a way, the initiation and implementation of routines on the ground can be thought of as micro-level changes as individual actors follow through macro- and meso-level organizational arrangements. For example, routines in schools can enable the tighter connection between government policy/regulation and the everyday practice in classrooms, particularly with such routines as the alignment of standards and the monitoring of teachers.[107]

In this study, I apply the organizational routines literature to understand how institutional changes from the school improvement field find their way to schools and classrooms. Using the example of coaches and facilitators who work with and in schools, I show how specific grounded routines were able to bring about changes even in the face of initial resistance. I connect contiguous

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[105] Sangyoon Yi, Thorbjørn Knudsen, and Markus C. Becker, "Inertia in Routines: A Hidden Source of Organizational Variation," *Organization Science* 27, no. 3 (June 2016): 782–800, https://doi.org/10.1287/orsc.2016.1059; Martha S. Feldman and Brian T. Pentland, "Reconceptualizing Organizational Routines as a Source of Flexibility and Change," *Administrative Science Quarterly* 48, no. 1 (March 1, 2003): 94–118, https://doi.org/10.2307/3556620.

[106] Rerup and Feldman, "Routines as a Source of Change in Organizational Schemata."

[107] James P. Spillane, Leigh Mesler Parise, and Jennifer Zoltners Sherer, "Organizational Routines as Coupling Mechanisms: Policy, School Administration, and the Technical Core," *American Educational Research Journal* 48, no. 3 (June 1, 2011): 586–619, https://doi.org/10.3102/0002831210385102.

literatures by incorporating concepts regarding resistance, routines, and schematic changes to understand the adoption of EWIs in schools. In Chapter 4, I argue how micro-level changes are facilitated by the work of school improvement organizations, and how this feeds into larger institutional changes.

Taken together, this research makes explicit the multiple levels in an inhabited institution like that of school improvement. It interrogates the creation of this field—populated by individuals and organizations that influenced educational discourses, political struggles, and work routines. More than discrete agents, I also emphasize the role of embeddedness and interactions that bring about institutional changes. In this study, I conceptualize these connections as "webs" across macro-level logics, meso-level organizations, and micro-level routines. I advance a theorization of these strategic webs being employed by organizations outside the core field and creating their own field to influence educational changes.

Urban Dimension and Trans-Urban Spread

This research advances a theory of *institutional change* through the *multi-level analysis* of the work of *"outside" organizations*. In the process of doing research, however, I have found myself unable to fully theorize the processes of institutional change and policy adoption because many institutional and organizational theories made little reference to the spatial dimensions of spreading practices. To be fair, there is a growing number of scholars using a "place-based, organizational lens" to understand the spatial components of institutions and fields.[108] Thus, I take inspiration

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[108] Christof Brandtner and Walter W. Powell, "Capturing the Civic Lives of Cities: An Organizational, Place-Based Perspective on Civil Society in Global Cities," *Global Perspectives* 3, no. 1 (February 3, 2022), https://doi.org/10.1525/gp.2022.36408.

from, and contribute to, this community of scholars whose research help elucidate the grounded processes of institutional change as experienced in temporal and spatial reality.

Studies integrating urban and organizational perspectives have become common in the past 20 years with many studies looking at how cities are animated and changed by its network of organizational players such as state bureaucratic, for-profit, philanthropic, and community-based organizations.[109] Studies often look into the role played by organizations in urban governance, particularly in reaching and serving the city's poor.[110] Such dynamics, however, also lends itself well to political studies of how organizations are used and co-opted by partisan forces for their own electoral gains.[111] Although these scholars highlight the bidirectional contribution between urban and organizational theories, the studies often show the contribution of an organizational perspective to urban studies.

The present study turns this around by showing the contribution of urban theory and spatial attention to the theory of institutionalization. One of the few recent studies that attempt to do the same is Christof Brandtner's account of the adoption of green construction practices. He argues that diffusion studies have emphasized the *administrative adoption* through central authorities, and suggests that attention must also be given to the *distributed adoption* of innovations across local contexts brought about by the range of private, public, and nonprofit organizations in a city.[112] In this theorization, he focuses on understanding institutional changes and innovation diffusion with an eye towards the role of urban local contexts for its spread. I push this theorization by showing

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[109] McQuarrie and Marwell, "The Missing Organizational Dimension in Urban Sociology."
[110] Marwell and Morrissey, "Organizations and the Governance of Urban Poverty."
[111] Nicole P. Marwell, *Bargaining for Brooklyn: Community Organizations in the Entrepreneurial City* (Chicago and London: University of Chicago Press, 2009), https://www.degruyter.com/document/doi/10.7208/9780226509082/html; Nicole P. Marwell, Erez Aharon Marantz, and Delia Baldassarri, "The Microrelations of Urban Governance: Dynamics of Patronage and Partnership," *American Journal of Sociology* 125, no. 6 (May 1, 2020): 1559–1601, https://doi.org/10.1086/709250.
[112] Brandtner, "Green American City."

the grounded multi-level dynamics of such process in an educational initiative that has spread across the United States.

More than just emphasizing the importance of networks of organizations in particular places, this research contributes to studies regarding connections across local places. For example, Mengli Song and Cecil G. Miskel has highlighted the importance of networks for particular policy domains concerned with a substantive reform. In their study of reading policies in eight states in the US, they compared the structure of these networks of government and non-government actors, showing how government actors occupied more central and prestigious places.[113] Song and Miskel also highlighted how the networks had a core-periphery structure, where "governmental actors generally occupied more central positions than nongovernmental actors, [even as] certain nongovernmental actors were able to secure core network positions and exert strong policy influence on state reading policy as well."[114] In the present research, I find similarities in terms of governmental and nongovernmental actors influencing the spread of early warning systems. However, there are important divergences as my research challenges this place-specific view by showing how interconnections across cities were equally important and how innovation spread was facilitated by these place-spanning networks of organizations. Moreover, the core-periphery structure was not always the default structure for policy spread as some places like Chicago had a more embedded structure with no clear central actors—suggesting the possibility for reform efforts to be driven by collective movements rather than merely powerful state or non-state actors or organizations.

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[113] Mengli Song and Cecil G. Miskel, "Who Are the Influentials? A Cross-State Social Network Analysis of the Reading Policy Domain," *Educational Administration Quarterly* 41, no. 1 (February 1, 2005): 7–48, https://doi.org/10.1177/0013161X04269515.

[114] Mengli Song and Cecil G. Miskel, "Exploring the Structural Properties of the State Reading Policy Domain Using Network Visualization Technique," *Educational Policy* 21, no. 4 (September 1, 2007): 609, https://doi.org/10.1177/0895904806289264.

In Chapter 5, I document the spread of early warning indicators from Chicago, Philadelphia, and New York City to many other local school districts in the United States. By showing this process of spread across urban and rural locations, I theorize the spatial processes that animate the adoption of practices and policies across local systems. This emphasizes and reinforces the original argument of this research regarding the crucial role of organizations in the spread of innovations, particularly in a situation characterized by the lack of central authority and the absence of grassroots movements. It highlights that organizational and institutional changes do not just happen through the gradual movement of ideas across different organizations. They happen through the intentional work of organizations being connected with each across local settings. This chapter brings together key ideas from the previous three chapters to show how institutionalization happened across macro-, meso-, and micro-levels of the educational institution.

The sixth chapter highlights how EWIs spread within schools because of similar dynamics of attendance to macro-level meanings, meso-level support structures, and micro-level attention to the technologies and organizational routines. Drawing on interviews from school principals, teachers, counselors, and social workers, the chapter shows that EWIs' clear theory of change has helped the initiative resonate with practitioners on the ground. While resistance was present, schools were able to adapt general principles rather than specific practices related to EWIs. Finally, the coming together of district pressures and extra-organizational supports were key to EWIs being sustained in the contexts they were in.

Structure

The dissertation proceeds with an eye towards the three themes of source, scale, and space. Chapter 1 discusses the *source* of innovation as I investigate the role these outside school improvement

organizations have had in the spread of EWIs in the three cities. The next three chapters highlight the theme of *scale* as these chapters move from the macro-level of institutional logics (Chapter 2) to the meso-level of institutional entrepreneurs (Chapter 3) to the micro-level of organizational routines (Chapter 4). The last two chapters focus on *space* as I note the larger national spread of EWIs across the United States (Chapter 5) and the space of the school in how these practices were incorporated or resisted (Chapter 6). The conclusion offers a way of showing how these lessons from EWIs can be theoretically and practically be applied to other spaces within and beyond education. I also offer a methodological appendix that highlights the decisions and actions for this research.

Chapter 1:

Reforming Urban Schools and the Rise of "Outside" Organizations

In 1987, then US Secretary of Education William Bennett said the Chicago Public Schools was the nation's worst school district.[1] He added that "If it's not the last, I don't know who is. There can't be very many cities that are worse. Chicago is pretty much it." He recounted though that "a spokesman from the mayor's office responded immediately and said, 'We're not the worst. Detroit is the worst.'"

But whether it was indeed Chicago or Detroit or any other urban school district, the situation in the city was not good. Dropout rate in the city was high at 43 percent of the entering freshmen unable to finish high school, and among those who finished, few performed well in exams like the American College Test or ACT. Both of these realities Chicago officials and teachers were painfully aware of. In an article at the Chicago Tribune during the same year, it said that more than half of the city's public high schools were in the bottom 1 percent of schools nationwide.[2] And all this was happening in the context of a greater push for school accountability, pressures for the creation of school voucher programs, large bureaucratic inefficiencies, and a record 19-day teachers strike in September of 1987.[3]

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[1] Associated Press, "Schools in Chicago Are Called the Worst By Education Chief," *The New York Times*, November 8, 1987, sec. U.S., https://www.nytimes.com/1987/11/08/us/schools-in-chicago-are-called-the-worst-by-education-chief.html.

[2] Casey Banas and Devonda Byers, "Education Chief: City Schools Worst," *Chicago Tribune*, November 8, 1987, https://www.chicagotribune.com/news/ct-xpm-1987-11-08-8703230953-story.html.

[3] Julie Berry Cullen, Brian A. Jacob, and Steven D. Levitt, "The Impact of School Choice on Student Outcomes: An Analysis of the Chicago Public Schools," *Journal of Public Economics* 89, no. 5 (June 1, 2005): 729–60, https://doi.org/10.1016/j.jpubeco.2004.05.001; Anthony S. Bryk et al., *Charting Chicago School Reform : Democratic Localism as a Lever for Change* (New York, NY: Routledge, 2018); Banas and Byers, "Education Chief: City Schools Worst."

But it was not just Chicago that was experiencing this. Many urban schools and urban school districts were plagued with a similar host of issues. In the early 2000s, there were about a thousand high schools where students' odds of graduating were 50 percent at best. In around 2,000 high schools, a typical freshman class is reduced by 40 percent in senior year.[4] In Philadelphia, the percentage of students graduating in four years ranged between 45 to 52 percent, and those ending up with a high school diploma within six year ranged only between 54 and 58 percent. Put in perspective, during the first six years of the new millennium, around 30,000 students started ninth-grade in Philadelphia public schools but left without a diploma.[5] In New York City during the same time period, the education system graduated between 44 to 52 percent of students who began as freshmen four years earlier.[6] It was as the Washington report ominously titled, *A Nation At Risk*.[7]

But this nation at risk was also a nation known for its suspicion of state intervention. At the heart of this was what Kimberly J. Morgan and Andrea Louise Campbell referred to as a fundamental ambiguity in American public opinion: "that Americans want government programs but dislike government."[8] In education in particular, in contrast to other countries that have uniform national curricula, state exams, and teacher training institutions, the United States promoted wide variation of practices—with states, school districts, and local boards determining

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[4] Balfanz and Legters, *Locating the Dropout Crisis. Which High Schools Produce the Nation's Dropouts?*
[5] Neild and Balfanz, *Unfulfilled Promise*.
[6] Maria Newman, "Graduation Rate Declines To Lowest in Eight Years," *The New York Times*, December 30, 1994, sec. New York, https://www.nytimes.com/1994/12/30/nyregion/graduation-rate-declines-to-lowest-in-eight-years.html; Chelsea Farley, Kayla Stewart, and James J Kemple, "How Have NYC's High School Graduation and College Enrollment Rates Changed Over Time?," 2019, https://steinhardt.nyu.edu/research-alliance/research/spotlight-nyc-schools/how-have-nycs-high-school-graduation-and-college.
[7] United States National Commission on Excellence in Education, *A Nation at Risk: The Imperative for Educational Reform* (Washington, DC: The National Commission on Excellence in Education, 1983).
[8] Kimberly J. Morgan and Andrea Louise Campbell, *The Delegated Welfare State: Medicare, Markets, and the Governance of Social Policy*, Oxford Studies in Postwar American Political Development (New York: Oxford University Press, 2011), 6.

what education looked like for them. As David K. Cohen and Susan L. Moffit described in their book *The Ordeal of Equality*, the United States did not develop a common set of instruments for teaching and learning that made it impossible for the government to guide what happened inside classrooms.[9] In a way, the country had lacked a national infrastructure crucial in spreading practices and innovations, and these different school districts were left to work on their educational problems locally.

Scholars argue that the problem with urban schools is not the lack of reforms but the incoherence of these reforms.[10] For example, scholars like Frederick Hess argued that such incoherence is driven by the fragmentary nature of reform often done by new administrators and district leaders who want to demonstrate they are "making a difference."[11] Such changes were driven more by symbolic ideas and less because of rational, evidence-based proposals. Others have also argued the importance of these reforms being aligned with both prevailing norms (i.e., culture) and being supported by the needed educational infrastructure (i.e., structure).[12] In addition to policies not having enough room and time to pan out, these policies also meet significant resistance on the ground as teachers feel tremendously burdened by new reforms, or do not feel supported to realize reforms that ultimately fall upon them to implement.[13] From one end, these reforms fail because of their incoherence with each other and their inability to be embedded in the current

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[9] Cohen and Moffitt, *The Ordeal of Equality*.

[10] James P. Spillane et al., "Striving for Coherence, Struggling With Incoherence: A Comparative Study of Six Educational Systems Organizing for Instruction," *Educational Evaluation and Policy Analysis* 44, no. 4 (December 1, 2022): 567–92, https://doi.org/10.3102/01623737221093382.

[11] Frederick M. Hess, *Spinning Wheels: The Politics of Urban School Reform* (Washington, DC: Brookings Institution Press, 2011).

[12] David K. Cohen and Jal D. Mehta, "Why Reform Sometimes Succeeds: Understanding the Conditions That Produce Reforms That Last," *American Educational Research Journal* 54, no. 4 (August 1, 2017): 644–90, https://doi.org/10.3102/0002831217700078.

[13] Jessika H. Bottiani et al., "Teacher Stress and Burnout in Urban Middle Schools: Associations with Job Demands, Resources, and Effective Classroom Practices," *Journal of School Psychology* 77 (December 1, 2019): 36–51, https://doi.org/10.1016/j.jsp.2019.10.002; Afsaneh Ghanizadeh and Safoura Jahedizadeh, "Teacher Burnout: A Review of Sources and Ramifications," *Journal of Education, Society and Behavioural Science*, 2015, 24–39, https://doi.org/10.9734/BJESBS/2015/15162.

educational infrastructure. From the other end, the reforms leave teachers and school staff with little support, guidance, and help that make these theoretically promising policies not as effectively implemented. Thus, both top-down infrastructural and bottom-up cultural supports are necessary for changes to be taken up and implemented.

It was in this context that local organizations had started to emerge, organizations that had intended to help and support local schools and school districts. This chapter investigates the work of these "outside" school improvement organizations in three cities—many of which were local to Chicago, Philadelphia, and New York City—and I do this through the perspective of people at the top. These were leaders who were deeply immersed in changes that had happened in terms of how people thought of research, philanthropy, and school improvement. While urban districts have had a long history of bad reputation with their failing schools, corrupt politicians, depressing inequalities, and low teacher morale, I argue in this chapter that the same urban centers have become fertile grounds for new organizations to emerge with an honest desire to improve schools and support students (even if such well-intentioned desires don't always come to fruition).[14] In the context of the crisis and need to reform urban schools during the turn of the 21st century, many local organizations have risen to become places for new ideas to be outsourced and instituted.

Concentrating on these three cities that have similarly had high rates of dropouts, this chapter looks at the emergence of three unique sets of school improvement organizations: (1) place-based research organizations, (2) intermediary school support organizations, and (3) local and national education philanthropies. While there was wide variety of stakeholders in these

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[14] Erica Frankenberg, "The Demographic Context of Urban Schools and Districts," *Equity & Excellence in Education* 42, no. 3 (August 25, 2009): 255–71, https://doi.org/10.1080/10665680903032294; Jose Eos Trinidad, "Will It Matter Who I'm in School with? Differential Influence of Collective Expectations on Urban and Rural US Schools," *International Studies in Sociology of Education* 29, no. 4 (October 1, 2020): 344–65, https://doi.org/10.1080/09620214.2019.1673791; Payne, *So Much Reform, So Little Change*.

categories of research, philanthropic, and intermediary organizations, I show that such organizations are core to understanding the spread of innovation not only within urban school districts but also across them. Through time, in a decentralized educational system like the United States, this coming together of school improvement organizations had become a burgeoning *invisible infrastructure* for the spread of school innovations and interventions. But this discussion should also open conversations for the potential risks of such private interests in public education, of civil tinkering on state institutions. In a sense, the rise of outside organizations is not heralded as a triumph nor is it bemoaned as nefarious. Rather, I lay down the context, the actors, and the issues in such rise in order to crack open the realm of possibilities and change.

The Exoskeleton

Penny Bender Sebring and her husband Charles "Chuck" Lewis were prominent in the Chicago education and philanthropic circles. Sebring had been part of the University of Chicago Consortium on School Research[15] ever since it started in 1990 while Lewis was former vice chairman of investment banking at Merrill Lynch and trustee at the University of Chicago. Together, they formed the Lewis-Sebring Family Foundation, supporting initiatives in education. Both had an interesting way of describing the collection of local organizations that were supporting the Chicago Public Schools since the late 1990s. They described these coming together of researchers, universities, nonprofit organizations, government offices, foundations, and professional organizations as an *exoskeleton*. During our conversation, Sebring elaborated this idea that her husband thought of as,

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[15] The University of Chicago Consortium on School Research (UChicago Consortium) was previously named the Consortium on Chicago School Research, which was their name until around 2010. However, for consistency, I use the current name of the UChicago Consortium.

If you think about a turtle that has an exoskeleton, the plates are the connections, the different entities, and they're connected to each other. So, they're all one exoskeleton, and they act to protect and support the vulnerable organ underneath, which is the school system.

In this cogent observation, Sebring and Lewis emphasized how these organizations outside the formal education system were crucial in connecting with each other and protecting the system inside. Sebring discussed how research could influence the school system, how foundations were important in supporting talented people and interesting ideas, and how nonprofit organizations were crucial in bringing the ideas directly into the schools. Lewis would detail how different families and individuals were connected because of their support of local institutions like education, and how this exoskeleton was "perhaps not unique… but it's unusually strong here" in Chicago.

In this section, I take inspiration from this image of the exoskeleton, describing the three core groups of individuals and organizations that outside the formal and bureaucratic education system. Although these organizations have little direct impact on the governance and everyday proceedings in schools, I argue that their work has had wide albeit invisible influence on what happened inside schools. For example, the results of research surveys helped inform district policies, philanthropic investments opened opportunities for new professional trainings and data tools, and outside coaches, facilitators, coordinators and social workers added support to meet the demands in high poverty and racially minoritized communities. Although not always successful and not without self-interests, their absence is interestingly consequential and their presence only subtly acknowledged.

In describing both for-profit and nonprofit organizations, Brian Rowan suggested the concept of the *school improvement industry* as providing schools and its governing agencies with materials, research, information, training, and other resources for instructional and organizational improvement. [16] These included not just research firms and professional development organizations but also book publishers, instructional program providers, professional associations, advocacy groups, and teachers unions. However, I appropriate this by concentrating on the local configuration of organizations, highlighting that place, space, and history are critical loci for the interrogation of education and policies. Thus, I concentrate on the local exoskeleton—of research, intermediary, and philanthropic organizations—supportive of local urban school districts.

Research Organizations

One set of organizations critical in school improvement are research organizations that provide information and build capacity for school districts. Widely varying in their forms and collaborative practices, these organizations often form part of educational research-practice partnerships (RPPs), which are defined as intentionally-organized collaborations aimed at educational improvement and equity through engagement with research.[17] These partnerships between researchers on one side, and practitioners and policymakers on the other often had positive outcomes, but much of these were dependent on practitioners' and decision-makers' openness and sensemaking processes.[18]

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[16] Rowan, "The Ecology of School Improvement: Notes on the School Improvement Industry in the United States."

[17] Farrell et al., *Research-Practice Partnerships in Education: The State of the Field*.

[18] Cynthia E. Coburn and William R. Penuel, "Research–Practice Partnerships in Education: Outcomes, Dynamics, and Open Questions," *Educational Researcher* 45, no. 1 (January 1, 2016): 48–54, https://doi.org/10.3102/0013189X16631750; Meredith I. Honig and Nitya Venkateswaran, "School–Central Office Relationships in Evidence Use: Understanding Evidence Use as a Systems Problem," *American Journal of Education* 118, no. 2 (February 2012): 199–222, https://doi.org/10.1086/663282.

Thus, it was crucial to learn not just the organizational connections but also the personal dynamics in the emergence and continuation of RPPs.

Widely considered as one of the first organizations to do place-based research-practice partnerships, the University of Chicago Consortium on School Research (UChicago Consortium) had supported the Chicago Public Schools "through the findings and implications of specific research studies and more broadly by improving the capacity of the district to use data, build effective strategies, and evaluate progress."[19] Yet such official aims were often peppered with political struggles, relational opportunities, and interorganizational uncertainties. Penny Sebring who was at one point co-director at the UChicago Consortium detailed how personalities were as much included in the mix as objective data.

In the late 1990s, the Consortium did a study of Chicago's policy on ending social promotion and found, as with other studies, the negative consequences of retaining a student at a particular grade.[20] The district's chief during that time Paul Vallas had initiated this policy, and was at odds with the Consortium's director Anthony Bryk, concurrently a professor at the University of Chicago. Sebring recalled that "there was back-and-forth controversy in the newspapers; there would be detailed letters that Tony [Bryk] would write to Paul [Vallas] where he said things and we'd have to push back; we'd say things and he'd push back." These dynamics of conflict and struggle were often absent in the rhetoric of partnership, but they existed in the genesis of organizational connections.

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[19] Melissa Roderick, John Q. Easton, and Penny Bender Sebring, *The Consortium on Chicago School Research: A New Model for the Role of Research in Supporting Urban School Reform* (Chicago, IL: Consortium on Chicago School Research, 2009), https://eric.ed.gov/?id=ED505883.

[20] Melissa Roderick et al., *Ending Social Promotion: Results from the First Two Years. Charting Reform in Chicago Series 1* (Chicago, IL: Consortium on Chicago School Research, 1999), https://eric.ed.gov/?id=ED439214; Guanglei Hong and Stephen W. Raudenbush, "Effects of Kindergarten Retention Policy on Children's Cognitive Growth in Reading and Mathematics," *Educational Evaluation and Policy Analysis* 27, no. 3 (September 1, 2005): 205–24, https://doi.org/10.3102/01623737027003205; Melissa Roderick, "Grade Retention and School Dropout: Investigating the Association," *American Educational Research Journal* 31, no. 4 (1994): 729–59.

Such tensions, however, can settle and lead to partnerships that would eventually flourish. But the lesson from Chicago was also about importance of personal relationships and connections even above formal contract-driven collaborations. After Paul Vallas left the district, Arne Duncan was chosen as the Chief Executive Officer while Barbara Eason-Watkins was recruited as his Chief Education Officer. The Consortium, interestingly, had tight connections with these people through Anthony Bryk and John Easton, the organization's first two executive directors. Sebring recalled how these relationships were crucial for the RPP,

> John Easton had been a friend of [Arne Duncan], because when Arne, while he was working for Paul [Vallas], learned that he couldn't get data from CPS on a particular question, he could always get it from John. And so, those two, they respected each other…. Tony [Bryk] and his colleague, Sharon Greenberg, actually had started this center of work called the Center for School Improvement, and they were working with a small number of schools to improve leadership and the teaching of reading. So, Barbara [Eason-Watkins] had started to work with people at the Center. So, with Arne and Barbara, we at the Consortium, through our normal tentacles in relationships, knew both of them.

Such narratives of personal relationships—often absent in most official documents and contracts of RPPs—function as a reminder of how the political and personal intersect with the formal and organizational. With this too, as Sebring noted, it was important not just to have relationships at the top with its usual churn of political appointees, but also to create relationships at the lower levels of the bureaucracy. She noted that "even though the top was changing a lot, we did have a lot of relationships and we never had to stop a study because of any leadership changes." When

many RPP studies focus on their unique activities, I argue the necessity for understanding this human aspect of its coming together, which among other things, had led to Chicago's adoption of ninth-grade early warning indicators (EWIs).

Not quite similar as the Chicago model, the Philadelphia Education Research Consortium (PERC) was a partnership between the research firm Research for Action and the School District of Philadelphia's Office of Research and Evaluation that started in 2014. While the UChicago Consortium was its own entity, PERC lived between two organizations and had co-directors from each of the two organizations. Its co-director from the side of Research for Action, Alyn Turner highlighted that unlike academic research partnerships, theirs was "driven by the incentives of providing research for people to *make decisions* and for *community members to have insights* into the processes that affect them" (emphasis added). But like the UChicago Consortium, PERC had also studied the transition to ninth-grade, the importance of particular EWIs, and their implications for high school graduation. On the one hand, this had been informed by the work being done in Chicago but on the other hand, it was also considered a continuation of earlier work by researchers from Johns Hopkins University.

New York City also had its own RPP with the Research Alliance for New York City Schools, which started in 2008. One of the main tensions, as its director James Kemple noted, was its being a "multi-institutional consortium" housed in New York University, lending itself to be seen as an NYU enterprise. Like the two other research organizations, the Research Alliance had also been critical in studying ninth-grade transition and indicators. Kemple shared how their organizations had risen second to the UChicago Consortium, around the same time as the Baltimore Education Research Consortium. He continued that, "other cities like Philadelphia, Kansas City, Los Angeles, Houston, and New Orleans have followed suit with similar

organizations, and even states like Tennessee have started similar organizations." Such spread of place-based research organizations and research-practice partnerships have been ushered between the late 1990s and 2010s, and the work of preventing dropouts were critically initiated in these places. Rather than concentrate on each of these organizations, I interrogate the connections of these organizations to each other and to the other plates in the exoskeleton so described earlier.

Intermediary and School Support Organizations

At times, research on good instruction and effective practices fail to influence district policies and instructional routines because schools are left unguided how to translate the research to everyday practices. Moreover, even if district policies have instituted reforms, school leaders and teachers may not have the necessary supports to attend to these reforms. Because of this lack, "intermediary organizations" have found a niche to fill in. Growing in prominence at around the same time as the rise of place-based research organizations, these intermediary organizations operate between researchers and policymakers on one hand, and implementers and teachers on the other—trying to influence the grounded implementation of school changes through new knowledge, creation of political and social ties, and help with administrative infrastructure.[21] Also known as school reform or school support organizations, they take many forms with some offering periodic professional development and coaching to teachers while others almost operating the whole school through its direct management.[22] Researchers like Janelle Scott, Huriya Jabbar, Elizabeth DeBray, and Christopher Lubienski have drawn on various examples from urban school districts to document

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[21] Honig, "The New Middle Management."

[22] Tina Trujillo, "The Modern Cult of Efficiency: Intermediary Organizations and the New Scientific Management," *Educational Policy* 28, no. 2 (March 1, 2014): 207–32, https://doi.org/10.1177/0895904813513148.

the rise, purpose, and intricate networks of intermediary organizations that promote new educational practices and incentives-focused reforms.[23]

In this section, I draw inspiration from these previous studies to introduce the cast of intermediary organizations that have been consequential in spreading the importance of ninth-grade and on-track EWIs. Concentrated still in the three cities, these organizations had different models for intermediation: One used a networked approach while two used a whole-school reform model. Despite these differences, they all aimed to work directly in and with schools, translating both district policies and research studies into concrete actionable steps. Such cast of organizations and individuals—many of which had become networked with each other—also influenced the spread of these new practices.

In Chicago, the Network for College Success was not created as a school support organization furthering the work on ninth-grade EWIs. Conceived in 2005, it was mainly a network of school principals who were trying to support and learn from each other. When its co-founder Sarah Duncan described the organization's genesis, she spoke about the insight that her other co-founder Melissa Roderick had in terms of getting answers in the field. Duncan continued,

> I think this is in contrast to what a lot of professors would do, which would be to diagnose [a problem], to create a program, to sell it to the district, and then have the district try to implement it with fidelity. And Melissa was intentionally not trying to do that, which in my view allowed this work to happen in the way that it did.

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[23] Scott and Jabbar, "The Hub and the Spokes"; Scott et al., "Urban Regimes, Intermediary Organization Networks, and Research Use"; DeBray et al., "Money and Influence"; Priya G. La Londe, T. Jameson Brewer, and Christopher A. Lubienski, "Teach for America and Teach for All: Creating an Intermediary Organization Network for Global Education Reform," *Education Policy Analysis Archives* 23, no. 47 (April 20, 2015), https://eric.ed.gov/?id=EJ1070361.

For Duncan and Roderick, the answer lay in catalyzing a group of school leaders to build on each other's capacities and collectively solve problems. Yet, it was during this time too that the EWI work in Chicago was gaining prominence with new studies on the importance of ninth-grade coming out of the UChicago Consortium with new accountability systems and data tools being implemented by the district. Thus, many of the convenings of the principals would concentrate on this metric. This also started the work of coaches and facilitators that worked with specific networks of schools to help them improve on-track rates, identify students in need of support, and use new data tools.

Although the model for school support in Chicago was about networked schools, the model in Philadelphia and New York was about whole-school improvement or reform. In Philadelphia, this work was initiated in 1997 by a team from Johns Hopkins University's Center for the Social Organization of Schools. Its director Robert "Bob" Balfanz spoke about their work as "evidence-based whole-school reform models for high poverty middle and high schools." They had pilot middle schools in Philadelphia and pilot high schools in Baltimore, and their Philadelphia work became prominent because of the data they were able to access that led them to understand predictors of dropping out—a core problem in urban schools at the turn of the 21st century. Thus, the school support organization in Philadelphia, which worked on whole-school improvement processes, had also taken on the work of research.

In New York City, a similar model existed with nonprofit and university partners collaborating with the New York City Department of Education to support a set of 164 schools. Each "affinity school"[24] was supported by a larger organization, like New Visions for Public

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[24] The term "affinity school" is the most recent way of calling these organizations. They were previously called "partnership support organizations."

Schools, Outward Bound, Urban Assembly, and the City University of New York—as these organizations collaborating with schools in terms of curriculum, teacher training, data tools, and other aspects of school improvement.[25]

One of these organizations, New Visions for Public Schools, had originally led the small schools movement in the city that had broken up large comprehensive high schools to support smaller schools of less than a thousand students. Much has changed since this movement in the late 1990s as its chief of staff described that they currently "have a contract through the DOE [Department of Education] where we partner directly with 71 district high schools to provide coaching within the context of those schools, both around data [and] developing systems for leadership and continuous improvement." Nikki Giunta, New Visions' chief of staff, further described the details of what they do and their management of a number of charter schools,

> We have a full open-source curriculum since there is no standardized curriculum [in the United States]. Our team has helped work with teachers to provide open-source curriculum that's being used by hundreds of thousands of teachers across the country, internationally as well. We have community and family engagement where we're really working on partnerships and internship opportunities and ensuring that students are prepared for whatever postsecondary experiences, whether it's college or career. We are also a charter management organization of ten schools.... So, we kind of do a wide breadth of work within the education space, and most recently is our data tool.

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[25] Alex Zimmerman, "DOE Backs Off Plan to Overhaul How 164 Schools Are Supervised," The City, July 22, 2020, https://www.thecity.nyc/2020/7/21/21333583/doe-backing-off-plan-to-overhaul-how-affinity-schools-are-supervised.

This data tool would be a core part of this story in New York City as the tool had spread from a few affinity schools under New Visions to many other public schools in the district. This hints at the core argument I make about how these outside organizations have the power and capacity to spread new practices more fully, and at times even better, than state institutions.

Philanthropic Organizations

Many of these research and intermediary organizations rely on philanthropic support and project-specific grants. Studies on philanthropy have often focused on the role of financial funding and resources in the direction and support of public and nonprofit initiatives.[26] Although previous studies have bemoaned the failure of foundations to make an effective dent on public education, the tenor of the conversation has changed over the past twenty years with the criticism directed towards foundations becoming "too powerful and… attempting to privatize public education from their lofty headquarters."[27] Since the early 2000s, scholars have noted the enlarged role of philanthropy—in particular, venture philanthropy characterized as foundations providing sizable investments on particular organizations and initiatives in order to achieve certain philanthropic goals.[28] In a way, while there were obvious benefits to the support of philanthropies on school improvement, they were not immune to criticism either of their lackluster influence or their outsized collective impact on public education.[29] However, I argue these studies have often

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[26] Quinn, Tompkins-Stange, and Meyerson, "Beyond Grantmaking."

[27] Sarah Reckhow and Jeffrey W. Snyder, "The Expanding Role of Philanthropy in Education Politics," *Educational Researcher* 43, no. 4 (May 1, 2014): 186, https://doi.org/10.3102/0013189X14536607.

[28] Kenneth J. Saltman, *The Gift of Education: Public Education and Venture Philanthropy* (New York, NY: Palgrave MacMillan, 2010); Scott, "The Politics of Venture Philanthropy in Charter School Policy and Advocacy"; Kenneth Zeichner and César Peña-Sandoval, "Venture Philanthropy and Teacher Education Policy in the U.S: The Role of the New Schools Venture Fund," *Teachers College Record* 117, no. 5 (January 6, 2015): 1–44.

[29] Stephen J. Ball, "New Philanthropy, New Networks and New Governance in Education," *Political Studies* 56, no. 4 (December 1, 2008): 747–65, https://doi.org/10.1111/j.1467-9248.2008.00722.x; Tompkins-Stange, *Policy Patrons*; Joel L. Fleishman, *The Foundation: A Great American Secret; How Private Wealth Is Changing the World* (New York, NY: Public Affairs, 2009).

investigated the role of large national foundations like the Gates and Broad Foundations—consequently inattentive to the wide variety of philanthropic organizations.

A key missing aspect with these studies on philanthropy is the role of *local* philanthropic efforts, and how the local ecosystem of philanthropic support is consequential for the trajectories of educational improvement efforts. Charles Lewis, who earlier detailed his thoughts on the exoskeleton of outside organizations for public education, had spoken about how Chicago has multiple generations of families engaged in philanthropy, and how "the various people feed off of each other, and there's a very robust informal [philanthropic] community." In particular, he spoke about the work of family foundations like that of the Pritzkers, Crowns, Kaplans, and Griffins as well as the more established foundations like the Spencer and W.T. Grant Foundations. For him, it was not just about single philanthropies making a contribution to education but the embedded connections among them that further the work of education change.

Lewis realistically acknowledged though the self-interests that lie with the private sector and elites getting involved in schools, particularly as there was a "thinking that the private sector does a better job than public sector." He emphasized, however, that such self-interest was necessarily coupled with an interest to keep the city of Chicago healthy, a sense of responsibility that elites had of taking care of public institutions not just in education but also in culture and the arts. Although criticisms of philanthropic support were not without merit, a balanced perspective necessarily views the coming together of both altruistic and self-interested motives in the support of educational initiatives.

In Philadelphia, the William Penn Foundation has had more than 75 years of philanthropic support of initiatives in the greater Philadelphia region. Its chief philanthropy officer, Elliot Weinbaum, highlighted how this foundation is "by far the biggest in the city" and how it tries to

work with other foundations in the area. He noted of other organizations that were "making grants of $25,000 or $50,000, which are good and important but not transformative in a system with a three billion dollar budget," referring to the education budget in the city. Another foundation in the city was the Neubauer Family Foundation that brought a team from the University of Chicago to further the work of EWIs in the city. While not as large as national philanthropies, these local foundations provide key infrastructural and financial supports to sustain the work of nonprofit and district initiatives in education.

In New York City, the ecosystem was more dynamic as the city was home to different community-based organizations and foundations. Edwin Darden, a senior program officer at the Gates Foundation, spoke about how the city has "a lot of private enterprises, both individuals and organizations, and particularly corporations that are interested in the success of schools." Because of the national scope of the Gates Foundation and the presence of local philanthropies and nonprofits, he was careful not to impose the Foundation's ideas and acknowledges the "interconnected system" he was a part of. In his work, however, part of what he had done is to connect various institutions and organizations like the Department of Education, Research Alliance, and some community-based organizations that were collaborating more closely because of such support from the Foundation.

Taken together, although many previous studies have feared the unchecked and unaccountable powers of single philanthropies, a networked approach to understanding their emergence and presence can provide a different set of questions through which they can be interrogated. As I show in this research, the connections and relational aspects of philanthropy opens conversations on both the potential opportunities and risks of the influence of outside organizations.

Potentials of Outside Organizations

Research, school support, and philanthropic organizations have the potential to influence individual schools and school districts. Studies of research-practice partnerships, intermediary organizations, and large and small foundations have emphasized the power they can wield in bringing about significant educational changes in terms of additional knowledge, better infrastructure, wider networks, new data, and greater efficiency.[30] But many of these studies concentrate on individual organizations and local changes. In this research, I take a more expansive perspective, suggesting that the "exoskeleton" with its interconnected organizations were crucial not only in changes in their respective urban school districts but also in larger transformations across the nation. In a way, I suggest that the local exoskeleton has important consequences for the national spread of innovation.

As these outside organizations have risen and become connected with each other, they have created new fields such as the research-practice partnership (RPP) field, the school support organization network, and the field of venture philanthropy.[31] The presence of such fields and networked individuals has provided a space for understanding the role these organizations play in the educational ecosystem. For example, RPPs have commonly understood their role as focused

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[30] Cynthia E. Coburn, William R. Penuel, and Caitlin C. Farrell, "Fostering Educational Improvement with Research-Practice Partnerships," *Phi Delta Kappan* 102, no. 7 (April 1, 2021): 14–19, https://doi.org/10.1177/00317217211007332; Penuel and Watkins, "Assessment to Promote Equity and Epistemic Justice"; Honig, "The New Middle Management"; David Eddy-Spicer, Paula Arce-Trigatti, and Michelle D. Young, "Field Building through Strategic Bricolage: System Leadership and the Institutionalizing Role of Intermediary Organizations," *Journal of Professional Capital and Community* 6, no. 1 (January 1, 2020): 29–43, https://doi.org/10.1108/JPCC-11-2019-0032; Quinn, Tompkins-Stange, and Meyerson, "Beyond Grantmaking"; Reckhow, *Follow the Money*; Tompkins-Stange, *Policy Patrons*.

[31] Fligstein, "Social Skill and the Theory of Fields"; Farrell et al., *Research-Practice Partnerships in Education: The State of the Field*; Rebecca Unterman, *An Experienced School Support Organization at Scale: A Study of The Urban Assembly Network (Proposal with the Institute for Education Sciences)* (New York, NY: MDRC, 2021); Trujillo, "The Modern Cult of Efficiency"; Saltman, *The Gift of Education*.

on educational improvement or transformation through long-term collaborative work with policymakers and practitioners, drawing on different people's diverse knowledge.[32] But even as these new fields have had manifest functions, they too have had more subtle and latent functions in their local educational systems as well as the broader education ecology. In this section, I draw on the responses of informants from the various organizations I interviewed, attentive to how they saw the latent benefits of this interconnected web of organizations.

Given the connection of organizations with each other, it can function as a supportive national infrastructure to "standardize" practices. William Corrin was the director of K-12 education at MDRC, a national research organization that had studied one whole-school reform organization using EWIs. He emphasized how education in the United States was so decentralized and locally controlled that "as you go higher in the government or agency structure, there's ever more limits on how much [you can] influence." While the federal government had ways of incentivizing schools and districts, these can have little impact on what happens inside classrooms.[33] Because of this lack of a national infrastructure, Corrin commented on the possibility for this field of organizations to fill that gap. He said,

> I think what some of the national education intermediaries offer is a way to try to *standardize best practice in disparate local areas*. So, if I earn the trust of the local district or the local schools… that can actually touch districts all over the country and kids all over the country if a national organization really thought about it. (emphasis added)

[32] Coburn, Penuel, and Farrell, "Fostering Educational Improvement with Research-Practice Partnerships."
[33] Cohen and Moffitt, *The Ordeal of Equality*.

It was not, however, just individual national organizations but the field of organizations that were knowledgeable and connected with each other. These outside organizations have the potential of bringing about national level changes without the federal government stepping in. As I alluded to earlier, the paradox of individuals wanting government programs but being suspect of big government can be addressed by the role played by these organizations.

But these outside organizations did not just help with spread, they also help with sustainability. This insight was proffered by Rebecca Cornejo, the executive director of the Neubauer Family Foundation in Philadelphia. She said that "philanthropy is the one place that can take a truly long-term view on this because mayors and superintendents cycle out." In urban areas where superintendents and mayors transition quickly, and where education reforms go in and out with certain administrations, these outside organizations provide a stabilizing presence. It was not just about philanthropy, however, since research organizations connected with central offices can provide institutional memory as the district changes the top guards. One example of this was Chicago, which between 2009 and 2021 has had ten Chief Executive Officers. In this environment of precarity, the UChicago Consortium had become a stable and stabilizing presence that continued its work and research through connections made with officials below the top hierarchy. Thus, this invisible infrastructure of outside organizations functioned to both spread and stabilize educational initiatives, protecting them from the precarities of decentralized and often-changing systems.

Organizations have also seen their role as complementary to the district. They often saw their task as supporting and advocating programs that the district had no bandwidth to see through as the central office had to put out fires in the district. While foundations and organizations can directly support the district by infusing them with funds, not a few philanthropists and philanthropic managers were wary of this. They reasoned that their contribution would be just a

bucket of water in the ocean of bureaucracy. A program officer from Chicago's Kaplan Family Foundation noted such concerns by other philanthropists. Shira Bernstein said,

> There's been wariness over the years about directly putting money in the CPS [Chicago Public Schools] because of continuously changing leadership or thinking of it as like the black hole of where funds end up. And so, foundations have found alternate paths for supporting CPS students through non-profits.

Foundations that have often given out grants in the tens and hundreds of thousands are, of course, aware that this was but a small drop in the billion-dollar budgets of large urban school districts.[34] Thus, they have set up their work outside school districts, partly so that their support can be more directed and focused on programs that the district had little bandwidth to concentrate on.

Connected with this idea regarding outside organizations' ability to focus on particular programs is the possibility for research, intermediary, and philanthropic organizations to bear certain risks for the conduct of new initiatives. A former senior program officer at the Bill and Melinda Gates Foundation called this "risk capital" that the philanthropies can take on because they do not need to turn a profit nor do they have to be accountable to taxpayers. Having been with the Gates Foundation from 2000 to 2013, Dave Ferrero believed that the function of these outside organizations was "to come in and tinker, and figure out solutions, which then it can hand off to the market and/or to the government."

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[34] In 2022, for example, the Chicago Public Schools had a budget of $9.5 billion, the School District of Philadelphia had a budget of $3.9 billion, and the New York City Department of Education had a budget of $31 billion.

More political reasons also existed for why philanthropies support outside organizations. Recalling his time as President and CEO of New Visions for Public Schools in New York, and why philanthropies supported outside organizations, Bob Hughes said that this funding "was originally just a way for funders to track how their money was being spent. They didn't trust big bureaucracies in the early days and so they wanted a separate entity that would work with the district and be accountable for how the Foundation dollars were spent." While this exoskeleton had intrinsic benefits to their being employed, it was not absent of the political considerations that made it more practical, pragmatic, and potentially even prudent, to spend money on these outside organizations than large bureaucratic school districts.

But while these potentials—some of which have been actualized while others still dormant—are important facets to consider in understanding the work of these "outside" organizations, they are not immune to compromises and undesired consequences on the ground. Although this invisible infrastructure of organizations can be key to spreading and stabilizing education initiatives, as well as testing them and advocating for their use, individuals within these organizations had been well aware of the potential for harm with their power.

Risks with Outside Organizations

Studies critical of this invisible infrastructure often refer to it as the "shadow bureaucracy" of education as foundations and nonprofits allied with elite networks within the district further specific projects, programs, and policies aligned with their particular theories of change.[35] Using the example of the spread of charter schools and charter management organizations, researchers have shown that these networks of charter schools and their funders have at times sought to

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[35] Reckhow, *Follow the Money*.

challenge the traditional public education system, leading to many political questions about where power is located within school systems.[36] Although scholars are sensitive to these dynamics and heighten the awareness on the potential perils of the power of outside organizations, it was surprising and unexpected that the very individuals within these organizations were forthcoming and eloquent about what they saw the risks were for the exoskeleton of research, nonprofit, and philanthropic organizations.

While Dave Ferrero from the Gates Foundation had earlier spoken about the potential for philanthropies to take on the risks associated with testing new programs and handing these off to the government, he followed this up with a sobering dose of reality. He said,

> My misgivings had to do with the fact that in reality, on the ground, it just tended to sometimes create all kinds of *perverse incentives*…. Small schools became like this national buzzword. And then suddenly you had other non-profits, other philanthropies, and the government all of a sudden redirecting resources toward that because they thought, "Well, if Bill Gates is doing it, Bill Gates must know." (emphasis added)

For him, the power of particular organizations to set the agenda and let other organizations follow suit can be rather risky. In his example, the small schools of choice movement in New York City was bankrolled by the Gates Foundation with the theory that high schools of less than 550 students would help disadvantaged youths through rigorous instruction and close personal relationships.[37]

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[36] Quinn, Tompkins-Stange, and Meyerson, "Beyond Grantmaking"; Reckhow and Snyder, "The Expanding Role of Philanthropy in Education Politics"; Scott, "The Politics of Venture Philanthropy in Charter School Policy and Advocacy."

[37] Howard S. Bloom et al., "Lessons from New York City's Small Schools of Choice about High School Features That Promote Graduation for Disadvantaged Students," *Journal of Policy Analysis and Management* 39, no. 3 (2020): 740–71, https://doi.org/10.1002/pam.22192.

However, studies have shown mixed results with some suggesting positive impact on high school graduation while others noting no discernible differences—a sticking point given the large financial investments in the creation of small schools. [38] Other research has emphasized the variation in effects with newly created small schools having positive effects on graduation and older small school not having any.[39] Looking in retrospect, Ferrero commented how "that's a lot of power to concentrate in such few hands."

The other potential perverse incentive he noted was mission creep, which he described happens when "an organization tries to position itself to receive funding… [as] they nudge their own model towards supporting small schools." Since the Gates Foundation was funding the creation of these schools, organizations had an incentive to position themselves as providers. This was seconded by Robert Schwartz, a Harvard professor emeritus who had been part of various nonprofits and grant-giving bodies. For him, the most concerning aspect of how philanthropy was operating now was the confusion between funding and setting the agenda. He said,

> Whenever you hear foundation people talking about partnership, consider that a bad sign.
> The relationship between funders and grantees is not a partnership; the balance of power is always on the side of the foundation…. I mean, we're funders. You know, let's not get confused about this. The other people are doing the work, we're supporting the work.

[38] Howard S. Bloom and Rebecca Unterman, "Can Small High Schools of Choice Improve Educational Prospects for Disadvantaged Students?," *Journal of Policy Analysis and Management* 33, no. 2 (2014): 290–319, https://doi.org/10.1002/pam.21748; Sarah Butler Jessen, "Special Education & School Choice: The Complex Effects of Small Schools, School Choice and Public High School Policy in New York City," *Educational Policy* 27, no. 3 (May 1, 2013): 427–66, https://doi.org/10.1177/0895904812453997.

[39] Amy Ellen Schwartz, Leanna Stiefel, and Matthew Wiswall, "Do Small Schools Improve Performance in Large, Urban Districts? Causal Evidence from New York City," *Journal of Urban Economics* 77 (September 1, 2013): 27–40, https://doi.org/10.1016/j.jue.2013.03.008.

Schwartz noted how often foundations think as if they are the ones setting the reform, as if only contracting their ideas to organizations willing to see it done. His was a concern on mission creep and the unchecked political capacity for those who pull the strings to control more than what they were designed to.

From the perspective of research and school improvement organizations, they too were sensitive to how their work—no matter how good intentioned—could have undesired consequences. One such concern was the question about *state retreat* on provisions that these nonprofit organizations were already doing. Kristin Black from the Research Alliance in New York shared that this arrangement "sort of forces things that should be citywide structural improvements out of its place, and… so you've got this kind of bizarre marketization of public good." A similar sentiment was hinted at by a Chicago philanthropic manager who said that among the questions that arise with the larger role of outside organizations are questions on "Who's role is it and then who should pay for it?" As outside organizations were willing to step in, did this unnecessarily lead to the state comfortably stepping out?

An even larger concern was mentioned by Robert Balfanz from Johns Hopkins that supported the work in Philadelphia, when he questioned if the work of nonprofits and philanthropists was simply a temporary solution to an even larger social and political problem. Even with his decades-worth of work on dropout prevention, he rhetorically asked, "Is this a band-aid on a broken system?" Balfanz followed this up with a skepticism he always hears in terms, "Instead of making the deep systematic changes we need to really change the system, you could get some decent improvements, like have a technological solution to a structural problem." It was for him the core risk of relying on these organizations to institute small changes when large state transformations were more necessary.

As these organizations continued to work on research, grant-making, and school improvement, they too were fully aware of the potential downsides to their participation as outsiders to a system. Many acknowledge that their influence can steer the direction of programs, challenge the position of traditional institutions, and even contribute to the retreat of the state. These issues and these questions form a backdrop for the tensions that outside organizations navigate as they try to initiate and institutionalize practices within and beyond their urban locations.

Answering Questions about "Outside" Organizations

This research aims to open questions and conversations about the role of the exoskeleton of outside organizations seeking to improve the public education system in the United States. As this chapter has shown, many individuals in these organizations are cognizant of their powerful influence and the possible risks that come along with it. Many recognize their ability to spread and sustain innovations even as they acknowledged their limitations and their contribution to perverse incentives. Although many recent studies in the past 20 years have documented, investigated, and critiqued the role of research, intermediary, and philanthropic organizations, I draw on the connections across these organizations to understand more fully how the systems and webs across them were important.

The rest of this research will focus on the case of ninth-grade early warning indicators (EWIs), and how organizations were critical factors in their spread and scale. This present chapter has set the stage for the cast of actors and organizations that had roles to play in the initiation and institutionalization of EWIs. This story was set in a time of massive transformations in urban school districts in the United States with the larger focus on social and racial inequities in outcomes and dropouts, the increasing number of charter schools, the closure of traditional public schools,

the dominance of high-stakes accountability testing through No Child Left Behind, and the growth of these organizations outside the formal education system.[40]

But it was not a story of one heroic individual, or one entrepreneurial organization, or one maverick school district. It was the story of networks of individuals, organizations, meanings, and routines that have reinforced each other during an opportune time and in places that had the right set of characters.

It was an urban story where the same places with deep social and racial inequities and power struggles have become paradoxically the same sites of innovation, creativity, and potentially equitable solutions. It was paradoxical but not ironic because the crisis in urban schools and the density of actors in urban locations are the perfect components for transformational change. In Chicago, Philadelphia, and New York City, there were embedded local networks of philanthropies, universities, research centers, and nonprofits that had, in a way, a skin in the game.

This research investigates these networks—what I call *webs of improvement*—to uncover a larger story than just the spread of dropout prediction systems. It aims to shed light on this larger rise and influence of this exoskeleton of school improvement organizations. As there have been greater efforts to bring in outside organizations inside schools in both beneficial ways and not, we must ask how this happens, with what consequences, and what a sustainable future can look like.

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[40] Mark Berends, "Sociology and School Choice: What We Know After Two Decades of Charter Schools," *Annual Review of Sociology* 41, no. 1 (2015): 159–80, https://doi.org/10.1146/annurev-soc-073014-112340; Linda A. Renzulli, "Organizational Environments and the Emergence of Charter Schools in the United States," *Sociology of Education* 78, no. 1 (January 1, 2005): 1–26, https://doi.org/10.1177/003804070507800101; Ben Kirshner, Matthew Gaertner, and Kristen Pozzoboni, "Tracing Transitions: The Effect of High School Closure on Displaced Students," *Educational Evaluation and Policy Analysis* 32, no. 3 (September 1, 2010): 407–29, https://doi.org/10.3102/0162373710376823; Thomas S. Dee and Brian Jacob, "The Impact of No Child Left Behind on Student Achievement," *Journal of Policy Analysis and Management* 30, no. 3 (2011): 418–46, https://doi.org/10.1002/pam.20586; Donna M. Harris, "Postscript: Urban Schools, Accountability, and Equity: Insights Regarding NCLB and Reform," *Education and Urban Society* 44, no. 2 (March 1, 2012): 203–10, https://doi.org/10.1177/0013124511431571; Roderick, Easton, and Sebring, *The Consortium on Chicago School Research*; Honig, "The New Middle Management"; Scott, "The Politics of Venture Philanthropy in Charter School Policy and Advocacy."

While this research focuses on one case in education, it speaks to a larger challenge of interrogating how the public and private, how the state and civil society can (or should) act in improving its systems.

Chapter 2

*Web of Meanings***: Flexible Institutional Logics in the Spread of Innovation**

In the context of the various education problems taking centerstage in the 1990s, an assistant professor at the University of Chicago was trying to understand why students were dropping out. Doing research in her hometown of Fall River Massachusetts and her current location at Chicago, Melissa Roderick found two important predictors of not finishing high school. One was grade retention.[1] The other was the students' experience of transition to middle school, and then subsequently their transition to high school.[2] In her research with Eric Camburn from the University of Michigan, they found that over 40 percent of Chicago ninth-graders failed one or more subjects in their first semester, and that such early failure often translated into poorer performance later in high school.[3] While previous conventional wisdom blamed the students, their families, and environments for this failure, Roderick and her colleagues were opening the conversation on the importance of a particular facet of high schools: students' transition to ninth-grade.

Around the turn of the 21st century, Roderick's colleagues at the University of Chicago Consortium on School Research (UChicago Consortium) had started an initiative that drew on this insight. It was the beginning of what would be known as the "on-track indicator"—a simple binary signal of whether a ninth-grader had enough credits to proceed to tenth grade, which they argue

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[1] Roderick, "Grade Retention and School Dropout."

[2] Melissa R. Roderick, *The Path to Dropping Out: Evidence for Intervention* (Westport, CT: Auburn House, 1993).

[3] Melissa Roderick and Eric Camburn, "Risk and Recovery From Course Failure in the Early Years of High School," *American Educational Research Journal* 36, no. 2 (January 1, 1999): 303–43, https://doi.org/10.3102/00028312036002303.

predicted increased odds of graduating high school. Similar research was also being done around the same time in Philadelphia middle and high schools with a research team from Johns Hopkins University. For this group, they found that attendance problems and certain course failures at sixth or ninth grade were associated with increased odds of dropping out of high school. Available at the end of every year, this early warning indicator (EWI)[4] denoted which and how many students were predicted to be on-track to graduate—a metric that has since been used in many high school accountability systems to ensure efforts at improving ninth-grade students' transition experience.[5]

While an indicator at the end of ninth-grade was helpful, groups have used the concept of on-track to signal whether students at different points in ninth-grade were on-track or at risk of being off-track. The indicator had become a just-in-time data tool. Examples include Chicago having Freshman Success Reports that were available every five weeks, Philadelphia having a Grades Monitoring Tool with a color-coded roster of students' attendance and course performance, and New York City having the Portal that outlines students' current academic performance and remaining credits to be fulfilled.[6] More than a change in the frequency of when schools had access to these data, this shift also marked a change in understanding its use: from a yearly *accountability* tool to a real-time device for *identification* and intervention.[7]

In this chapter, I explore the genesis of on-track EWIs, their varied uses, and the "logics" for these varied uses. It answers what processes and strategies helped the spread of this school

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[4] I use both "on-track indicator" and "early warning indicator" to refer to the same thing. Most research also use these terms interchangeably. All reference to on-track and early warning indicators refer to indicators during the student's freshman year (i.e., ninth-grade).

[5] Allensworth and Easton, *The On-Track Indicator as a Predictor of High School Graduation*; Neild, Balfanz, and Herzog, "An Early Warning System"; Kemple, Segeritz, and Stephenson, "Building On-Track Indicators for High School Graduation and College Readiness."

[6] Allensworth, "The Use of Ninth-Grade Early Warning Indicators to Improve Chicago Schools," January 2013; Wentworth and Nagaoka, "Early Warning Indicators in Education: Innovations, Uses, and Optimal Conditions for Effectiveness"; New Visions for Public Schools, *Visionary: New Visions for Public Schools 2018-2019 Annual Report* (New York City: Author, 2019).

[7] Balfanz and Byrnes, "Early Warning Indicators and Intervention Systems."

innovation during its early phases, particularly concentrating on the efforts of researchers and organizational leaders. In particular, I describe how different "institutional logics" were employed to help this spread in what I refer to as webs of meaning for flexibly interpreting a technology.

The chapter details the emergence of on-track research in Chicago and Philadelphia, and how this research led to its being an accountability metric and a surveillance tool. Subsequently, I show the various tools that have been created to make on-track indicators intuitive and useful for teams of ninth-grade teachers in the three cities, with its most sophisticated version in New York. Highlighting the similarities across these three sites, I explore the concept of *flexible logic* in EWIs as various stakeholders conceived of the same technology in different ways. For the district, it was a tool of accountability. For schools, it was a source of information for school improvement. For teachers, it was a device for identifying students at risk of failing. For education reformers, it was a way of bringing about data-driven practices. Although many reforms and initiatives had clear theories of action, I argue that the flexibility in EWIs' use provides a considerable advantage as the technology had relatively low cognitive cost for change, depending on where one was at.

Institutional Logics and the Spread of Innovation

New innovations and technologies have social meanings. Innovations spread because of how people—as individuals and as collectives—make sense of them and create intentional networks for diffusion, respectively suggesting both cultural and structural mechanisms for the spread of innovation.[8] This chapter focuses on the cultural mechanisms for how organizations employed,

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[8] David Strang and Sarah A. Soule, "Diffusion in Organizations and Social Movements: From Hybrid Corn to Poison Pills," *Annual Review of Sociology* 24, no. 1 (August 1998): 265–90, https://doi.org/10.1146/annurev.soc.24.1.265.

intentionally and unintentionally, different meanings to spread the innovation of on-track indicators.

Institutional logics are cultural beliefs and rules that shape cognition and action.[9] These shared logics are organizing principles, practices, and perspectives that support an individual or organization's decisions or meaning-making for their activities, their use of time and space, and their regular routines and practices.[10] They are "institutional" in so far as the system of meanings are rooted within particular institutions like the market, the state, religion, or the family. For example, research has noted how there has been a shift in universities that previously employed a logic of *science*, where scientific knowledge is argued to be pursued for its own sake, to one where universities used a logic of the *market*, where knowledge is instrumentalized and used for its economic value.[11] In this example, organizations and individuals within those organizations have shared understandings that rely upon the organizing principle of a whole institution (e.g., science, market, state, family, religion). In a way, the larger institution provides the "rules of the game" for how to understand things and take action.

More recent studies apply the concept of institutional logics not so much to large institutional orders like the market, the bureaucratic state, or religion but to smaller institutional

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[9] Thornton, Ocasio, and Lounsbury, *The Institutional Logics Perspective*; Roger Friedland and Robert R. Alford, "Bringing Society Back In : Symbols, Practices, and Institutional Contradictions," in *The New Institutionalism in Organizational Analysis* (Chicago and London: University of Chicago Press, 1991), 232–63, https://cir.nii.ac.jp/crid/1573105975595180032.

[10] Lounsbury and Boxenbaum, "Institutional Logics in Action."

[11] Elizabeth Popp Berman, *Creating the Market University: How Academic Science Became an Economic Engine* (Princeton, NJ: Princeton University Press, 2012).

arrangements, highlighting data use logic[12], logic of accountability[13], logic of quantification[14], care logic[15], as well as managerial and community logics.[16] Whether large institutional orders or smaller institutional arrangements, these logics have often been conceptualized as constituting a contested terrain. In Elizabeth Berman's *Creating the Market University*, the field of higher education had become a site for the logic of science to compete with the logic of the market.[17] In another study describing a community mental health organization, Matthew Spitzmueller showed that quality assurance staff were using a managerial logic while their street-level colleagues employed a community logic, with these logics coming in conflict with each other and producing "deep contradiction, epistemic distress, and ongoing struggle."[18] In such a situation, the competition among logics may prevent the spread of a practice because of the inability for one logic to unify people's cognition and action.

However, these seemingly contradictory institutional logics may be leveraged for, and be advantageous because of their interpretive flexibility.[19] In a way, the same technology or innovation may have a larger audience because of how it "speaks to" different stakeholders. For example, Davina Allen show how a clinical governance strategy was adopted in the United Kingdom because of how it brought together "a logic of evidence-based practice (EBP), in which

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[12] Ilana Seidel Horn, Britnie Delinger Kane, and Jonee Wilson, "Making Sense of Student Performance Data: Data Use Logics and Mathematics Teachers' Learning Opportunities," *American Educational Research Journal* 52, no. 2 (April 1, 2015): 208–42, https://doi.org/10.3102/0002831215573773.

[13] Michael Sauder and Wendy Nelson Espeland, "The Discipline of Rankings: Tight Coupling and Organizational Change," *American Sociological Review* 74, no. 1 (February 1, 2009): 63–82, https://doi.org/10.1177/000312240907400104.

[14] Hyunsik Chun and Michael Sauder, "The Logic of Quantification: Institutionalizing Numerical Thinking," *Theory and Society* online first (July 5, 2021), https://doi.org/10.1007/s11186-021-09453-1.

[15] Dunn and Jones, "Institutional Logics and Institutional Pluralism."

[16] Matthew C. Spitzmueller, "Remaking 'Community' Mental Health: Contested Institutional Logics and Organizational Change," *Human Service Organizations: Management, Leadership & Governance* 42, no. 2 (March 15, 2018): 123–45, https://doi.org/10.1080/23303131.2017.1422071.

[17] Berman, *Creating the Market University*.

[18] Spitzmueller, "Remaking 'Community' Mental Health," 123.

[19] Susan Leigh Star, "This Is Not a Boundary Object: Reflections on the Origin of a Concept," *Science, Technology, & Human Values* 35, no. 5 (September 1, 2010): 601–17, https://doi.org/10.1177/0162243910377624.

medical work is subjected to standards developed by professional elites, and a logic of quality improvement (QI), in which clinicians are involved in bottom-up innovation."[20] I explore how something similar happened with on-track EWIs, and how organizations in general and researchers in particular were key in bringing about such flexible logics.

The On-Track Indicator

The genesis of the on-track indicators can be traced to Chicago and Philadelphia between the late 1990s and early 2000s. Researchers in two different research institutions—the University of Chicago Consortium on School Research and Johns Hopkins University's Center for the Social Organization of Schools[21]—were working on separate research and school improvement projects. While working independently on their projects, however, they found similar patterns regarding students that had increased their odds of graduating or dropping out. It was a pattern that went against the conventional wisdom at the time of dropping out as an "intractable problem" affected by "family history, peers, health, mobility, neighborhood crime," and what happened in schools.[22] Although these researchers were initially unaware of each other's work, their combined efforts—published in reports and peer-reviewed journals as well as disseminated through different forums—would form the foundation of ninth-grade on-track indicators.

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[20] Davina Allen, "Lost in Translation? 'Evidence' and the Articulation of Institutional Logics in Integrated Care Pathways: From Positive to Negative Boundary Object?," *Sociology of Health & Illness* 36, no. 6 (2014): 807, https://doi.org/10.1111/1467-9566.12111.

[21] The University of Chicago Consortium on School Research was originally named the Consortium for Chicago School Research. Johns Hopkins' Center for the Social Organization of Schools (CSOS) now includes the previous work of the Center for Research on the Education of Students Placed at Risk (CRESPAR), which was a partnership with Howard University and led the Talent Development work between 1993 and 2003. In a correspondence clarifying the organizations under Johns Hopkins, Robert Balfanz wrote that the Everyone Graduates Center was launched in 2006 to "provide a focused place for CSOS staff and faculty to work on issues and challenges around raising high school graduation and later college and career readiness rates."

[22] Allensworth, "The Use of Ninth-Grade Early Warning Indicators to Improve Chicago Schools," January 2013, 68.

5th Yr.

Senior

Junior

Soph

Fresh

| 0 | 6 | 12 | 18 | 24 | 30 | 36 | 42 | 48 | 54 | 60 | 66 | 72 | 78 | 84 | 90 |

Number of Students

On Track   Graduated   Off Track   Dropped Out   Left CPS
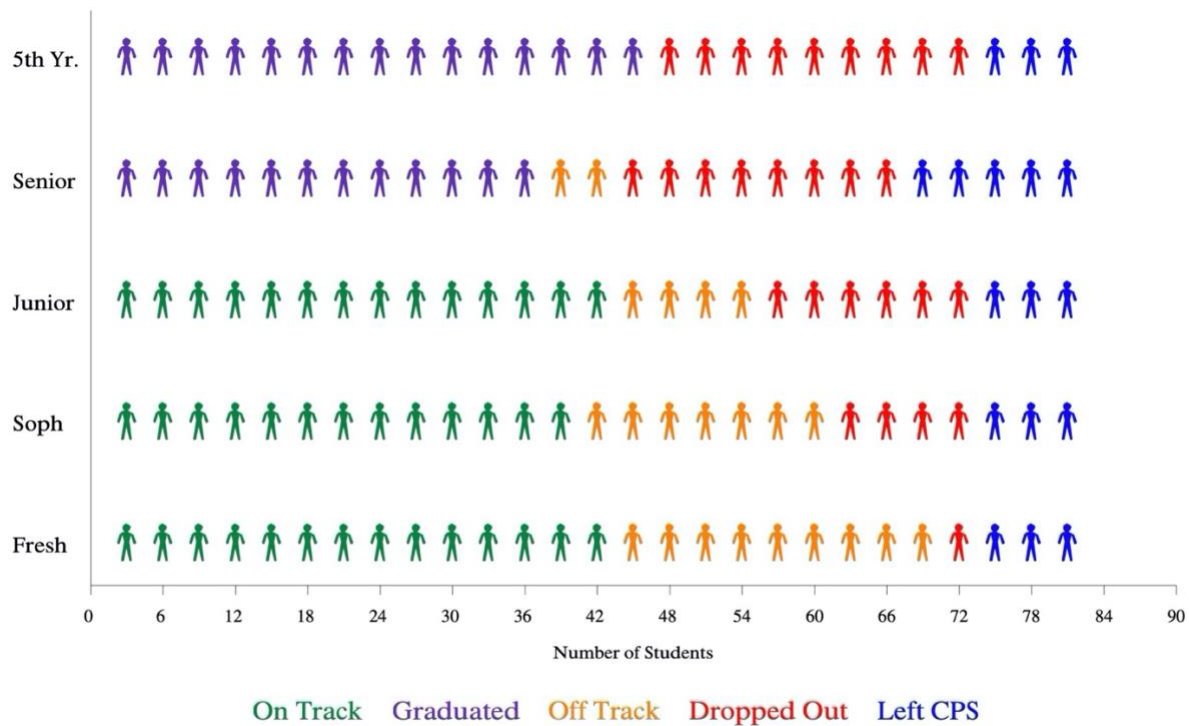
Figure 2.1: Example Illustration from the *Little People Reports*

Notes: This graph followed students who graduated in 1993 at Barton Elementary School across five years of high school. Each stick figure is equivalent to three people. A student is considered "on track" if they received no more than one F in a core course (English, math, science, and social science) and considered "off track" if they received more than one F in a core course. Dropouts were recorded as no longer enrolled in CPS and have a leave code designating them as dropouts. Those who left CPS were no longer enrolled in CPS and have a leave code designating them as leaving for another school district, private school, or home school.

Source: *How Do Barton Graduates Perform in CPS High Schools?* (Miller, Luppescu, Gladden, and Easton, 1999); used with permission from the University of Chicago Consortium on School Research.

Chicago and the Little People Report

The story of Chicago's Freshman OnTrack as it is known now could arguably be connected to John Easton who in 1997 shifted from his role at the Chicago Public Schools (CPS) to his new full-time role at the UChicago Consortium. As director of research and evaluation at CPS, he regularly received requests from elementary school principals to know what happened to their graduates when they went to high school and see what progress they made. These were individual requests for school statistics that he had to send to each school, such that when he became the

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deputy director of the UChicago Consortium, they took on this project of creating a tracking system to follow students from eighth-grade until high school.

Easton and his colleagues affectionately called these *Little People Reports* because of the graphs that had stick figures denoting the number of students who were considered on-track, off-track, dropped out, and graduated from CPS. Easton remarked,

> [Elementary schools] wanted to know how many graduated but we needed a way to kind of measure progress, so we needed metrics for what kids were doing. So, that's when we developed the on-track indicator at that early time. So, *we would say that so many percent of your kids are in high school that are on-track, so many are off-track, so many have dropped out, and so many have left CPS*, then we followed the same cohort all the way through and we continued to use those indicators. And so, at that time, we actually created on-track indicators for ninth, tenth, and eleventh grade, and the indicators pretty closely followed the CPS policy for promotion. (emphasis added)

Figure 2.1 shows an example of a figure in the 1999 report given to elementary schools detailing the number of their graduates who were on-track, off-track, dropped out, or graduated. This figure tracked graduates of this school in whatever CPS high school they were in, or if they had gone to a non-CPS school.

So, what did it mean to be on-track or off-track? The on-track indicator was based on the number of credits a student had to receive in order to proceed to the next grade level, which for freshmen was gaining five credits to proceed to sophomore year. Easton said that they also included an additional criterion of having no more than one semester failure in a core course of English, math, science, or social science. The reports were led by Shazia Miller, then a senior

research associate at the Consortium, who would also be known for "inventing" the on-track indicator.

In 2002, Shazia Miller and Elaine Allensworth, who were then both working at the Consortium, wrote a chapter in the book *Reforming Chicago's High Schools: Research Perspectives on School and System Level Change.*[23] In this chapter was a key passage that moved the on-track indicator as a metric to inform individual elementary schools to one that would inform high schools all over the city:

> To be on track, a [freshman] student must earn enough credits to assume sophomore status on time and have received no more than one failing grade in a core course (English, math, science, and social science) …. Being on or off track is highly correlated with long-term performance; students who are off track after their first year have tremendous difficulty catching up and graduating within four years.[24]

Miller and Allensworth focused on freshman students because they saw the limitations of measures that were only available at the end of a longer time span (e.g., graduation rates or standardized tests in twelfth grade). By the end of high school, it would have been too late to do things for students. By having an indicator at freshman year, one supposedly had an early enough indicator for intervention.

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[23] Valerie E. Lee, ed., *Reforming Chicago's High Schools: Research Perspectives on School and System Level Change* (Chicago, IL: Chicago Consortium on School Research, 2002).

[24] Shazia Rafiullah Miller and Elaine M. Allensworth, "Progress and Problems: Student Performance in CPS High Schools, 1993 to 2000," in *Reforming Chicago's High Schools: Research Perspectives on School and System Level Change*, ed. Valerie E. Lee (Chicago, IL: Consortium on Chicago School Research, 2002), 70.

But it must be emphasized that the binary indicator of being on-track was just correlated with high school graduation. When Elaine Allensworth—the Consortium's director at that time—was recalling their thought process when they wrote this study, she remembered not putting as much emphasis on that sentence. She said that she and Shazia Miller saw that the two indicators were related, "but we didn't bring it out as something important." She continued, "We felt the on-track indicator was useful on its own, but didn't tie it explicitly to school strategies for improving high school graduation. We saw it as an indicator to gauge early progress in high school, and looked at its relationship with graduation simply to gauge whether there was evidence of validity."

But the Chief Executive Officer of the Chicago Public Schools read the report, and decided to include the on-track metric in the school accountability system. It formed five points of a high school's accountability score card. CPS CEO Arne Duncan remembered it as John Easton presenting in 2003 to more than a hundred senior leaders of the district, "data which again in hindsight seems really common sense but at the time was pretty revolutionary, and we were obviously always struggling to reduce the drop-out rate and increase the graduation rates." He continued,

> And what they showed—I sort of remember the graph in my head—was this massive correlation between passing classes as a freshman and graduating; the converse being that for each class you failed, your chances of graduating went down pretty precipitously and pretty significantly. And the oddest takeaway is if you try to reduce drop-out rates if you went to junior or senior [year], it's too late; those students have already gone since these decisions happen very early on.

It was these things that led Duncan to include the on-track metric in the accountability system, with schools being graded between 1 to 5 based on their freshman on-track rates.

But the team at the UChicago Consortium was not as elated to find this out. Both Easton and Allensworth were worried that they had never really done a thorough validation. John Easton said, "This was kind of scary for me." Recounting how they wrote this validation study, Easton joked, "Elaine [Allensworth] did the analysis but it was something I made her do; she didn't want to do it." Despite initial resistance, Allensworth found it gratifying as she said, "As I started studying it, I started seeing all of these amazing patterns. Not only was it [the on-track indicator] super related to high school graduation but it was so much more important than test scores or background."

Allensworth and Easton's 2005 report on *The On-Track Indicator as a Predictor of High School Graduation* provided evidence for how important being on-track at ninth grade was. For example, they showed that a student who was at the bottom quartile of student test scores in eighth-grade but was on-track in ninth-grade had a higher chance of graduating in four years than a student at the top quartile of standardized tests in eighth-grade but was off-track in ninth-grade. The former had a 68 percent chance of graduating while the latter only a 37 percent chance. This suggested that being on-track at ninth-grade was much more important than performing well in a standardized exam at eighth-grade.

Chicago's story of on-track indicators started with researchers trying to provide individual reports to elementary schools, but their finding regarding the predictiveness of ninth-grade course performance on eventual graduation led this simple indicator to be used as an accountability metric in the district. It was a story of how a new technology arises from seemingly unforeseen places.

Philadelphia and Whole-School Reform

Around the same time in the late 1990s in Philadelphia, a group from Johns Hopkins University had begun working in the school district to institute Talent Development High Schools and Middle Grades Program. In contrast to Chicago where the work started with research organizations that had access to Chicago's data, this work started with school support organizations that had a comprehensive reform model that tried to address problems of low student achievement and poor school climate in large high-poverty urban schools.[25] While the high school reform program initially started in Baltimore where Johns Hopkins was located, the middle grades program started in Philadelphia.

Robert "Bob" Balfanz was a research scientist at Johns Hopkins' Center for the Social Organization of Schools, and was among the individuals that led the work of Talent Development. He recounted their experience in Philadelphia as a collaborative one with the district and a local intermediary,

> While we were working in Philadelphia, we'd established a good partnership both with the School District of Philadelphia's research office, and a local intermediary, the Philadelphia Education Fund. And then, building up and getting data to understand the impacts of our whole-school reform models, we've been able to see and sort of create longitudinal data files of students from the middle grades forwards. That was relatively rare at that time.

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[25] Neild, Balfanz, and Herzog, "An Early Warning System"; James J Kemple, Corinne M Herlihy, and Thomas J Smith, *Making Progress Toward Graduation: Evidence from the Talent Development High School Model* (New York, NY: MDRC, 2005); Elizabeth Useem, Ruth Curran Neild, and William Morrison, *Philadelphia's Talent Development High Schools: Second-Year Results, 2000-01* (Philadelphia, PA: Philadelphia Education Fund, 2001).

This access to data from the district was instrumental for the fortuitous and fortunate start of the on-track work of this organization, which was primarily concerned with implementing a whole-school reform model and not a whole-district research project.

Similar to Chicago, however, the original research was not really about preventing dropouts. Theirs was about understanding the school-to-prison pipeline. Balfanz recounted that the Philadelphia Education Fund asked them to do a study of the characteristics of ninth-graders who got arrested. Since they had access to longitudinal data and some survey data of the same students, they investigated patterns for students arrested in ninth grade. Many of them in eighth grade were only going to school two-thirds of the time, failing half of their classes, and made friends engaged in illegal activities. These students had only a seven percent chance at high school graduation. However, what surprised Balfanz and his colleagues was another larger group of students,

> who in the eighth grade were only going to school two-thirds of the time, were failing half their classes, their friends were not asking them to be involved in illegal activities, and they did not get arrested in ninth grade, but they still had essentially a seven percent graduation rate.

This started out their work of identifying what was happening to this larger group of students who had very low odds of graduating.

They tested out different variables—Balfanz said it was around 200—in order to understand what was going on, and more importantly, what could be done about it. In his work with Liza Herzog and Douglas Mac Iver, they found out that having at least one of the following indicators in sixth grade was highly predictive of students not graduating high school: (1) attending

less than 80% of the school days in sixth grade, (2) failing math in sixth grade, (3) failing English in sixth grade, and (4) receiving an out-of-school suspension.[26]

While Balfanz had this research on middle grade dropout predictors, his colleague Ruth Neild was then working with Philadelphia's Talent Development High Schools. Even before the on-track work in Philadelphia or Chicago, this school reform model already placed their bets on the importance of ninth grade. As early as 1999, Talent Development High Schools already had a "separate Ninth Grade Success Academy organized around interdisciplinary teams of teachers aimed at creating an atmosphere for students that combines academic rigor and personal nurture."[27] Although they did not yet have indicators then, the school reform model had an intuition about the critical year of freshman year high school.

Neild, who during this period was research scientist at Johns Hopkins and subsequently assistant professor at the University of Pennsylvania, highlighted this intuition that needed some form of validation. In our interview, she mentioned, "At the high school level, there was sort of this idea that ninth grade was pivotal. I think we knew a lot about ninth grade failure and its relationship to ultimately not graduating or not accumulating credits enough." However, she noted that she did not recall any analysis on Philadelphia high schools prior to the one she did. Thus, she and her team did similar analyses for ninth-graders as Balfanz had done for sixth-graders.

Although she mentioned not initially knowing the work in Chicago, she did eventually learn of the similarities of their work,

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[26] Balfanz, Herzog, and Mac Iver, "Preventing Student Disengagement and Keeping Students on the Graduation Path in Urban Middle-Grades Schools."

[27] Useem, Neild, and Morrison, *Philadelphia's Talent Development High Schools: Second-Year Results, 2000-01*, 3.

The district gave the data, and because of that, I was kinda able to figure out and almost replicate the analysis [done by Bob Balfanz], tried different kinds of things for ninth-graders and high school as well as for middle school. And I would say it was only kind of after… it came into focus for me that, "Oh, there are people in Chicago doing something similar!" And we're doing the approach and the analysis the same way exactly and precisely, but we're coming out with sort of similar story. So, that was the genesis of it.

Similar to her colleagues in Chicago, Neild found that one signal for student being off-track in high school was the number of credits earned in ninth grade. Another off-track indicator was attending school less than 70 percent of the time. Having either one was associated with a 75 percent chance of dropping out of high school.[28]

Many of the reports that came out of the work of Balfanz, Neild, Herzog, and Mac Iver—the group from Johns Hopkins working with the Philadelphia public schools—brought together risks and signals that were discernible in and between sixth and ninth grades. Together with researchers in Chicago, they commonly explained the power of this period as time for *life course changes* such as reduced parental supervision and increased peer influence, and *educational transitions* as most US students move from a small elementary or middle school to an often larger high school.[29] It was these transitions that they thought were core to explaining the predictive power of this period of time.

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[28] Neild, Balfanz, and Herzog, "An Early Warning System."

[29] Ruth Curran Neild, "Falling Off Track during the Transition to High School: What We Know and What Can Be Done," *The Future of Children* 19, no. 1 (2009): 53–76, https://doi.org/10.1353/foc.0.0020; Ruth Curran Neild, Scott Stoner-Eby, and Frank Furstenberg, "Connecting Entrance and Departure: The Transition to Ninth Grade and High School Dropout," *Education and Urban Society* 40, no. 5 (July 1, 2008): 543–69, https://doi.org/10.1177/0013124508316438; Allensworth and Easton, *What Matters for Staying On-Track and Graduating in Chicago Public High Schools*; Phillips, *The Make-or-Break Year*.

On-Track and its Logics

In the examples of Chicago and Philadelphia, research had become instrumental for school improvement even if this had not been the original intention of their work. In Chicago, they were initially interested in providing data to schools regarding the trajectories of elementary school graduates. In Philadelphia, they were initially interested in understanding the impact of their school reform model and subsequently took on a research project on the school-to-prison pipeline. However, both sets of researchers were able to discover—unintentionally and almost by happenstance—signals and indicators at ninth grade that were crucial for eventual graduation or dropping out.

While the two groups converged on a particular finding, the initial responses to their research were slightly different between the two cities. In Chicago, the district almost immediately included this indicator as a metric of school accountability for the city's various public high schools. In contrast in Philadelphia, the efforts were focused on and limited to Talent Development schools that were creating whole-school interventions, new early warning data systems, and adult mentorship for students.[30] Two almost identical research projects with similar findings had been taken up differently by the two urban school districts. But why?

I explore the role of the different institutional logics of the main decision-makers in the two cities as a contributor to this initial divergence. While the preliminary work and investigation in Chicago was done by a research organization, its subsequent dissemination was adopted by the school district office. I argue that the district employed a *logic of accountability* in trying to spread this initiative, thinking that its inclusion in this metric could nudge individuals to improve ninth-graders' experience. Because the School District of Philadelphia did not use the on-track indicator

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[30] Mary Bruce et al., *On Track for Success: The Use of Early Warning Indicator and Intervention Systems to Build a Grad Nation* (Washington, DC: Civic Enterprises, 2011).

for accountability, the indicators were only used in the schools Talent Development was in. Thus, these individuals from Johns Hopkins employed a *logic of identification* and intervention to see what they can do for different groups of students. Through time, however, both Chicago and Philadelphia converged in using both of these logics that had consequences on the advent of flexible logics.

"Data changes expectations": The Logic of Accountability

When Chicago Public Schools CEO Arne Duncan learned of the Freshman OnTrack[31] research done by the UChicago Consortium, he became one of its earliest champions and drove much of the early momentum to get the indicator known and incorporated into the district's vocabulary. One of the most consequential things he did for Freshman OnTrack was to get the indicator into the school accountability system. High schools were given scores out of five based on the percentage of freshmen who were considered on-track at the end of ninth grade. Almost 20 years and nine CEOs after Arne Duncan started it, the metric was still being used as one of the high school accountability indicators in addition to four-year graduation rates, average daily attendance, school survey results, percentage of students meeting college readiness benchmarks, and eleventh-grade SAT/ standardized test indicators.

Although including the OnTrack metric in the school accountability system was consequential, it was also quite risky. Social scientists have long documented the problems and pitfalls of focusing too much on social indicators, so much so that it has had its own moniker. Campbell's law states:

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[31] Whenever I use "Freshman OnTrack," I refer specifically to the program in Chicago. The same wording and capitalization was used in Emily Krone Phillips' book on Chicago's story of early warning indicators, *The Make-Or-Break Year: Solving the Dropout Crisis One Ninth Grader at a Time*.

The more any quantitative social indicator is used for social decision-making, the more subject it will be to corruption pressures and the more apt it will be to distort and corrupt the social processes it is intended to monitor.[32]

Named after the social science methodologist Donald T. Campbell, the quote is a classic warning for policy and decision makers who so often rely on metrics to provide information, interventions, or incentives. It was a caution that metrics can corrupt the processes they were intended to solve.

An often repeated cautionary tale in education is that of test-based school accountability. Different studies have documented how these accountability regimes, when implemented poorly, can lead to counterproductive results as in teachers being pressured or intentionally cheating, and schools gaming the accountability system by focusing instruction on the students near the passing cut-off, teaching to the test, or reclassifying low-performing students as needing special education so as to remove them from the test-taking roster.[33]

In the case of on-track EWIs, having the metrics included in school accountability systems was feared by district officials to influence Chicago teachers to uncritically pass ninth-graders that

[32] Donald T. Campbell, "Assessing the Impact of Planned Social Change," *Evaluation and Program Planning* 2, no. 1 (January 1, 1979): 85, https://doi.org/10.1016/0149-7189(79)90048-X.

[33] Brian A. Jacob and Steven D. Levitt, "Rotten Apples: An Investigation of the Prevalence and Predictors of Teacher Cheating," *The Quarterly Journal of Economics* 118, no. 3 (August 1, 2003): 843–77, https://doi.org/10.1162/00335530360698441; Jacob Hibel and Daphne M. Penn, "Bad Apples or Bad Orchards? An Organizational Analysis of Educator Cheating on Standardized Accountability Tests," *Sociology of Education* 93, no. 4 (October 1, 2020): 331–52, https://doi.org/10.1177/0038040720927234; Derek A. Neal and Diane Whitmore Schanzenbach, "Left Behind by Design: Proficiency Counts and Test-Based Accountability," *The Review of Economics and Statistics* 92, no. 2 (February 17, 2010): 263–83, https://doi.org/10.1162/rest.2010.12318; Jennifer L. Jennings and Jonathan Marc Bearak, "'Teaching to the Test' in the NCLB Era: How Test Predictability Affects Our Understanding of Student Performance," *Educational Researcher* 43, no. 8 (November 1, 2014): 381–89, https://doi.org/10.3102/0013189X14554449; David Figlio and Lawrence S. Getzler, "Accountability, Ability and Disability: Gaming the System?," in *Improving School Accountability*, ed. Timothy J. Gronberg and Dennis W. Jansen, vol. 14, Advances in Applied Microeconomics (Bingley: Emerald Group Publishing Limited, 2006), 35–49, https://doi.org/10.1016/S0278-0984(06)14002-X.

have not attained the necessary skills and let them proceed to the next grade. It could have also been met with a lot of resistance from school leaders, teachers, and staff who were confronted with yet another metric that they will be judged against. (Indeed, there were different forms of resistance that I detail in Chapter 4.) But Duncan was clear about why accountability was important. In our interview, he said, "If stuff matters, you need to measure it…. People think of accountability as like a punitive thing. I just never sort of thought of it that way." For Duncan, the logic was for schools to monitor and improve Freshman OnTrack rates because performance in ninth grade was predictive of graduation outcomes. If a school, for example, was able to have more students on-track at the end of the ninth grade—so this logic goes—then, high school graduation numbers would have followed suit.

However, this was not necessarily the case, as Elaine Allensworth pointed out, since the district on-track rates only hovered between 57 and 59 percent between 2001 and 2007, and only had a slight increase to 62 percent in 2003, the year the on-track indicator was used as an accountability metric. In a 2013 paper, she highlighted that even if the UChicago Consortium had shown the importance of the on-track indicator and the district had included this in its accountability system, "it did not give much information that would help schools work on the problem."[34] In a way, even an indicator at the end of freshman year could be a little too late since it failed to show what to do for ninth-graders or who to intervene in during that period. It was not until a few years after the accountability metric was instituted that the district had more timely tools that provided information for more actionable steps.

If the key was for the on-track metric to move from a yearly indicator for accountability to a real-time tool for identification, why did the accountability piece remain sustained? The Chicago

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[34] Allensworth, "The Use of Ninth-Grade Early Warning Indicators to Improve Chicago Schools," January 2013, 80.

Public Schools' director for graduation pathways had an explanation for why the accountability piece was so crucial even if it was not enough to move the needle. In our conversation about her time at the Chicago district office between 2007 and 2011, Paige Ponder said,

> It was so critical for [on-track EWIs] to be in the accountability system because that was the only chance it had to cut through that fatigue and the cynicism. It was like, "Whatever you think about it, it doesn't matter; you're gonna be held accountable for it so you need to muster up the energy to care about it."

There was a pragmatic reason for why the district needed the yearly indicator. It was a way to keep schools attentive to what was happening to their ninth-graders. When there were a hundred and one concerns principals had to attend to, the fact that Freshman OnTrack was on the accountability metric made it a priority.

The logic of accountability was encapsulated well by one of my informants who said, "Data changes expectations." Accountability focuses actions on particular levers of change and foregrounds certain factors when so many other concerns vie for a school's attention. On its own, accountability did little to move the numbers of ninth-graders off-track or high school students dropping out. But it was one logic among many that organizations inside and outside the district were employing. For the district and the UChicago Consortium, having the on-track indicator in the school accountability system was a low-hanging fruit that would start and catalyze on-track's wider spread among district schools.

"It's a diagnosis, but it's not a cure": The Logic of Identification

In Philadelphia, the on-track indicators were not incorporated in district accountability systems even as peer-reviewed papers and research reports highlighted the predictiveness of students' performance between sixth and ninth grade. Instead, the strategy was for the researchers at Johns Hopkins to work directly with schools they were helping to reform. Key to their theory of change was the identification of students who were struggling and their putting "processes into place to provide staff ready access to the data and time to analyze and discuss it."[35] Describing this work, Robert Balfanz said,

> We thought [the schools] probably have stuff in place but it's not organized, that they have this data, they help match kids to the right interventions they already have. We tried that and we quickly found that in many ways the schools didn't have sufficient intervention plans for the scale of a problem they face because in the most impacted schools, it was hundreds of kids with these signals.

The logic was easy and intuitive enough: Identify students who had greater odds of being off-track (e.g., failing a course or not attending school) and provide interventions for them. It was one-part prevention and the other-part intervention, creating tiered systems where the students with the greatest need supposedly got individualized attention while setting up whole-school interventions coming from an analysis of why many students were struggling.

But there was a problem with such tiered interventions when the tier with the most needs was still significantly large. Balfanz said,

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[35] Bruce et al., *On Track for Success: The Use of Early Warning Indicator and Intervention Systems to Build a Grad Nation*, 36.

At that point Philadelphia still had six, seven, eight, nine [hundred], a thousand-student middle schools. In that environment, if only 25 percent of the kids are really struggling, that's still hundreds of kids, and the schools were not built for hundreds of kids needing those additional supports.

When they realized that they had too many students that signaled their need for help, they reinforced the Talent Development's whole-school reform model by partnering with City Year and Communities in Schools. This partnership across the three organizations would be known as the Diplomas Now model that incorporated the use of early warning indicators.

In 2009, they prototyped and implemented the Diplomas Now model in three middle schools in Philadelphia. While Talent Development had facilitators and coaches that would lead school transformation plans and manage the early warning indicator tool, City Year brought in college graduates who did a year of community service with teams of corps members in a school, most of them serving as student coaches. This allowed them to build relationships with a group of ten students, providing them personalized learning and engagement.[36] These "near peers" served as tutors, mentors, and role models that personalized the school experience for students who were in need of academic or behavioral interventions. Each school also had a Communities In Schools site coordinator who helped the highest needs students, developing case plans and interventions to move them back to be on-track for graduation.[37]

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[36] Referenced in a conversation with Robert Balfanz, and supplemented by research in the organization's website.

[37] William Corrin et al., *Addressing Early Warning Indicators: Interim Impact Findings from the Investing in Innovation (I3) Evaluation of Diplomas Now* (New York, NY: MDRC, 2016), 3.

With this division of labor across specific organizations, the logic of identification was more easily implemented. The early warning indicator provided a sense of which and how many students were on-track or off-track. Talent Development concentrated on the whole-school approach of interventions and changes for all students, what would be called as "Tier 1" interventions. City Year was in charge of "Tier 2 students," who had experienced difficulties in terms of academics and behaviors, and who needed an extra push from a mentor. Communities In Schools focused on "Tier 3 students," who had greater needs for things like professional counseling and long-term tutoring.

In contrast to the logic of accountability that focused on yearly indicators and incentives, the logic of identification was focused on the just-in-time information one can have about students. Ruth Neild, who was then research scientist at Johns Hopkins, highlighted that it was a logic of knowing the students rather than simply having yearly accountability systems. She said,

> The indicator doesn't tell you what to do. It doesn't even tell you exactly why there's a problem… That's where you have to have people in the schools who are really able to pay attention to a kid and somebody has to be in-charge with, like, really engaging with that child…. So, *it's a diagnosis, but it's not a cure.* (emphasis added)

The move from a yearly on-track indicator of accountability to a just-in-time tool for identification is a crucial step closer to helping address the problem of dropping out. In Chicago, they initially started with the former while in Philadelphia, they proceeded with the latter. Over the years, however, the two districts had eventually incorporated both logics to further the work of on-track. In 2008, Chicago would include tools to identify students' real-time on-track status. Subsequently,

Philadelphia would include the ninth grade on-track metric in its school accountability system. It highlights, in a sense, the way logics did not necessarily compete but actually complemented each other—being flexibly employed by various actors in the educational ecosystem.

Spreading the On-Track Tool

What was unique about the on-track tool that it stuck and spread across schools? Some highlighted that it was a simple, intuitive and almost common sense tool, which was used to identify students at risk of failing and provide information for schools to reflect on what they can do.[38] Others, however, emphasized that it was actually far from intuitive or simple since it provided information that one would not have gotten in the absence of an on-track tool and that it also relied on integrated information that was not as readily available to teachers. In this section, I document how the on-track tools in Chicago, Philadelphia, and New York City had this unique combination of intuition and counter-intuition, simplicity and complexity. I argue that this seemingly paradoxical mix actually contributed to the flexibility in its logic and use.

A Simple and Intuitive Tool

In 2008, five years after Chicago started including the Freshman OnTrack rates in the district's school accountability score card, the district started to provide reports for incoming and current ninth graders to help schools prepare for and intervene with the students they had. In a sense, it mirrored what was happening in Philadelphia as they used almost real-time on-track data to identify students who were at greater risk of being off-track. While the original work in Chicago started out in a research organization, it was the district that needed to implement much of this. All

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[38] Allensworth and Easton, *The On-Track Indicator as a Predictor of High School Graduation*.

of these were happening towards the tail-end of Arne Duncan's role as district CEO since he would subsequently move to Washington, D.C. in 2009 to serve as Barack Obama's secretary of education.

A key figure in this work was Paige Ponder, the director for graduation pathways at the Chicago Public Schools. One of her most important projects was creating a "watchlist" for high schools that detailed their incoming freshmen's performance in eighth grade. Ponder described this watchlist as being roster of students that had their eighth-grade course performance, attendance, age, and other risk factors. She talked about how they put these in color-coded spreadsheets, saying,

> Once we know who's going where, then we take the eighth-grade data, put it in spreadsheets, send it to the high school principals and their teams, and then it's color-coded. So, if a student had poor attendance, if a student had low grades, and if a student had both poor attendance and low grades, then there were different color-coding for these.

"And this was an innovation!" she exclaimed. Her surprise was driven by the fact that this was data that had been available for so long but that did not move between the elementary schools and high schools in Chicago. Such a simple step then of sending eighth-grade data to ninth-grade teachers was almost a revolutionary feat.

But it was not enough for teachers to have a preemptive list of students to look out for because, as the researchers from the UChicago Consortium found, some students who were performing well in eighth grade were sometimes off-track in ninth grade.[39] This work fell on

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[39] Allensworth and Easton.

Ponder's colleague, Steve Gering, a consultant for the district who would subsequently become the district's chief leadership development officer.

His team created the Freshman Success Reports that came out every five weeks and listed each student by name, flagging students that had high absences, low course grades (Ds), or course failures. It also showed students' running grades in each of the core courses—English, science, math, and social science—since these were important predictors of being on-track.[40] It seemed like a simple enough task of providing color-coded data for teachers to help identify who was at risk, but Gering lamented how much of a heavy lift this was,

> I look back at that time period, 2008-2009, Freshman OnTrack could've just fallen off the rails 'cause we couldn't produce data…. I mean, the idea was clear and there was some energy, but until we actually start to produce data on a routine basis, [it was not going to work].

Gering even remembered going over to Paige Ponder's office, frustratedly saying, "I can't believe we're two weeks after the end of the quarter and we can't get a freaking report!"

The frustration was reasonable. Timeliness was key to the logic of identification. Gering added, "If you know who's on-track and who's off-track, you can move and you can take action. But if you're two weeks into the second quarter, then you've lost two weeks and you probably lost some kids already." The data that had to be sent out every five weeks was crucial because these were at the midterm and end of the quarter, key times to provide feedback and catch students

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[40] Allensworth, "The Use of Ninth-Grade Early Warning Indicators to Improve Chicago Schools," January 2013, 77.

falling off-track. It provided a sense of check for students and teachers to see how individuals were doing at these junctures.

Lakecia Whimper was a senior data analyst at the Chicago Public Schools, and was also working with Ponder and Gering. When asked about why these EWIs worked, she made the distinction between the yearly tool and on-time data,

> At the end of the year, if you were, say, 60, 40, 30 percent [on-track], those who had low on-track rates, there's nothing you can do now to raise that… [But] now that you are getting it more often, you're more likely to impact or improve your rate 'cause you're seeing the numbers sooner than at the end of the year.

What seemed surprising with both the watchlist of incoming ninth-graders and the five-week success reports of current students was that they all seemed very intuitive: If one wanted to prevent dropping out, one needed some information of where students were coming from and how they were currently doing. Whimper talked about how obvious it was that having data sooner was better than having it at the end of the year. Gering talked about the "simplicity" of the on-track indicator. Ponder sarcastically joked about how "innovative" it was to connect data between elementary and high schools. Moreover, the data to help identify students would have also intuitively confirmed who teachers knew were off-track.

But why was such a simple and intuitive technology so revolutionary for so many people? And why was it that this had only spread with this initiative even as data had been available to schools and teachers even from before? One answer may be that it was not as intuitive. In a way, the on-track technology might have gone against the grain of intuition in schools. The other answer

may be that it was not as simple. While the yearly on-track indicator was a simple enough binary variable of who had enough course credits to be on-track to graduate and who didn't, the just-in-time tool needed a lot more than just the number of courses passed.

Not as Intuitive

In the early 2010s, Johns Hopkins received a grant from the federal government to test their Talent Development model in different schools in the United States. Around this time as well, as Ruth Neild recounted, Philadelphia's new district administration "wasn't as supportive of Talent Development as had then [been] under the Hornbeck administration." While the early warning response system continued in some schools with the help of United Way and the Philadelphia Education Fund,[41] the work of the team from Johns Hopkins focused elsewhere. In 2017, a new group of school improvement organizations came to the district with the support from a local philanthropic foundation. This group created a data tool that highlighted that while the idea may be simple, it was not as "intuitive" as people made out.

Schools and teachers swam in and had access to a lot of data. Having on-time data was therefore not something new; teachers have had information about their own students' performance ever since the gradebook was created. But data were only as good as how they were presented. During this time, district schools in Philadelphia had access to different tables that show student performance in comma-separated value (csv) files or on aggregate dashboards that summarized the number of students who were absent, or failing, or getting A's in their courses. Although informative, these were far from helpful for teachers and school leaders.

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[41] United Way of Greater Philadelphia and Southern New Jersey, "United Way and Philadelphia Education Fund Boost Academic Success for Philadelphia Students," Cision, October 29, 2014, https://www.prnewswire.com/news-releases/united-way-and-philadelphia-education-fund-boost-academic-success-for-philadelphia-students-280771892.html.

Average Core Grades   **Projected Quarter Grade**   **Past Quarter/ Year**

Name	Attendance	Ave. Grade	Trend	Core Fs	English	Math	Science	English	Math	Science
Student A	<80%	D	No change	1	F	D	D	D	F	D
Student B	95%+	A	No change	0	A	A	A	A	A	A
Student C	95%+	B	Improving	0	B	C	A	C	C	B
Student D	90-95%	C	Declining	1	F	C	B	B	B	C
Student E	80-85%	F	Declining	2	F	F	D	C	C	F
Student F	85-90%	C	Improving	0	C	C	B	D	D	C
Student G	85-90%	C	No change	0	C	C	C	C	C	B
Student H	90-95%	B	Improving	0	B	B	A	B	B	B
Student J	<80%	D	Declining	1	D	F	D	B	C	C

Figure 2.2: Grades Monitoring Tool
Note: Rendition by the author based on interviews.

Coming in with the team from Chicago, Emily Kulick was a consultant hired to help with the data tool design and development in Philadelphia. What they came up with was the Grades Monitoring Tool, which was a spreadsheet that had a tab where a school leader or teacher can input the csv file from the student information system and the tool populates two other tabs that showed a color-coded student roster, and summary tables and graphs. Figure 2.2 shows that individuals were listed with their names, demographic characteristics, attendance rate, ninth grade on-track status, average grade for core subjects, a trend indicator (denotes if grades are improving, staying the same, or declining) as well as projected final grades by-subject for the quarter and the year. Attendance and course performance were color-coded with different shades of blue denoting good performance, grey denoting steady performance, and red denoting need for support. In high-need schools, such roster may be dotted with red marks.

When Kulick described how the Grades Monitoring Tool was being used in schools, she described teams of ninth-grade assistant principals and teachers trying to identify not so much

individual students in need but specific groups of students. One of these groups could be students who "have very low attendance," while another group could be the students "who are attending, let's say, 85% of days or more [but] are failing one or two core courses." One may wonder though if the tools were merely there to confirm teachers' intuition. Kulick pointed out that this was not necessarily the case,

> From a teacher's perspective, if you think about it, they're so focused on their own subject. They have lots of students and they're really focused on how students are doing in their class. So, to put that in the context of how *that* student is doing in *other* classes can be really helpful.

For Kulick, the data tool was a way to have a more holistic view of what students were experiencing. The best strategies and interventions for a group of students likely varied based on how many core courses they were failing (e.g., just one core course, or all four core courses) and whether or not they were regularly attending school. While a student may be doing well in one class, he or she may be doing poorly in another. Rather than confirm a teachers' intuition, the tool may actually disconfirm it and provide a more comprehensive picture.

One coach working with Philadelphia teachers and school leaders shared similar counter-intuitive insights when asked about how teachers used the tool. Nadia Schafer made a distinction between large and small schools, and the way teachers were monitoring students. She said,

> The smaller schools, they're not as surprised by the data, like "Yeah, I know Jimmy, I know Shivan. I know they're not doing well." Like, they don't need a spreadsheet to show

them that. I think in some of the bigger schools where kids are in different hallways and classes, it is more helpful that they're like, "Oh, I thought that was just me," or "They're doing fine over here. I didn't know they weren't doing fine over there."

Students can, in a way, fall through the cracks, and this tool tried to catch them before falling in deeper. Moreover, Schafer talked about the importance of longitudinal data that showed how students' grade changes might be a much more important indicator than simply a particular grade at a particular point in time. Her example was a student who had a C that was not technically a failing mark, making teachers ignore this indicator. However, if the student was previously getting A's or B's, that C could be a really important signal.

All these, however, depended on how much the tools were being used by teachers. As usual with school reforms and initiatives, some schools and teachers invest more time and effort than others. Philadelphia's director of planning and evidence-based support, Cari Cantor, shared that there were some schools that frequently used the tool in a biweekly basis, catching students off-track or at-risk earlier on. Then, there were other schools that pulled the data every two or three weeks but fail to update their data on the students. Finally, there were those schools that only used them around report card season. She thus emphasized how the simple act of inputting grades on time to the student information system was itself not as natural as one would have hoped.

When the intuition in schools is for teachers to focus on their own students in their class, or to focus on a student's grades at one point rather than through time, the on-track technology may then be considered rather counter-intuitive. If teachers were not in the habit of having data accessible and available in real time, the on-track enterprise may just as well fail because this was

not how individuals naturally worked. Thus, even if the tool and its logic seemed intuitive enough, it actually needed more effort than was usually relied in the everyday work of instruction.

Not as Simple

In New York City, students needed to pass not just a number of courses in high school but also a series of end-of-course Regents exams to graduate high school.[42] In 2008 when the on-track work was picking up in Chicago and Philadelphia, a school support organization in New York City had also developed its own on-track metric for use in the high schools the organization was supporting.[43] Partially based on the work at the UChicago Consortium, New Visions for Public Schools had color-coded categories to describe their students' on-track status:

> *Red* (off-track): fail to gain credits in a particular subject; gain very few credits overall; pass no Regents exams by end of junior year.
>
> *Yellow* (almost on-track): gain credits in each subject, but maybe fewer than one per subject; gain at least eight credits per year[44]; begin passing Regents exams by junior year
>
> *Green* (on-track to graduation): gain one credit per semester in each core subject; gain 11 credits per year; pass one Regents exam by end of freshman year, three by sophomore year, and five by junior year.

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[42] Xiufeng Liu and Gavin Fulmer, "Alignment Between the Science Curriculum and Assessment in Selected NY State Regents Exams," *Journal of Science Education and Technology* 17, no. 4 (August 2008): 373–83, https://doi.org/10.1007/s10956-008-9107-5.

[43] Pinkus, *Using Early-Warning Data to Improve Graduation Rates: Closing Cracks in the Education System*.

[44] Students need 44 course credits for graduation distributed among subjects like English Language Arts, social studies, math, science, world languages, and other electives. Students must also pass five Regents exams in different subject areas.

Blue (on-track to college readiness): meet the "on-track to graduation" requirements plus a score of 75 on the Regents for math and English, and four additional Regents exams.[45]

New Visions called this their Progress to Graduation metric, a little more complex than the binary indicators in Chicago's Freshman OnTrack metric and Philadelphia's Ninth Grade On-Track metric.

Around this time as well, a research organization based at New York University began a systematic reanalysis of factors that reliably predicted students' likelihood of graduating from high school. Using ten cohorts of ninth graders, the team from the Research Alliance for New York City Schools—an organization similar to and patterned after the UChicago Consortium—confirmed the predictiveness of the district's on-track indicator of earning ten or more course credits in ninth grade (when students needed 44 credits to graduate high school). However, they also found that the addition of passing at least one Regents exam in ninth grade represented a substantial improvement in the indicator's predictiveness.[46]

Given that New York's on-track metric relied on more than just teachers' grades and attendance records, it was not as simple as Chicago's or Philadelphia's. One needed access to students' Regents exam scores, and even knowing if a student had already taken a Regents exam can be a difficult data point to track. Thus, when New Visions created its own data tool called the Portal, it had to institute certain processes and protocols since school leaders, teachers, and counselors may be overwhelmed with the data available for them.

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[45] Susan Fairchild et al., *Student Progress to Graduation in New York City High Schools. Part II. Student Achievement as Stock and Flow: Reimagining Early Warning Systems for At-Risk Students* (New York, NY: New Visions for Public Schools, 2012).

[46] Kemple, Segeritz, and Stephenson, "Building On-Track Indicators for High School Graduation and College Readiness."

Jackie Doe
ID: 34561234   Class: 2022   Grad Plan: Regents 4 Year June

44 Req	English	Math	History	Phy Sci	Life Sci	Art	PE	Health
-0.5	0	0	1	1	0	0	0.5	0

-0.5 Credit Gaps
44 Needed for graduation

Credits earned: 36
Credits scheduled: 6
Credits earned plus scheduled: 42
Credits needed to be On Track (end of term): 40

Current Program	**Credits**
Math/Geometry	1
English Elective	1
Life Science	1
History	1
Health	0.5
PE	0.5

Legend:
■ Unaddressed gaps
■ Current plans to address gap
■ No gaps
■ Enrolled in a potentially droppable course

Figure 2.3: The Portal by New Visions
Note: Rendition by author based on interviews.

What started out as a monthly 276-column spreadsheet used to provide data for student-level planning had turned into a web application that provided data on students' progress, updated nightly for teachers to see students' attendance record, academic performance, credit gaps, Regents exams scores, and so on. What started out as a tool only for New Visions partner and charter schools had turned, in 2018, into a tool accessible to all New York City public schools.

One thing they had in place was what was called *Strategic Data Check In*, which were protocol-driven conversations to help with student-level planning at time points that were critical for on-track graduation. New Visions chief of staff Nikki Giunta described how they instituted graduation planning for their different students and how they used the Portal for it,

New York City has different diploma types, and each diploma type has different requirements. So, if it's not transparent what diploma type a student is working towards, they *may or may not properly get planned* for that diploma type. So, the first thing we set

was to do graduation planning, which is indicating in a best case scenario what is the diploma type and planned graduation date for the student. (emphasis added)

Because students needed a certain number of Regents exams passed in order to get the Regents high school diploma (where a student needed to pass five exams) or the advanced Regents diploma (where one needed to pass nine exams), teachers and counselors needed to know if a student was on-track to complete the number required for timely graduation (see Figure 2.3).

Another strategy they used was what they called *credit gaps analysis*, where school staff can get a sense of what specific course credits students were missing. Sometimes, students' failure to graduate on time was because of a half credit of gym class. Giunta furthered,

We were noticing hundreds and hundreds and hundreds of students were not graduating because they were missing a fractional gym credit that didn't get noticed until they were getting ready to walk across the stage at graduation, and they had to go to summer school.

Aside from tools to look for gaps in credits and Regents exams, the Portal also had flags for when a student planned to take a Regents exam for a subject they had taken a year ago, or failing mark in a current class, or attendance trends in the past couple of days. It was a comprehensive tool that defied original assumptions of how simple an indicator being on-track was.

"This is work about relationships… packaged and disguised as data."

When many school reforms are met with resistance or ignorance, why have on-track indicators, tools, and systems spread widely and been adopted in schools? This chapter argued that it was the

appeal it had to different individuals and stakeholders, and this appeal was because of how the technology drew on different logics, on what I call a *flexible logic* that can be adapted by different organizational actors. An associate director in one of the Chicago organizations I interviewed, Dominique McKoy captured this very accurately when he said,

> Fundamentally, this is relationship work. This is work about relationships that's kind of packaged and disguised as data, and I think that's what I believe is part of the reason why it really has had appeal particularly here in Chicago with educators and not just leaders. It's that *it kinda gives everybody something that they need*. From a high-level policy perspective, you get a 'harder' indicator of success that you can track and measure and set goals against, but at a school-level, really working with that data is fundamentally about having conversations about kids. (emphasis added)

The on-track indicator's power was that it appealed to people's different needs and pressures. For district officials like CPS CEO Arne Duncan and graduation pathways director Paige Ponder, the accountability piece was crucial to get schools focused on improving ninth-grade experience when this goal would have otherwise been crowded out by other school priorities.

For philanthropists and business-minded school reformers, it provided a push for evidence-based philosophy and data-driven practices. As one manager of a Chicago philanthropic foundation shared, "Our belief is that data has to be public and accessible in order for people to know if systems are changing or not." With a similar tenor to the accountability logic, this group's desire was for schools and districts to make optimal decisions based on real-time objective data.

For researchers working with schools like Johns Hopkins' Robert Balfanz, knowing the data pattern and providing data was not enough. Data should include timely identification and lead to the appropriate interventions. From their experience in Philadelphia schools, they "knew that without some sort of structure and guidance, [change] wouldn't happen… the indicators and the interventions were together as the system." For him, it was crucial that this not just live as a district system but one that schools actually use on a regular basis.

For coaches working in schools, like Philadelphia's Nadia Schafer or New York's Jamie Esperon, having the just-in-time on-track data was only the first step to improvement. Ultimately, from their vantage point and that of the teachers they worked with, the most important aspect of on-track was the relationship among teachers and their students. Schafer said, "A key component of the model is using data and teacher teams to talk about common students, talk about interventions for those students, [and] what the team can do to support them in a collaborative environment." It was, as Dominique McKoy highlighted, relationship work packaged and disguised as data.

Thus, on-track was not so much just a *digital technology* of identification and information nor was it just a *relational technology* of support and coordination. On one hand, it was a form of quantification and surveillance, where numbers and metrics provided a sense of where students were at. It drew on and organized student grades and attendance data to provide a simple—or simplified—indicator of being on- or off-track. Yet on the other hand, it was also a form of humanization and personalization, a way to know students a little more holistically during a developmental period fraught with physical, emotional, and social changes and transitions. While it drew on cold objective data, the data were only as good as the human relationships and actions that arose from them.

With these different examples, I suggest that the on-track indicator was challenging distinctions and oppositional binaries between "top-down" and "grassroots" change, or between school accountability policies and supportive practical interventions. It was, in a way, a little of both and more. Clearly, it had a top-down strategy as the district focused conversations on the importance of ninth grade by including it in the school accountability system. It was a lateral change as outside school improvement and research organizations were initiating many of these changes. It could also be considered grassroots as teachers were the ones ultimately given the latitude for the intervention and instructional practices that fit their students. Here I suggest on-track's *flexible logic* as its core technological edge. When many educational reforms and strategies have clear theories of change, the on-track example suggests that ambiguity may not necessarily be a bad thing. In a way, clarity could parallel with rigidity whereas ambiguity could parallel with flexibility. Such flexibility was necessary to have different education stakeholders pay attention to the metric and see how it provided a way of solving their problem.

"In hindsight [it] seems really common sense"

The Need for Flexible Logics before Evidence

An interesting facet about this appeal was that it resonated even before incontrovertible evidence. For the on-track indicator, the idea was put into practice even without a thorough validation at that time. For the ninth-grade on-track system of tiered supports, it was adopted even without randomized controlled trials that are now a necessity of new educational initiatives. It was thus curious that what mattered more was the logic behind the initiative—its resonance to others—than the hard scientific evidence on it. Now, I caution that I'm not so much saying that evidence was not important, but that the logic behind the evidence had played an arguably large role.

For example, when Arne Duncan wanted to include the ninth-grade on-track metric in the district accountability system, it was at a point when the UChicago Consortium had not yet investigated if the predictiveness of the metric held up to other cohorts. But for the proponents of the on-track metric, there was something that was both intuitive and insightful about it. Highlighting this element of surprise and familiarity, John Easton shared,

> The responses that we got when we presented to groups of principals, to groups of counsellors, to groups of vice principals, to district leaders, was, "Oh, now I get this! I get that if kids have a better freshman year experience, they're much more likely to graduate from high school."

The core insight was very strong and very intuitive that the district adopted the metric in 2003 even as the Consortium only came out with a validated report in 2005.

The case of Philadelphia also had semblances in terms of the evidence being presented later than the original program. As I documented earlier, Talent Development high schools had Ninth Grade Success Academies in 1999 even as the research on ninth-grade on-track predictors only happened five years later. It was as if organizations were hedging their bets on something (e.g., ninth-grade on-track) before knowing for sure if it actually worked.

The same dynamics were happening for on-track tools such as Chicago's Freshman Success Report, Philadelphia's Grades Monitoring Tool, and New York's Portal. They were used even without randomized controlled trials that could have given a sense if investment in such data systems were worth it for the whole district. Of course, much of this failure to have RCTs can be accounted for by the implementation of the program in all schools in the district, leaving no room

for a plausible control group. Moreover, the advent of this initiative came in tandem with other intervention programs.[47] However, in subsequent years, varied experimental and quasi-experimental studies were done to see how this initiative worked and they found a number of promising though still heterogeneous results. For some schools, the impacts were a significant increase in attendance and passing grades in English and math.[48] For some, it was limited to reductions in chronic absenteeism but not increases in earned course credits.[49] Other researchers had found that schools and districts with improvements in on-track rates had seen equally robust gains in graduation rates four years later, but this was still open to empirical verification.[50] Some other researchers found that it was not so much having the system but the regularity of its use.[51] In sum, while on-track systems had some evidence for students improving attendance and passing courses, the causal attribution for its prevention of dropout was currently not as robust.

These examples go against our usual intuition for how policies get adopted. We would have wanted for changes to come after a robust set of evidence. But as we know in other fields, evidence can sometimes be overwhelmingly present for the benefits of a change but individuals still prefer status quo. On the other end, evidence might be thin but if individuals resonate with the logic, it may actually lead to change. In an article on "Why Reform Sometimes Succeeds," education professors David K. Cohen and Jal Mehta explained that a core factor predicting a successful reform was its offering a solution to a problem educators and school leaders knew they had and wanted to solve.[52] Change was brought about not by hard evidence or by cold facts, but by

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[47] Balfanz and Byrnes, "Early Warning Indicators and Intervention Systems."

[48] Corrin et al., *Addressing Early Warning Indicators: Interim Impact Findings from the Investing in Innovation (I3) Evaluation of Diplomas Now*; Faria et al., *Getting Students on Track for Graduation: Impacts of the Early Warning Intervention and Monitoring System after One Year*.

[49] Mac Iver et al., "An Efficacy Study of a Ninth-Grade Early Warning Indicator Intervention."

[50] John Q Easton, Esperanza Johnson, and Lauren Sartain, *The Predictive Power of Ninth-Grade GPA* (Chicago, IL: University of Chicago Consortium on School Research, 2017).

[51] Hansen, "Information as Intervention: Effects of an Early Warning System."

[52] Cohen and Mehta, "Why Reform Sometimes Succeeds."

individuals seeing something that resonated to them, something that was flexible enough to make sense for teachers and district officials alike. For on-track EWIs, it was the idea that the transition to high school was very crucial and what one did in this grade could substantially reduce dropouts. Thus, it was the logic behind the technology that mattered to get this simple idea initiated.

But while the technology—comprised of the indicator, the identification tool, and the intervention system—was a core aspect of this initiative, and its flexibility a core strength, the technology and its message had to be carried by individual pioneers and champions. This chapter has already hinted at the various interactions that brought about the wider dissemination of on-track indicators. The subsequent chapters will detail the process for how these happened in the three cities, across them, and beyond.

Chapter 3

Web of Relationships: From Institutional Entrepreneurs to Entrepreneurial Interactions

Many individuals and organizations assume the importance of their unique actions in bringing about change and transformation. Organizational researchers have often highlighted the role of institutional entrepreneurs, who leverage resources to create new, or transform old, institutional arrangements.[1] Political scientists and policy scholars refer to these as policy entrepreneurs, who promote a set of ideas that significantly raise the approval policy innovations.[2] Education researchers have also appropriated this to underscore educational entrepreneurs, who combine the drive for educational change with an enterprising orientation towards efficiency, effectiveness, and scale.[3] Many of the theories of such enterprising "actors" refer to the work done by individuals or groups that try to change how things are done. Thus, institutional change and organizational innovations are often attributed to these entrepreneurs or a group of them. In the case of ninth-grade early warning indicators (EWIs, also known as on-track indicators), the story may have well been that a certain individual had a stroke of genius, strategy, and good luck to push for the innovation of having a metric to predict who were more or less likely to graduate high school on time. If not an individual, it may have been an entrepreneurial organization.

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[1] DiMaggio, "Interest and Agency in Institutional Theory"; Battilana, Leca, and Boxenbaum, "2 How Actors Change Institutions."

[2] Mintrom, "Policy Entrepreneurs and the Diffusion of Innovation"; James Arthur, *Policy Entrepreneurship in Education: Engagement, Influence and Impact* (New York, NY: Routledge, 2017).

[3] Quinn, Tompkins-Stange, and Meyerson, "Beyond Grantmaking."

However, the EWI story in Chicago, Philadelphia, and New York City did not have a singular protagonist. In a way, it was an embedded set of individuals and organizations that were working and interacting with each other in the right place at the right time. It suggests the work not so much of individual entrepreneurs but of *entrepreneurial interactions*. In Chicago, what led schools to use EWIs were the early efforts and combined strategies by outside research and school support organizations. In Philadelphia, the spread was due to philanthropic investments that facilitated integrated efforts between the district and its external counterparts. In New York City, the creation of sophisticated data systems was dependent on the networked relationships among large institutions like the city's Department of Education, its city university system, and a school support organization. In contrast to what organizational theories suggest, it was not mainly discrete individuals or organizations that mattered but the connections among them—the theme of entrepreneurial interactions core to this chapter.

In this chapter, I explore three core strategies that these organizations employed as they tried to spread the EWIs, their practices, and their data systems. First, organizations partnered with each other or divided work amongst each other to respectively draw on their unique sources of legitimacy. For example, a research organization was critical in spreading the legitimacy of the EWI research but it had to be partnered with an intermediary school support organization for EWIs to actually be implemented on the ground. While one can think of a one-size-fits-all entrepreneur, this strategy highlights the importance of having, what some theorists called, "actors whose subject positions provide them with legitimacy with respect to diverse stakeholders."[4] In a way, one needed the division of legible labor and their coordination.

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[4] Maguire, Hardy, and Lawrence, "Institutional Entrepreneurship in Emerging Fields," 668.

Second, organizations had to create intentional strategic networks for legitimacy, spread, and sustainability with the actors that were ultimately going to use the initiative, which in the case of EWIs, were the schools and school staff. To do this, organizations created networked communities that involved communal learning, coaching, and/or competition. But more than just these specific communities, these networks were considered investments for when staff moved to other schools or to positions of greater influence—making it not only spread wide but also sustain through time. Organizations saw their role as facilitating collaborative connections and focusing resources on a particular facet of high schools. In the case of EWIs, it was ninth-grade experience.

Third, outside school improvement organizations had to leverage diverse resources to support their work and initiatives. In the case of EWIs, local and national philanthropic foundations were critical in pushing the work. While research has often assumed the role of large, professionalized, and bureaucratic foundations that can create its own "shadow bureaucracy" challenging public education institutions[5], this chapter presents the wide variety of philanthropic networks that vary in their way of supporting, in their ability (or desire) to direct funding, and in their means of making connections with nonprofits. Education research has often concentrated on the work of large philanthropies that can have and have had an outsized impact on public education and nonprofit organizations' decision-making.[6] Here, I note the wider variety and network of philanthropies and foundations that support education organizations. I argue that nonprofits draw on various forms of giving: whether simply supportive or explicitly directive, either through flexible funding or through project-based grants, and made through professional connections or through personal relations of trust.

[5] Reckhow, *Follow the Money*; Reckhow and Snyder, "The Expanding Role of Philanthropy in Education Politics"; Tompkins-Stange, *Policy Patrons*; Saltman, *The Gift of Education*.

[6] Scott and Jabbar, "The Hub and the Spokes"; Ball, "New Philanthropy, New Networks and New Governance in Education."
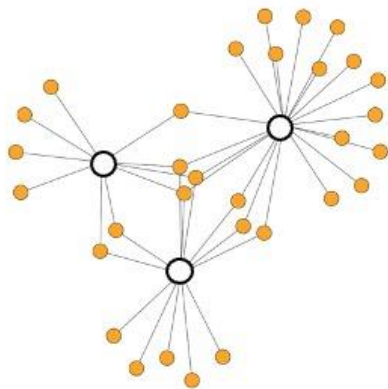
Resource Network

Leveraging diverse philanthropic supports:
- Supportive vs. directive
- Flexible vs. project-based funding
- Bureaucratic vs. personalistic
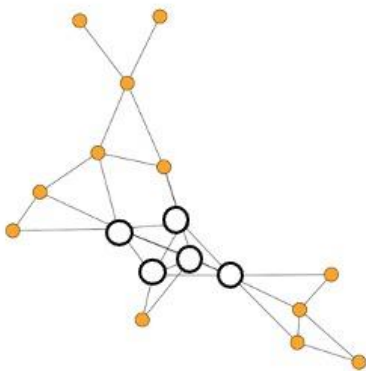
Interorganizational Network

Forming strategic partnerships for division of labor and shared ideas:
- Division of labor
- Trust and brokerage
- Collaborations
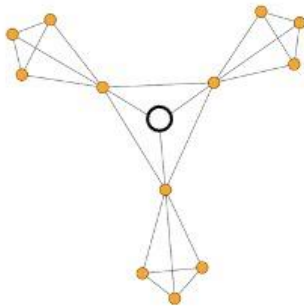
Grounded Network

Creating networks in schools for:
- Legitimacy: proof of concept + collegial solutions
- Organized spread
- Sustainable change with leadership

Figure 3.1 Networked Strategies and Entrepreneurial Interactions
Note: The figure illustrates how school improvement organizations or individuals in these organizations (shown in hollow circles) interact with other organizations, schools, or foundations. They create three different levels of networks that are related to each other, and they employ unique entrepreneurial interactions at each level to help spread organizational initiatives.

As preview, I highlight how these three networks of entrepreneurial interactions were critical in the story of EWIs: the *interorganizational networks* that provided a sense of legible division of labor, the *grounded networks* of schools that helped with spread and sustainability, and

the diverse *resource networks* that aided its robustness and stability. One can think of these networks as moving across different levels and that within every level, organizations employed various strategies—at times intentioned and organized, while many other times unintentional and organic. Figure 3.1 illustrates the concepts that are discussed in this chapter, and how these different networks are connected with each other. Moreover, it details not just the networks but also the entrepreneurial interactions being employed in each of these networks. In discussing these networks, I focus on the organic creation of these networks in Chicago that had to pioneer many of these strategies. I then describe how the Philadelphia EWI story had started with more organic networks that became less influential with the retreat of certain individuals and organizations, leading to a new, more organized network a decade later after the first one started. Finally, I show how New York City managed to create increasingly organized networks among large institutions, using similar strategies of leveraging interorganizational, grounded, and resource networks.

The chapter is divided in five sections. The first three sections concentrate on the networks in Chicago, providing expansive details on how the city's organizations interacted organically to create webs of interorganizational, grounded, and resource networks. The respective sections highlight the importance of each of the interacting networks in bringing about innovative practice and organizational changes. The fourth section focuses on Philadelphia, particularly its having groups of organizations that had a trajectory from a more organic to a more organized group of institutional entrepreneurs. The fifth section explores how the insights from the organic networks in Chicago and Philadelphia had become applied in more intentional and formalized partnerships among large institutions in New York City. Thus, one can think of this chapter as moving from organic to more organized networks, and moving across different levels of school support

organizations, schools, and philanthropies. All of these were tied with the core insight of attending to entrepreneurial interactions across levels, individuals, and organizations.

Interorganizational Networks for Niches and Collaboration

Something about the maverick individual or organization is particularly appealing when talking about entrepreneurs—particularly for those who plan to change or initiate institutions, policies, or educational practices. Organizational scholars have often referred to these individuals or groups as "institutional entrepreneurs," highlighting how their ability and their social position make them more likely to innovate, change, and transform organizations and institutions.[7] Since sociologist Paul DiMaggio had suggested this concept, many other scholars have used institutional entrepreneurship as a way of explaining change in institutions.[8] For example, scholars have shown how institutional entrepreneurs helped redefine photography, French cuisine, and HIV/AIDS advocacy—making photography more accessible, abandoning classical French cuisine for nouvelle cuisine, and legitimizing community organizations to advocate for medical treatments.[9] In many of these accounts, the focus is on individuals and groups that Neil Fligstein would argue were "skilled strategic actors [that] provide identities and cultural frames to motivate others."[10] In many cases, the focus in much of this literature was on the entrepreneur rather than the process of entrepreneurship.

An innovation like ninth-grade EWIs could have been the product of one maverick thinker (or organization) who went against all odds to promote the indicators, change district policies, and

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[7] Battilana, "Agency and Institutions."

[8] DiMaggio, "Interest and Agency in Institutional Theory."

[9] Munir and Phillips, "The Birth of the 'Kodak Moment'"; Rao, Monin, and Durand, "Institutional Change in Toque Ville"; Maguire, Hardy, and Lawrence, "Institutional Entrepreneurship in Emerging Fields."

[10] Fligstein, "Social Skill and the Theory of Fields," 106.

transform school practices. But that was far from the story of EWIs. Rather, as the Chicago example would show, it was the story of a discovery by a research organization, its adoption by an urban school district, its expansion as a grounded practice by a school support organization, and its public spread through a data analytic organization. Although these four Chicago organizations were crucial in spreading EWIs in the schools and beyond the district, it was not just the formal interorganizational arrangements that were generative but the informal personal ties as well. In a way, while the organizations created their own *organizational hubs* that were the public-facing front for EWIs, the creation of such hubs was facilitated in the background by *individual brokers*.

While individual institutional entrepreneurs were important, entrepreneurial interactions were equally, if not more critical in changing ways of using data in high schools in Chicago. These interactions included creating these organizational hubs, clarifying organizational niches, and brokering relationships across organizations. While I do not discount the fact that one individual or organization could have carried all these efforts, I show why the interactions across organizations proved to be fortuitous for institutional change. Taking inspiration from more recent literature integrating symbolic interactions into institutional and organizational theory, I show that complementary, conflictual, and competitive interactions among institutional entrepreneurs were core to changing institutions.[11] Although many studies have often focused on what happens "in and around" an organization, this chapter looks at what happens "between and through" organizations as these interactions provided the foundation for changes in Chicago high schools and beyond it.[12]

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[11] Hallett and Hawbaker, "The Case for an Inhabited Institutionalism in Organizational Research"; Gary Alan Fine and Tim Hallett, "Group Cultures and the Everyday Life of Organizations: Interaction Orders and Meso-Analysis," *Organization Studies* 35, no. 12 (December 1, 2014): 1773–92, https://doi.org/10.1177/0170840614546153.

[12] Rich DeJordy et al., "Inhabited Ecosystems: Propelling Transformative Social Change Between and Through Organizations," *Administrative Science Quarterly* 65, no. 4 (December 1, 2020): 931–71, https://doi.org/10.1177/0001839219899613.

Entrepreneurial interactions seem particularly more apt a descriptor than entrepreneurial strategies because, as the Chicago story will show, many of the interactions were neither strategically planned nor formally organized. Many were interactions among people who were in the same circles and working in close proximity with each other—both physically close at the University of Chicago and figuratively close in the education nonprofit space in the city. These entrepreneurial interactions highlight not just the social skill of individuals but the social context that mattered for institutional change to happen.

Conceptual Hub and Organizational Niches

The spread of EWIs in Chicago has been deeply influenced by the connections among three organizations at the University of Chicago and their connection with the Chicago Public Schools district. In 2003, the district used in its accountability metric the insight from the university's Consortium on School Research (UChicago Consortium) regarding how failure in ninth grade predicted lower odds of graduating high school. In 2005, the UChicago Consortium came out with a report that validated their initial findings, adding that ninth-grade course performance was a better predictor of eventual graduation than standardized test scores. [13] This was big news, considering the political and educational milieu that emphasized school accountability regimes measured through standardized tests. Two years after, the Consortium came out with another report that detailed not so much what it meant to be on-track but what schools can do to help students stay on-track. In the report's introduction, it detailed that,

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[13] Allensworth and Easton, *The On-Track Indicator as a Predictor of High School Graduation*.

While [the 2005 report] was a key validation of the on-track indicator, it left a number of unanswered questions: Why is the indicator predictive? Why are students off-track? And what might high schools themselves contribute to students' course performance? … In this report, we pull apart a variety of indicators of freshman course performance—including students' failures, absences, and overall grades—to learn what matters for a successful freshman year.[14]

This 2007 report came at an opportune time since the district was also creating data systems not just to have yearly metrics of students' on-track status but also data reports of students' performance as they entered ninth grade and their point-in-time attendance and course grades to show which students were in need of more help and support.

This relationship between the Chicago Public Schools and the UChicago Consortium showed what many research-practice partnerships aspired to have, as the research being done had become useful for changes in the school district. Steve Gering of the district's leadership office mentioned that "I think the Consortium, just with their credentials, the most important thing they did was publish the initial report and then continued to publish briefs." The Consortium had a unique role in this ecosystem by providing legitimacy and objectivity through their position, and it knew how to leverage it.

Interestingly, the Consortium never led any interventions nor designed any data systems. What they did was what they were good at: doing research. This suggested a division of labor among organizations such that it needed two more organizations— both conveniently housed at

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[14] Allensworth and Easton, *What Matters for Staying On-Track and Graduating in Chicago Public High Schools*.

the University of Chicago—to address other ways for spreading this initiative aside from just telling what the research says.

In 2006, Melissa Roderick, professor at the university's School of Social Service Administration[15], founded the *Network for College Success* (NCS) with Sarah Duncan. Recounting their early work, Duncan mentioned that they did not originally intend to promote ninth-grade EWIs. Rather, the organization started a voluntary network of Chicago high school principals who were working with each other to solve school problems. They explained the rationale of creating this informal network as coming from Roderick's insight that "the answers are in the field. Let's get some principals together and talk about what's working." Duncan added that this was in contrast to what usually happened when professors would diagnose a particular educational problem, create some form of program, sell to the district, and then have the district implement it with fidelity. For Roderick and Duncan, the answers did not lie with them but with their network of schools and principals.

But it was difficult to ignore the importance of these on-track indicators in Chicago during this time. Melissa Roderick had been studying the role of high school experiences and preparation for secondary and postsecondary success. Sarah Duncan was in conversation with researchers, principals, and district officials that were using these new EWIs. While NCS continued to convene and work with principals, a large part of NCS's work had also concentrated on having coaches work with schools as they developed ninth-grade teams of teachers, administrators, and counselors who met regularly to assess school practices and student performance. These teams thought about and thought through school practices to adopt, adapt, or abandon; interventions for groups of students at risk of falling off-track; and ways to connect students with academic and counseling

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[15] The school is now named the Crown Family School of Social Work, Policy, and Practice.

supports that help them get back on-track. NCS coaches also helped these teams make sense of real-time data on their students' on-track performance.[16] Thus, NCS became what many in the education space had called an intermediary organization whose legitimacy came from its being able to translate what research finds to what schools can do.[17]

Between 2005 and 2010, the Consortium came up with two landmark reports, the district created new early warning data systems, and NCS started partnering with schools to support this work. All these organizations were working, each with their own specific goals tied to a particular aspect of EWIs. The Consortium's director, Elaine Allensworth, commented on this as almost the perfect coming together of different organizational forces,

> Not only were there suddenly a lot of things happening [all] at once; you had this completely new way of thinking about how to support students and we have evidence about that. You have these data reports that are coming out that can help organize the data that matters for students and help you come up with systems. And then there are these structures, these new positions in some schools, or the Network for College Success that are being put in place to help people, help schools use the data. And Freshman OnTrack is still an accountability [metric, which although] it didn't improve with accountability, there are still strong incentives to improve on-track rates.

The entrepreneurial interaction that happened was that each organization saw a specific contribution to the work of EWIs. On one hand, they were all connected with the idea of improving

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[16] Details from interviews with Network for College Success coaches and confirmed or supplemented by information from the NCS website: https://ncs.uchicago.edu/page/ninth-grade-success-and-college-readiness
[17] Honig, "The New Middle Management"; Eddy-Spicer, Arce-Trigatti, and Young, "Field Building through Strategic Bricolage."

ninth-grade outcomes to improve graduation outcomes. Yet on the other hand, they too saw that they had to address a particular niche and audience. Each organization had to be made legible and legitimate to specific groups of education stakeholders.

At around the same time, the University of Chicago's public education initiatives were also being organized into what has now been called the Urban Education Institute that included the university's charter school, research consortium, evaluation arm, and teacher education program. Spearheading this work was Sara Stoelinga who was the institute's senior director before assuming its directorship. With a larger view of the things happening during this period and given her 20 years of working at the university, Stoelinga highlighted why the work of the Consortium and NCS were crucial in bringing people together.

> [In the 1990s] there wasn't a trajectory or a shared direction among the organizations in the city that were focused on school improvement, and this is a place where I will give the Consortium on School Research and the Network for College Success specific credit for creating the rallying point and the momentum for school improvement work…. [they] were the *hub of that relational web* because one of the things that those organizations did really well is they built those relationship. (emphasis added)

The Consortium's "discovery" of the importance of ninth-grade on-track indicators as well as the NCS's insight regarding the grounded work with and in schools eventually led different Chicago schools, education organizations, and philanthropic foundations to see an important innovation to champion. It became a conceptual "hub" to rally people towards a certain direction and to facilitate coordination as organizations assumed varying roles.

In 2014, a new organization would be added to the mix of organizations that furthered the work of EWIs in the city of Chicago. Also based at the University of Chicago, the *To&Through Project* was a public-interfacing organization that published longitudinal data on the performance of Chicago Public School students, and created tools to show how many students per school were on-track, graduated from high school, enrolled in college, and completed a college degree.

To&Through's director Alex Seeskin summarized their work in terms of data and dialogue, "I think our data work is around providing schools with both early warning indicator data and outcome data, and drawing connections between those two and helping schools use it. And then dialogue is around bringing people together, bringing schools together, but more broadly, bringing the sort of larger education ecosystem together to make meaning of the indicators that we're seeing." They do these through research with the Consortium, the provision of public data tools, the facilitation of seminars and workshops on EWIs, and on-the-ground work with eight middle schools that focus on helping students' developmental and social-emotional capacities.[18]

Described by one Consortium staff as a "little bit of a maverick organization," the To&Through Project was originally housed at the UChicago Consortium. However, the project's funder explained that To&Through now lived outside the research organization because "some people in the Consortium felt like it wasn't their job—their job was not regular data reporting; their job was research." Here again we see the importance of a division of labor when the Consortium—or some individuals inside it—found that this work of providing yearly aggregate public data did not constitute what would be considered research. Because labor had to be legitimized, in a way, it also had to be divided.

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[18] The To&Through Project, "The To&Through Middle Grades Network," The To&Through Project, October 8, 2020, https://toandthrough.uchicago.edu/tothrough-middle-grades-network.

In some sense, these organizations found it important to create specific niches and engage particular audiences. Creating a hub for different organizations to come together meant each organization having specific roles to play and goals to achieve. It meant having a conceptual hub and different organizational niches. While research was an important factor for spreading EWIs, the reason for its sustained use in different schools was because of an intermediary school support organization (NCS), which translated research into practice. While the support of coaches was crucial, this could have only gone so far without it being reinforced by data systems that helped identify students at risk and accountability systems that made schools focus on them. Finally, while the grounded work and the initial research helped initiate the work, the continued publication of data and analysis of district trends were paramount in keeping work relevant. In all of these, the organizations had to be coordinated with a conceptual hub to bring people together and at the same time they had to be distinct by reaching out to a particular niche.
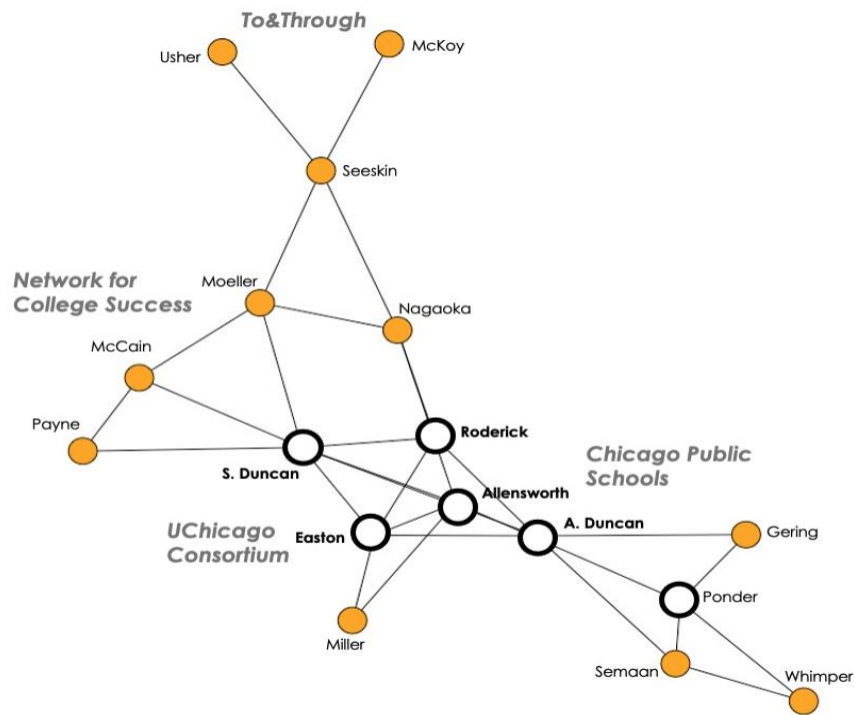
Figure 3.2 Network Map of Chicago's Institutional Entrepreneurs
Notes: Hollow circles represent key individuals that started EWIs in Chicago, many of whom are "central" brokers of relationships between different organizations.

Trust and Brokerage for Shared Understandings

While the networks of organizations seemed to have clear boundaries with each other and represent a logical division of labor, the networks of individuals showed a different story. Instead of entrepreneurial individuals that were doing their own pioneering initiatives, a theme that came up again and again were the relationships and interactions shared among these researchers, district officials, coaches, and organizational leaders working on EWIs. While organizations were complementary pieces of the jigsaw puzzle, these network of institutional entrepreneurs were latticed webs, embedded with each other with multiple lines connecting an individual to another. Figure 3.2 demonstrates some of the rich connections among Chicago's institutional entrepreneurs, with many of the key individuals who started the EWI work (in hollow circles) also being brokers and central figures in spreading the EWI initiative.

Around the turn of the 21st century, John Easton, Elaine Allensworth, and Shazia Miller from the UChicago Consortium were all connected with each other because of their work of understanding and validating the on-track indicator. But they were also connected with others in the Chicago ecosystem. The Consortium's executive director John Easton was a friend of Chicago Public Schools CEO Arne Duncan, who attributed the start of EWIs in the city when "John Easton… presented to our management team this data, which at the time was pretty revolutionary." Duncan was referring to the Consortium's research that freshmen who were on-track were four times more likely to graduate from high school than someone off-track. This set in motion efforts at the Consortium to validate the work and at the district to create data and accountability systems for rapid reporting of point-in-time on-track rates.

Elaine Allensworth worked closely with Paige Ponder, who was the district's graduation pathways office. Allensworth recalled,

> I was meeting so much with Paige Ponder and she was the one who developed their systems… there was so much work and conversation. Paige's team were the ones in schools figuring out how to use the EWI data. At the same time, we as researchers were in schools talking with students and teachers about their experiences and observing their classrooms. Through those interviews and classroom observations we better understood why students go off track in ninth grade, and we would share that information with Paige's team. Meanwhile, we would hear from freshman on-track coordinators about how they were approaching supporting students in different ways.

In turn, Paige Ponder remembered the importance of the work of the Consortium to "put to bed the naysayers, like, 'Actually, you keep [students] in *and* they do great on their tests.'" She was, of course, referring to teachers and staff who were skeptical about just how crucial ninth-grade course performance was, particularly as some teachers still believed that failure taught students an important lesson. These responses from Allensworth and Ponder emphasized how shared interorganizational understanding was facilitated by individual interpersonal connections.

The Network for College Success also had a number of different connections. Its initial board was a who's who in education: Timothy Knowles was then director and founder of the University of Chicago's Urban Education Institute and would subsequently become the president of the Carnegie Foundation for the Advancement of Teaching. Ron Ferguson was professor at the Harvard Kennedy School. Greg Darnieder established CPS's department of postsecondary

education and student development, and would become a senior advisor to the US Department of Education secretary. John Easton was then executive director of the Consortium and would subsequently become the director of the US Institute for Education Sciences. NCS' co-director Sarah Duncan described all the other people they were connected with,

> John [Easton] was a really strong connection to the Consortium when Melissa [Roderick] was there as well. We talked to Jenny [Nagaoka] all the time, and Elaine [Allensworth] more and more, as all the players shifted around. Paige [Ponder], I didn't know well, but we definitely met with her and talked to her. She's since become a friend.

These different connections were all important aspects of the entrepreneurial brokerage among leaders who were driving the EWI initiative in Chicago. Many of them highlighted the importance of trust among individuals who knew each other, not just on a professional level but also on a personal level. Ponder commented, "You would think now that it's sort of such a success story that it was this very masterfully architected thing. In my experience, it wasn't really." For her and for many of these individuals trying to change Chicago's school system, the entrepreneurial interactions were not primarily about having strategic partnerships but really about having trusted connections.

What made the difference was the organic coming together of people who trusted each other. John Easton shared about how Arne Duncan trusted him and how he had legitimacy with the district because he previously worked at CPS, was part of the University of Chicago, and was trusted by Arne. Paige Ponder talked about how trust eased working with each other. Sarah Duncan emphasized the "conditions of trust" for the transfer of school innovation.

Aside from trust, another factor that helped this spread was having *boundary-spanning brokers* who were working with individuals from outside their organization or who themselves were involved in and across different organizations. For example, as Figure 3.2 hints at, Melissa Roderick was a professor at the University of Chicago, a researcher at the Consortium, founder of the Network for College Success, and at one time, a strategist for the Chicago Public Schools. Highly respected in her field, Roderick was able to wear different hats that brought different individuals together. Someone who worked closely with Roderick was Jenny Nagaoka who was both the deputy director at the Consortium and a senior advisor at the To&Through Project—again able to connect these organizations. Similarly, Alexandra Usher had appointments in both organizations as well. John Easton was referred by a colleague as a "boundary spanner between the Consortium and the CPS as [he had] worked there too." These examples highlight the role played by individuals able to span boundaries and organizations in an effort to connect and translate the work from one organization to another, or from one set of organizations to another.

Another key broker was Mary Ann Pitcher from the Network for College Success who was previously embedded in the charter school world being formerly the co-director of the Young Women's Leadership Charter School of Chicago. In 2006, she was part of the individuals who started the Network for College Success and had been co-director of the organization until 2018. She saw the enlarged presence of the organization in schools in Chicago and the potential to bridge individuals and schools in terms of school improvement. She emphasized how a lot of individuals from the charter world were hired in NCS. She explained that,

> I was connected to the school people on the ground as well as [was] able to tap that network and the charter network… A lot of the people we hired were from the charter world, and

that has to do for a couple of reasons. One that they were entrepreneurial because they

created charters and they had that kind of spirit that we needed. And then secondly, I just

think that they were more available. For example, many of us got disenchanted… with the

charter movement along the way.

These individuals would become NCS's instructional and leadership coaches that worked in

schools, bringing with them not only what they learned from managing their previous schools but

also an energy in creating these networks of school leaders. Pitcher further explained that "they

were looking to do what they had originally aspired to do, which was to create and share innovation,

but the charter movement took a different path." And here was NCS that was an opportunity to do

it.

Finally, there were ad-hoc collaborations that spanned different organizations as with the

Freshman On-Track Toolkit, a 300-page document that incorporated protocols, processes, reports,

resources, and documentation from the UChicago Consortium and the Network for College

Success.[19] To&Through's director, NCS's research director, and the Consortium's deputy director

also wrote a report on *Practice-Driven Data,* detailing how Chicago had approached using

research and data in schools. To&Through together with the Consortium and NCS had also

produced a documentary called *The Second Window: How a Focus on Freshman Transformed a*

System (2020). These different examples suggest that although the Chicago organizations needed

to formally distinguish themselves from each other, the individuals in them were often

collaboratively working and closely embedded in relational, interpersonal ways. It was a story

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[19] Network for College Success, *Freshman On-Track Toolkit* (Chicago, IL: Author, 2012).

about distinction and connection, of having a distinct niche for outsiders and yet being internally bound through shared concepts.

It seems rather odd that narratives on entrepreneurial interactions lacked stories of the strategic negotiations and competitions one would have expected of institutional entrepreneurs. Instead, what was striking from the story of EWIs in Chicago was the importance of relational trust, boundary-spanning brokerage, and intentional collaborations. Such ideas about entrepreneurial interactions challenge some assumptions of an individualistic account of institutional entrepreneurship. The story of EWI suggests that the spread of innovation across organizations came as a result of organizations distinctly selling the initiative to their respective audiences and niches as well as individuals collaboratively connecting with each other to create shared understandings.

Grounded Networks for Spread and Sustainability

Institutional entrepreneurs do not just ally themselves with other entrepreneurs or organizations that complement their work; they also leverage networks across different levels of an institution. In a study of the start of social enterprises, Paul Tracey and his colleagues in London had suggested a multilevel model for how change happens for organizations and institutions. They found that institutional entrepreneurs employed strategies affecting different levels, such as having new ways of problem framing for individuals, creating new organizational templates, and pushing for new societal discourses.[20] It shows that these institutional entrepreneurs engaged stakeholders beyond their organizational partners and peers.

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[20] Tracey, Phillips, and Jarvis, "Bridging Institutional Entrepreneurship and the Creation of New Organizational Forms."

In the case of EWIs in Chicago, the district and the Network for College Success (NCS) saw the importance of engaging networks of principals and school staff "on the ground." For the district office, it had an influence over schools since principals and teachers—even with localized decision-making—are still bound by certain rules and regulations that the district sets. However, for an outside organization like NCS, they did not necessarily have the same power over schools as district offices and officials. Scholars have referred to these outside organizations as intermediary organizations, operating between policy makers and researchers on one hand, and implementers and practitioners on the other.[21] Oftentimes, organizations that initiate school innovations—whether the district or the intermediary organizations—provide coaching, professional development, curricular materials, and data management systems.[22] In Chicago, both the district and NCS provided these services but they also saw the importance of having webs of schools connected with each other. In a nod to researchers who emphasized a multilevel model of institutional entrepreneurship and change, these organizations saw the need to engage people who will ultimately implement and further the work of EWIs.

In this section, I detail how the district and NCS created grounded networks of schools, principals, and school teachers that brought about legitimacy, scale, and sustainability to the EWI effort. First, and similar to other studies, the district helped schools in testing and innovating practices for EWIs and using these as proof of concept for different strategies in using EWIs. Second, organizations like NCS saw the power not so much of their own suggestion for strategies but of schools being connected with each other and creating their own collegial solutions employing and maximizing these indicators. Third, organizations saw that networks can be used to spread and scale innovations, particularly with clear chains of command and systems of

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[21] Honig, "The New Middle Management."
[22] Trujillo, "The Modern Cult of Efficiency."

accountability. Finally, organizations subsequently realized the importance of a network of key individuals that have helped sustain innovations through their expanding position, influence, and championing of EWIs.

As early as 2006, just as EWIs were being investigated and understood, organizations were starting to see the value of such grounded networks. Mary Ann Pitcher of NCS highlighted that the organization did it without yet knowing all the ideas that had backed it up. She said, "We were called the 'Network for College Success' but it was really just the beginning of networks. Now, networks have been, it became a trendy thing some years in before we even knew exactly what we were doing." They saw the role of creating networks not only among organizations but among schools as well.
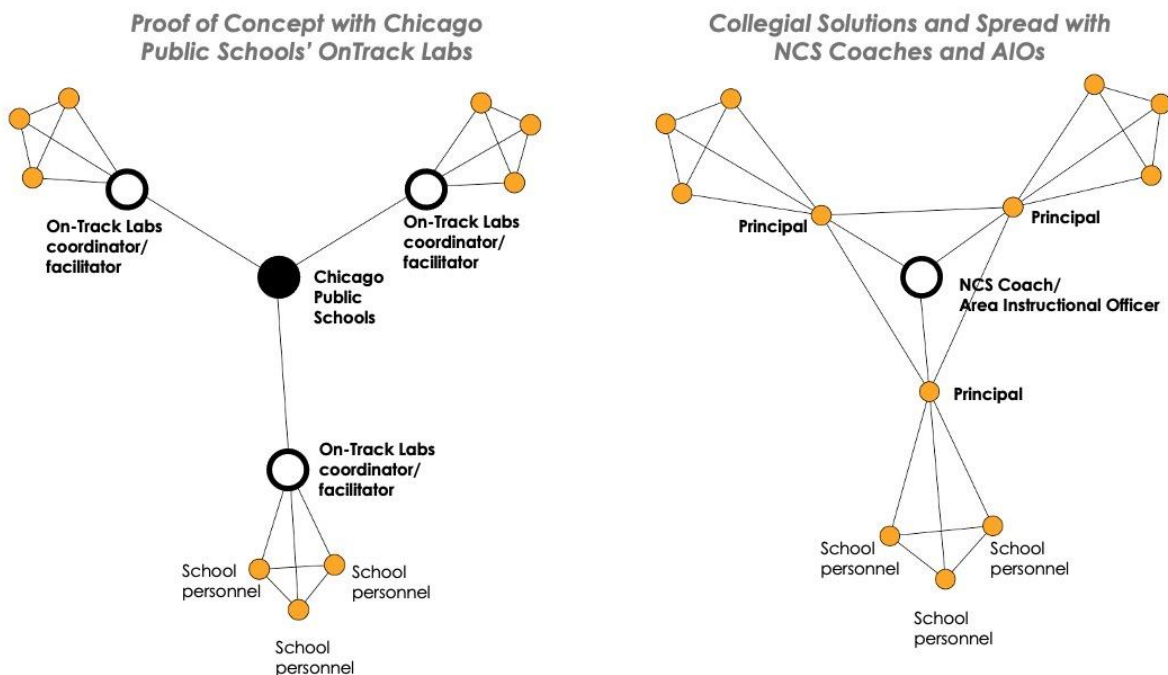
Figure 3.3 Different Networked Strategies with Schools
Notes: NCS= Network for College Success; AIOs = Area Instructional Officers. Hollow circle represents non-school-based individual, whether a coordinator, facilitator, coach, or district officer.

Figure 3.3 illustrates the network strategies employed in Chicago. The left panel shows how the networks within schools were facilitated as the Chicago Public Schools' district office included On-Track coordinators and facilitators in school that helped provide a proof of concept for other schools. In contrast, the right panel shows how NCS coaches and the district's area instructional officers were individually connected with the principals while at the same time facilitating the process of connecting principals with each other, leading to a structure where collegial solutions can come about and wider spread is made possible through reinforced use of EWIs. As many education researchers highlight the importance of networked improvement communities, I try to engage this literature by providing an account of how these networks were leveraged by institutional entrepreneurs that needed their changes to be legitimated, spread, and sustained.[23]

Legitimacy through Proof of Concept

In 2008, Paige Ponder was tasked with creating systems to spread the Freshman OnTrack program to different schools in the district. Then the school district's director of graduation pathways, she had a grant from the Gates Foundation and funds from the Chicago Public Schools to find out ways to improve on-track rates of students with the aim of increasing graduation outcomes.

Rather than roll out a blanket program to the whole district, Ponder and her team thought that they needed to show not just the legitimacy of the indicators, which was being done by the Consortium, but also the possibility that the use of data and timely interventions can actually work.

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[23] Anthony S. Bryk et al., *Learning to Improve: How America's Schools Can Get Better at Getting Better* (Cambridge, MA: Harvard Education Press, 2015); Joshua Glazer and Donald J. Peurach, "School Improvement Networks as a Strategy for Large-Scale Education Reform: The Role of Educational Environments," *Educational Policy* 27 (July 1, 2013): 676–710, https://doi.org/10.1177/0895904811429283; Vicki Vescio, Dorene Ross, and Alyson Adams, "A Review of Research on the Impact of Professional Learning Communities on Teaching Practice and Student Learning," *Teaching and Teacher Education* 24, no. 1 (January 1, 2008): 80–91, https://doi.org/10.1016/j.tate.2007.01.004.

What they came up with was the OnTrack Labs, a collection of six diverse Chicago public high schools that focused on Freshman OnTrack, hired two additional staff per school, and tested out different ways of improving on-track rates through peer mentoring, parent outreach, ninth-grade teacher team meetings, and data analysis. Ponder instructed the coordinators and facilitators saying,

> Learn what [schools are] doing and then construct a strategy around that and include those things. Maybe those things need to change or scale in some capacity or maybe they need to be tweaked somehow. But don't just assume that it's all brand-new things that you need to get the school to do 'cause also you don't have time to do all that. And so, kind of take what's there, add, dial it up, and get people talking about it to sort of bring new energy to it.

The goal of the Freshman OnTrack facilitators and coordinators was primarily to work in high schools and to bring insights from working with these schools to their team. It was a highly intensive program for one year in six schools selected for their varying needs and demographics. After this year in school, in 2010, the facilitators and coordinators wrote up the *Freshman On-Track Handbook*, which provided an outline for other schools on how to develop a high school's freshman strategy, how to use the five-week data that was becoming available during the time, and how to give appropriate student interventions.[24] The six schools functioned like "labs" to test out practices in order to document and suggest what Ponder called, "promising practices." It was about proof of concept.

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[24] Chicago Public Schools, *Freshman On-Track Handbook: A Guide to Help You Keep Your Freshmen On-Track to Graduate* (Chicago, IL: Author, 2010).

These coordinators and facilitators—that reported both to the district and to their principals—were working closely with the principal and the leadership team, the freshman teacher team, and the people running the peer mentoring program. In a way, part of their task was to help organize these individuals within the school to have a network with each other. Ponder added that a large part of the success of Freshman OnTrack was that "the high school is expected to become a team that learned on things that weren't just test score." Because many high school teachers were focused with their own subjects and were mostly interacting with colleagues in the same subject, part of the task of the labs was to bring together teams of teachers in the same grade (i.e., ninth grade) to discuss student performance on a regular basis. Thus, Figure 3.3's left panel shows how the On-Track Labs staff that came from the district helped bring about these grade-specific teacher networks.

For the On-Track Labs, their strategy was to create networks *within* schools to test out various data practices, team convenings, and student interventions. This was then used to create and document innovations such that other schools may learn, adopt, and adapt these practices. However, this highly intensive model that was limited to just one year failed to live up to what Ponder and her team originally wanted. Ponder said,

Our hope was that with these two additional people with their sole focus being on the Freshman OnTrack rate that we were gonna see big improvements in the rate at these schools. That happened sort of in some places but it wasn't like [consistent]… which now, I think it was naïve to think that it would be that easy and quick 'cause it just wasn't enough time.

While the district learned of different ways that schools were using the different data tools as well as how they were organizing teams of teachers, they acknowledged that results would be difficult without sustained engagement. Thus, it emphasized the possibilities of catalyzing a team of staff in schools but also the limits of intensive short-term engagements for networked improvement.

Legitimacy through Collegial Solutions

During the same time, the Network for College Success also started working with schools—convening school principals and coaching schools on Freshman OnTrack. In 2012, Amy Torres joined NCS, initially as a leadership coach working with high school principals and subsequently as the deputy director of equity and impact. Aside from working with principals, she also worked with the school's instructional leadership team composed of assistant principals and other teacher leaders as well as convened the network of principals, oftentimes once a month.

As a coach for the school and the principal, and as someone who was a strong advocate of the on-track metric, Torres thought of her role as spreading and disseminating the early warning indicators, identification system, and intervention practices. After all, she was the one that knew most about the research and her being in an intermediary organization was supposedly to mediate the translation of research into practice. Nonetheless, she had a shift of thinking as she began working with these schools,

> When I started Network for College Success, I thought my role was to convince the
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> principal and the people in the school that this [Freshman OnTrack] is important work and
>
> teach them how to do it the *right* way. And what I've learned since is that I'm there to help
>
> and support the leaders and our network. When they meet together as principals, when they

meet together as Freshman Success coaches, that in and of itself, the sharing of ideas, spotlighting schools to have practices that are really helping them around attendance, [helped schools].

She recounted a school whose principal was quite resistant to her idea about bringing data to their ninth-grade teacher team meetings. The principal justified that this was a controversial aspect that teachers were sensitive to and he was scared to bring this up for fear of opposition.

But Torres shared that something happened when principals went into these principal networks and heard other principals talk about the same things they were experiencing, particularly "what they did, what the results and the impacts were, what were the pitfalls, what wisdom they shared, and then we had principals collaborate around these ideas." Torres explained that it was as if the initial resistance of that principal melted away with the assurance of colleagues who had already practiced what the coach had initially suggested.

The very next coaching session, that particular principal said, "Oh yeah, I definitely wanna bring data to my freshman team meetings now." Torres explained this as the power of their network because it was best for principals and schools to receive ideas about something new from principals that were also working and at times struggling with that same new initiative. While Torres still had a coaching role with individual schools, she highlighted that what the principal also needed "was the dialogue and conversation and the examples to make this change, number one, possible, and number two, concrete." What this exemplifies is the right side of Figure 3.3 that shows the connection of the coach with the principal and the connections *among* the principals. For innovation to spread, then, it was important to have networks not only within schools but also between schools.

This example goes back to what Sarah Duncan said as the original role of NCS, which was to "transfer innovation very intentionally." Coaches were there not so much to hold up examples but to direct conversations about what was effective. Their goal was to let schools learn of the innovations that happened in one school in order to influence other schools to adapt these to their situations. As Amy Torres learned, a coach hopping from one school to another may experience a lot of resistance because of their "outsider" status and the difficulty that any change poses. But the network of schools—or more importantly, their web of trust—was the core facet that influenced such spread of innovation. Torres' role as an institutional entrepreneur was to build and convene that network of schools that would support each other in testing and trying new initiatives.

Thus, this strategy expanded on what Paige Ponder was doing. Instead of just focusing on creating networks of teachers within a school, NCS also leveraged the network *of* schools through principals who convened and created collegial solutions to similar problems as they tried new initiatives. Thus, legitimacy was conferred not primarily through the credentials of NCS coaches, who were all very highly qualified being past district teachers and school leaders themselves, but through the coming together of colleagues with similar challenges and with potentially similar solutions.

What the Network for College Success did was to bring them together, and establish "conditions of trust." When Sarah Duncan and Melissa Roderick started NCS, they did it with the aim "to create the mechanisms to transfer the innovation [happening in different schools]." While working in these spaces, they found that schools did not readily adopt practices even if they were shown effective in one context (something that Ponder and her team had assumed would happen). Duncan further explained this experience,

We think as human beings that if somebody is successful that other people will naturally seek to learn from them, and that is not the case. Unfortunately, that's not how we work. All these conditions have to be in place for people to learn from each other; conditions of trust… So, that's what we intended to do.

For NCS, this intentionality came with harnessing the power of learning in networks, and innovation being transferred not primarily through professional development trainings but through principals trusting each other and being provided a space to think through problems together.

Networks for Spreading Innovations

While NCS had created its own network of principals that were collectively problem solving, the district was also starting networks of schools called "areas" with their own supervisors. Steve Gering, the district's chief leadership development officer, led the effort of convening area instructional officers (AIOs), who trained principals at monthly meetings, coached them individually, and conducted walkthroughs in schools to provide instructional feedback.[25] These were similar to what the NCS coaches were doing but with a broader audience of all district principals and a broader focus than just ninth grade. But it was also not the same as NCS because, as Gering described them, the AIOs were like "principal supervisors," who some saw as instructional leaders while others viewed as accountability czars.[26]

In his meetings with AIOs, Gering would post the area's respective on-track data on the walls of their meeting room, with the overall point-in-time on-track rate of all the schools under

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[25] Elizabeth Duffrin, "Principals Rate Efforts of AIO Teams," The Chicago Reporter, July 28, 2005, http://www.chicagoreporter.com/principals-rate-efforts-aio-teams/.

[26] John Myers, "AIOs May Be Asked to Apply for New Posts," The Chicago Reporter, June 16, 2009, http://www.chicagoreporter.com/aios-may-be-asked-apply-new-posts/.

the AIO and the specific on-track rates of these different schools just beneath this summary measure. For example, he had Area 1's overall on-track rate at 67 percent and he included "all fifteen of their schools listed underneath, on chart paper." He would then do something similar in the second quarter but he added a comparison with the first quarter, taking note if these areas had increased or decreased their on-track rates. While admittedly creating some competition and pressure, Gering emphasized the importance of a system and a network of individuals who were consciously conversing and trying to improve the rates. He said,

> That was the whole intent: being transparent and creating a little bit of energy—competition, if you will—around the leadership that this is a metric that we wanna pay attention to. And we're paying attention to it and we're publishing it. But then also, not just doing that but [also] having conversations like, "Okay, what did you do, Area 2? How did you move that ten percent from last time?"

These area instructional officers similarly worked in this way with their schools, trying to get schools to focus on their point-in-time on-track rates. Gering was visibly proud about this trickle-down effect as he detailed how the AIO meeting with principals "would have data charts and they would do a similar data protocol and talk about why [they're] seeing increases or decreases."

It was clear that there was a connection between Paige Ponder who was working with on-track facilitators on the ground and Steve Gering who was leading these systems to spread their work. Both of them acknowledged the synergies of what were happening around this time: the five-week point-in-time data that was becoming available, the list of eighth-graders' performance sent to high schools, the OnTrack Labs that had suggested promising practices, the organization

of school leaders into collegial communities for improvement, and these school network supervisors that were amplifying the efforts to focus on the on-track metric. Gering mentioned that all these were critical and that the on-track indicator provided a focus for these different efforts. He said,

> I think having a common metric that was aligned to a common vision of improving graduation was what bound everybody together…. CPS was doing a lot of things around curriculum… but the Freshman OnTrack was very concrete, and so, it became a real high priority for me to pay attention to it and actually get some structures and systems in place to support.

More than just an official network structure from the district, these areas and AIOs provided a way to further spread the work more than just to the teachers in a school (as in the case of the OnTrack Labs) and more than just in a few specific schools (as in the case of the NCS schools). While schools had to focus on other things aside from freshman on-track rates, these convenings provided a vocabulary and an "energy" or "competition" to this work. Such structure was similar to what NCS was doing with having outside staff be connected with schools and subsequently connect those different schools with each other (see right panel of Figure 3.3), bringing about the wider spread of EWIs.

Networks for Sustaining Innovations

As many of these networks were being created at the start of the innovation between 2008 and 2012, these networks necessarily changed with changing school principals, district leaders,

organizational officials, school improvement coaches, and so on. Initially, the organization did not anticipate that this dynamic nature of networks would figure in much to their work. However, ever since the NCS started its work with schools, they have uncovered the core importance of this temporal dynamism.

When they were working with principals and assistant principals in different high schools, it was not immediately apparent for them to think about how these school staff would eventually move or advance in their careers. But Sarah Duncan reflected that it was this long-term investment in relationships that made their work spread as much as it did.

Duncan mentioned, "One of the reasons that this worked well in Chicago was the principals that we were working with were promoted into other jobs which allowed them greater and greater influence in the district, not just in this district, but a lot in the district, and the height of which was that Janice Jackson was one of our principals and she became the CEO." Being the CEO of the Chicago Public Schools between 2017 and 2021, Janice Jackson believed in the work of Freshman OnTrack and thought of it as a high-leverage practice as she was quoted saying,

> Yes, it added more work, more meetings, but when people saw the impact, it was hard to not do it, and I think in education we do a lot of things that take up a lot of time and don't necessarily move the needle, but in Freshman OnTrack you could see a lot of progress quickly.[27]

But it was not just Janice Jackson. Maurice Swinney was principal of the Edward Tilden Career Community Academy High School, an NCS partner, and would subsequently become the district's

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[27] Phillips, *The Make-or-Break Year*, 311.

chief equity officer and chief education officer. Elizabeth Kirby was the former principal of Kenwood Academy High School, another NCS partner, and had been the district superintendent of Cleveland Heights. Her assistant principal Michael Boraz, who Duncan described as hand-creating datasets from student progress reports in the early days of Freshman OnTrack, had been a chief (i.e., supervisor) for one set of Chicago high schools. Along with Boraz, four out of the five high school chiefs in Chicago were former principals the Network for College Success worked with. These individuals worked with NCS and believed in these early warning indicators, making practices spread and sustain.

Since 2006, the network composition had also changed as principals came and left their schools. In more recent years, the NCS had as many as 38 high schools in their network while in their earlier years they had only seven schools. In 2022, NCS was providing cross-school professional learning and coaching to 18 Chicago high schools, creating Freshman Success teams and equity-based coaching in eleven other schools that aimed to improve achievement of Black and Latinx ninth graders, and establishing an anti-racist leaders community with nine high school principals.[28] These Chicago schools were in addition to the schools they supported in their national network.

As with many nonprofit organizations, NCS also shifted strategies depending on the resources available during particular times. When they were a school improvement grant provider funded by the federal government, they were able to provide three full-time and two part-time staff in each school they were in—having coaches and facilitators to help not just with freshman success but also with other aspects of school improvement. When they gained a data sharing contract with the district, they ran "performance management sessions" for all the high schools in the city,

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[28] See: https://ncs.uchicago.edu/page/ncs-partner-school-cohorts

essentially helping schools analyze real-time data of ninth graders' performance. When they obtained large Gates Foundation grants, they founded the three networks in Chicago in addition to their annual convening of the National Freshman Success Institute, which were a number of days spent with school and district staff from outside Chicago instructing them about Freshman OnTrack and EWI systems.

Resource Networks for Diverse Needs: The Variety of Entrepreneurial Players

A third set of networks crucial in the spread of EWIs was the network of philanthropic foundations and organizations that provided financial resources to the different nonprofits and research institutions working on the EWI program. A number of studies on philanthropy have at times painted the problematic incursion of large private organizations in public education, such as the critiques of the Gates and Broad Foundation on pushing for certain school reform efforts.[29] For example, some have documented how research "echo chambers" emerged when foundations funded school support organizations that implemented incentivist reforms as well as research organizations that produced evidence for these efforts.[30] However, I find that resource networks were a lot more heterogeneous than the image of one philanthropic foundation pulling the strings and determining what organizations do.

Although one common image had been to think of foundations as organizational hubs financially supporting other organizations that were considered their spokes, nonprofits have themselves diversified their sources of funding such that these nonprofits actually functioned as the hub for financial resources rather than simply as a recipient of these resources. In Chicago, for example, the three organizations were the hub for funding from different philanthropies that ranged

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[29] Tompkins-Stange, *Policy Patrons*; Reckhow, *Follow the Money*.
[30] Scott and Jabbar, "The Hub and the Spokes."

from large foundations and federal grants to small local family foundations that supported their operational expenses. Using data from the three organizations that initiated EWIs, I constructed a network map of how different philanthropies were funding Chicago nonprofits. Figure 3.4 suggests the organizations as hubs and the different philanthropies as spokes that supported and took their cue from the hubs: the UChicago Consortium, the Network for College Success, and the To&Through Project. In addition to being spokes, some philanthropies were funding more than one organization. There were philanthropies as well that funded all three organizations like the Crown Family Philanthropies, Polk Brothers Foundation, and the McCormick Foundation. Although there were examples of foundations directing the work of organizations, not all foundations were like this and many others were only supportive. This hints at the suggestion I make regarding the importance of networks of resources rather than singular philanthropies as there were many other players aside from large philanthropies with some specific agenda.

In this section, I show how different philanthropies function as resource networks, mainly by untangling the different types of philanthropic support they provided. First, there was the continuum between foundations supporting organizations and those consciously directing organizational activities of nonprofits. Rather than categorize all foundations as either unconditionally supporting or nefariously putting conditions to their funding, I show that philanthropies fell between these two extremes as some only provided operational support while others influenced the type of initiative the organization implemented. Second, and partly connected to the first distinction, was the fact that philanthropies had moved between flexible funding to project-based grants. In the case of Chicago organizations, they had seen support for flexible funding dwindle as project-based grant funding had increased, which then had consequences to their work and to new forms of fundraising they had to do. A third distinction was between large

established and highly bureaucratic foundations with endowments managed by nonprofit professionals, and usually smaller family foundations—many of which were multigenerational—whose work were still often influenced by family members and personal connections with nonprofit leaders. Such difference plays a role in the initiatives supported and the reasons for supporting these initiatives.
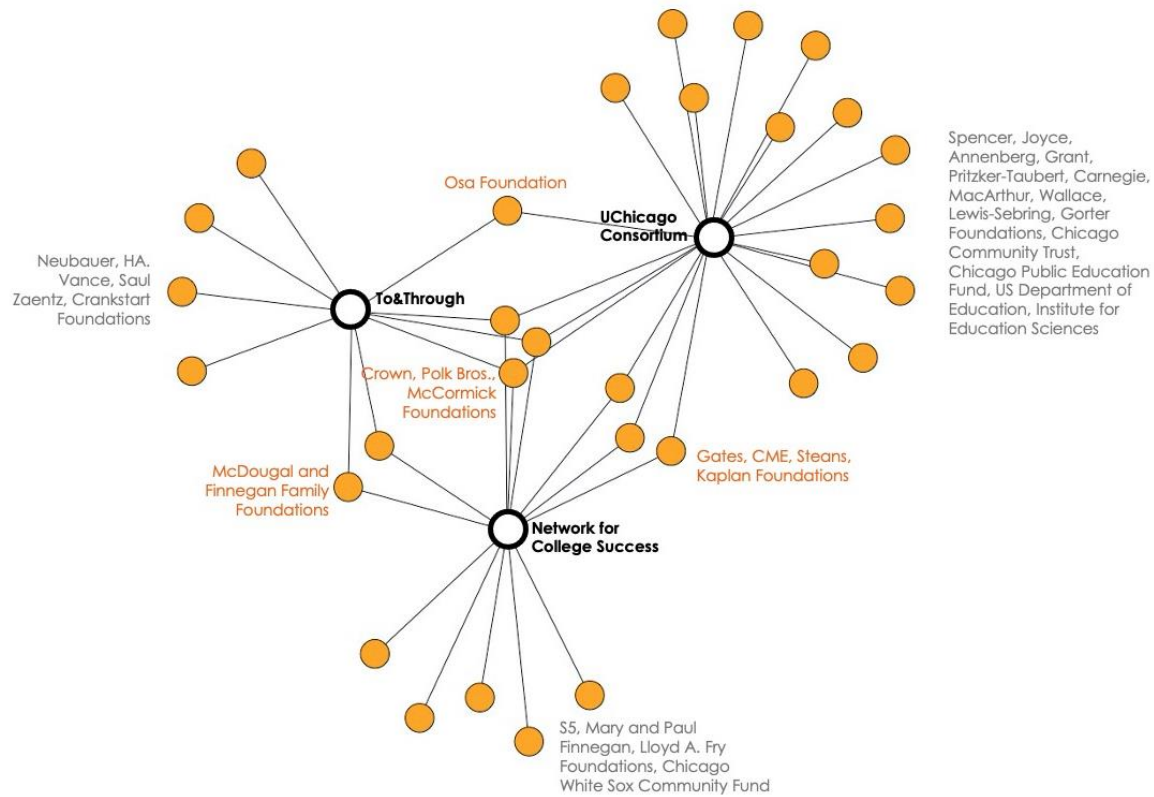
Figure 3.4 Philanthropic Networks for Chicago Organizations workings on Early Warning Indicators
Notes: Hollow circles represent nonprofit organizations while solid circle represent foundations/ funders.

Supportive vs. Directive Philanthropies

Rather than think of philanthropies and foundations as consciously and explicitly directing the work of different nonprofits, I suggest that they form a continuum between merely supporting organizations and directly intervening in their activities. In the book *Policy Patrons: Philanthropy,*

Education Reform, and the Politics of Influence, Megan Tompkins-Stange differentiated between outcome-focused and field-focused philanthropies arguing that foundations like the Gates and Broad Foundations focused on centralized top-down technical changes while others like the Ford and Kellogg Foundations focused on decentralized grassroots adaptive changes.[31] A parallel to such categorization may be what I found in Chicago regarding how certain philanthropies had a more supportive while others had a more directive role in philanthropic assistance.

Surprisingly, many philanthropic foundations supporting Chicago's organizations were part of a network of small family foundations that helped with operational expenses. For example, the Mayer and Morris Kaplan Family Foundation had funded the Network for College Success and the University of Chicago Consortium on School Research, with yearly grants of less than $100,000. It must be noted though that the foundation also supported other organizations working in education in Chicago and Los Angeles as well as organizations working on the environment and climate change. The foundation's executive director Dinaz Mansuri highlighted their dual role of financially supporting nonprofit organizations and creating networks of collaboration among these organizations. She mentioned,

> I would say we probably do more of the supporting [of nonprofits] because of our size and because we're not giving large dollars. But I actually think that from an ecosystem perspective… what we do in Chicago in terms of bringing funders together and ensuring that people are working off of the same information at least and a common understanding of what's happening.

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[31] Tompkins-Stange, *Policy Patrons*.

While the foundation's most concrete contribution is its financial support, an intangible facet of the work was often left underappreciated. These foundations were critical in forming relationships, bringing different organizations on the same table.

The idea of "setting the table" came up a number of times during conversations with philanthropists. I originally heard this from the Kaplan Family Foundation's program officer Shira Bernstein, who said that their philanthropic work entailed "a lot of networking and sort of table-setting for education funders to come together." Both Mansuri and Bernstein highlighted how their support of organizations were not just about the programs that they had but about the relationships of trust they made and built with leaders of these organizations.

Speaking about the foundation's support of NCS and the UChicago Consortium, Bernstein shared about the fact that these organizations have been trusted and have had long-term grants with the foundation. In particular, she highlighted their rationale for supporting these organizations as "investing in leaders… putting our confidence in any given leader of an organization… to use our dollars however makes the most sense [to them]."

In line with this, Mansuri shared the example of Sarah Duncan who was the founder and co-director of NCS, who had been invited to speak to the foundation's board. She said of Duncan that "we're obviously very impressed with her and had a good relationship with her." She also added the relationship of the family with Melissa Roderick, the other founder of NCS. The foundation had also supported her and her work because she was "really instrumental obviously in this research and in a lot of the Chicago-based education research, and it is sort of, like, Melissa has her hands in something that you would say it's probably really important and it's probably really good work." When philanthropies decide to support organizations, they do so under the

pretext of such relationships of trust. Oftentimes, then, it can be less about the specific organizational initiative and more about the organizational initiator.

Networks among philanthropic foundations play a big role. As Figure 3.4 shows, the support for the organizations working on on-track indicators in Chicago encompassed a wider array than simply large national foundations. Although small foundations provide financial support, these funders think of this support as a vote of confidence instead of something that fully funds the initiative. Mansuri added how they thought about their strategy when supporting these organizations,

Oftentimes, we'll partner with a larger foundation and we'll bring in some small dollars but I think it's a nice way in this community to show that there's like *multiple layers of support* for a particular initiative. Like, it's not only the big players funding things or the institutional funders; it's also small private family foundations. If you could sort of show that support, you can then build additional momentum for something. (emphasis added)

Thus, the support was not just a financial one but also a moral one. As Bernstein talked about earlier, part of their work was "setting the table" so that other philanthropic foundations were more inclined to support new initiatives.

However, not all foundations thought of their work as merely supportive of the work of nonprofit organizations. Some thought of their work as consisting of taking the lead and directing the efforts for the work they thought was of highest value. Mansuri was particularly cognizant of this distinction as she described foundations that were more directive in their approach. She described these foundations as,

foundations with significantly more dollars in education and they're not just sitting on the sideline and supporting initiatives that are happening; they're talking to [organization] leaders and making some of these initiatives happen through planting a seed or suggesting things or overtly saying, "We think these players need to come together and this project needs to happen."

Mansuri and Bernstein referred to these as a more "overt influence" over the education initiatives that philanthropists fund.

One concrete example of this was a philanthropic manager from a foundation that wanted to remain anonymous. Janelle Rios, a pseudonym,[32] and the foundation she was representing approached the UChicago Consortium to start the To&Through project because of what she called sunny Tuesday data, "which is data that you can get when it's sunny and a Tuesday at a Chicago public school but is not transparent or widely available." Their foundation thought that public access to school-level data was critical to understand what was happening in Chicago schools and that the data coming from the district was either unavailable or suspect. She added that "people were making what we would consider to be suboptimal decisions based on either sunny Tuesday data or no data at all." Because of this, the foundation was clearly moving and directing the early work of an organization.

Rios saw a gap in the work in Chicago's early warning indicators. She, of course, knew the work of NCS that was supporting schools but she believed that part of the solution was more

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[32] This is a pseudonym and is one of only two pseudonym used in this research. All other names are real names that individuals consented to using.

systematic rather than relational. Thus, their foundation saw this as a key contribution and directed money towards more technical and technocratic solutions. She said,

> Our investments in data policy and research—and early warning indicators being one of them—are systemic to needing to understand what is going on and having real consistent information on that. There is a lot of work that… is based on somewhere between relational trust, history, and people's gut. This, to me, is the counterbalance to that.[33]

To&Through was thus a way of reporting data to different publics and stakeholders. It was driven mainly by support from a philanthropic foundation interested in this work, and in some sense, directed by the vision of its funders. It initially enlisted the UChicago Consortium to lead this effort but when some individuals at the Consortium resisted the work on account of it not being a "research" but a form of "data reporting," the To&Through Project became its own unit at the university. Since it started in 2014, To&Through had created public data reports on key secondary and postsecondary outcomes like on-track rates, graduation rates, college enrollment, and college completion—and all of these were driven by an individual foundation, what one would have imagined as a typical institutional entrepreneur.

But this was not simply a story about individual philanthropists or foundations driving organizations because even this episode had the element of networks. Part of the genesis story of To&Through was when Janelle Rios and another philanthropist Charles Lewis were at a presentation of the Consortium regarding EWIs and how they were introduced to each other. Lewis remembered that "right then we started talking about replicating the 2006 study that led to the

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[33] After their initial meeting with the Consortium, they found that another philanthropist was also asking similar questions regarding public reporting.

famous Tribune headline [about only six in a hundred Chicago freshmen students graduate college] … and To&Through was built off of Freshman OnTrack." It was a story about networked interactions among philanthropists who fell between simply supporting and consciously directing organizational efforts and practices.

Dinaz Mansuri of the Kaplan Family Foundation described Chicago as a "small town, big city." Her astute observation came because individuals—particularly local philanthropists and entrepreneurs—were deeply embedded and connected with each other. Foundations were networked with each other, employing various strategies like creating trusting relationships with nonprofits, providing votes of confidence through small grants, connecting nonprofits to larger philanthropic foundations, and reaching out to specific organizations to create new programs. These examples highlight a core theme running through this chapter regarding the importance of the networks employed by nonprofit organizations to support, sustain, and spread their work.

Flexible Funding vs. Project-Based Grants

While it was critical that these webs of philanthropists and philanthropic foundations showed moral support to organizations working on EWIs, such support became most closely allied to the financial resources they provided. However, even such financial supports had changed through the years. For example, the University of Chicago Consortium on School Research (UChicago Consortium) had originally relied upon support from foundations that flexibly funded their entire model from research to outreach, but this had shifted to more project-based grants in recent years. Similar to the previous section, this section highlights particular nuances with how different foundations have chosen to fund nonprofit organizations through the years.

Penny Sebring had been with the Consortium since it started in the early 1990s. She had played different leadership roles in the Consortium, at one point being co-director with Elaine Allensworth and at another being acting executive director. She was also plugged in the philanthropic community in Chicago, being married to Charles Lewis, a former investment banker at Merrill Lynch & Co. who with Penny started the Lewis-Sebring Family Foundation. Being at the Consortium for thirty years, Sebring had an expansive view of how their resource model had shifted and changed.

In the beginning, the Consortium relied on three large foundations that funded their daily operations and research. Sebring mentioned,

> For a number of years, we would just write one proposal with three columns of funding for the Joyce Foundation, MacArthur Foundation, and Spencer Foundation, and they funded our whole model; not only doing the research but also doing the outreach during the stakeholder convenings, keeping our relationships going with CPS… and that was really key for us.

With this model, the Consortium received support not only to do academic research but also to engage different stakeholders in the city to make this research relevant to them. Sebring highlighted how this was important since their work did not end with the publication of a study. As John Easton would say on another occasion, "When we finished a report, that's just the beginning. Because if you wanted to have it influence, you have to really be out, out talking to people about it."

But similar to the networks of schools, the networks of individuals were also dynamic and changing. As Sebring highlighted, this dynamism signaled a change as "the project directors or the program officers come and go, and the foundations change their interests and so forth." Rather than have these large foundations support different aspects of the work of the Consortium, the foundations moved to a "project-by-project funding model." This was particularly difficult for the Consortium because much of their work entailed close and continued collaboration with the district and other organizations. However, this was not necessarily funded by research grants they applied for.

Since they needed flexible funding, they had to figure out a way to work around the preponderance of project-based funding that were being employed by many foundations. As more foundations used this project-based model, Sebring and Lewis' family foundation provided flexible funds for the Consortium. However, this was not enough, and so the Consortium again leveraged the power of their network to keep the Consortium nimble in its work. Sebring described this saying,

> In 2016 and 2017, we started the Consortium Investor Council, which is a group of about 15 family and larger foundations that provide flexible funding for us. And so, when we went out and started talking to funders, we argued that the Consortium is a civic asset…. They stepped up and said, "We'll help you." So, the agreement we have with them is that they provide anywhere from 10,000 to 100,000 dollars every year for five years.

Since that time, the Consortium was able to raise more than $ 600,000 for different projects, from replicating previous studies and seeding new ones to translating their research into practice and refreshing their data archives.

By having flexible funding, the Consortium was able to be nimble and quick with their research because grants could usually take a year before they were approved. They argued that by that time, a research question may have become irrelevant. But such flexible funding was itself brought about by networks that have known the work of the Consortium and the fact that members of the Consortium were themselves embedded in Chicago's philanthropic community. In Figure 3.4, funding for the Consortium had become quite diverse with grants and funds from federal government agencies like the US Department of Education and the Institute for Education Sciences; from large foundations like the Gates, Joyce, Spencer, and Annenberg Foundations; and smaller family foundations like the Kaplan, Steans, and Gorter Family Foundations. The network graph thus suggests how the organizations were the ones driving the change, figuring out how to adapt with the exigencies of changing financial models, and creating their own networks with different foundations.

Although some studies have suggested the problems, pitfalls, and tensions with "venture philanthropy," I found that the philanthropic *community* was much more diverse than how scholars would refer to them as "aggressive in seeking out educational grantees and more engaged in advocacy."[34] In particular, past studies may be giving more credit to philanthropies than the organizations that were leading the charge. For the Consortium, for example, they found the importance of their work being independent and not being influenced by outside organizations. Penny Sebring explained that this was why they opted not to take money from CPS so that they

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[34] Scott, "The Politics of Venture Philanthropy in Charter School Policy and Advocacy."

will not "be in a conflict situation where [CPS] would somehow have editorial influence over our findings."

The only way Sebring saw some "influence" of outside foundations was when they had trouble getting funding for controversial topics like school closings in Chicago. Sebring talked about one such foundation when she said, "I can think of one funder who we thought was going to support it and then backed away when they realized it was likely to be critical of CPS, but that's rare. And that's a case where [if] they don't agree with what we're gonna do, they just don't fund it." On par, however, the diverse networks of philanthropic investments prevent any one philanthropy from taking charge or having its agenda dominate. Moreover, this supports the argument for how nonprofit organizations rather than philanthropies form the hub of this improvement network.

Large Traditional Foundations vs. Personal Family Foundations

A third distinction between various foundations was made by Charles Lewis who was married to Penny Sebring and was the chairman of the Lewis-Sebring Family Foundation. While the previous distinctions moved between supportive and directive foundations as well as those providing flexible funds and project-based grants, his categorization of philanthropies moved between large traditional foundations and multigenerational family foundations. Lewis said of his distinction,

> One group I irreverently call the "dead people's foundation," you know, the John D. and Catherine T. MacArthur Foundation, or the Spencer Foundation, or the Joyce Foundation. The founders of these foundations and the ones who funded them are long gone. And then, on the other hand, you have various Pritzker entities like Pritzker Traubert is one of them,

Penny Pritzker's foundation and her husband Bryan Traubert. And there are various variations of the Pritzkers: you know, JB Pritzker's got one and Tom Pritzker's got one out there… So, a whole bunch of Pritzkers. And there are a bunch of Crowns. The central one is Crown Family Philanthropies.

To this list, Charles Lewis would add Kenneth Griffin who had supported a number of initiatives at the University of Chicago, and the civic committee of the Commercial Club of Chicago that promoted different education and economic programs in the city.

In discussing these two types of organizations, Lewis made a distinction between the traditional "dead people's foundations" as highly bureaucratized and professionalized, and the multigenerational family foundations as being "families [that] highly identify with the city and have long created a culture of responsibility, and so you generally see multi-generations staying here rather than running to tax havens." While the MacArthur, Spencer, and Joyce Foundations have started in the Chicago or Great Lakes areas, they have branched out to funding initiatives beyond the region. In contrast, many of the family foundations have retained their core work with Chicago institutions.

Asked about why these organizations have worked to improve and support Chicago organizations, Lewis paralleled this with a narrative of his support of the Chicago Symphony Orchestra (CSO) in the late 1980s. He said,

My interest in that was not because of my deep affection for or knowledge of symphonic music, but the recognition that *there are a number of major institutions in town who* [sic] *are critical to the health of the city*: CSO is one, the Lyric Opera is one, the Art Institute,

Field Museum, Museum of Science and Industry, and then now, the coming Obama Library. So, that's an illustration of my interest there. [It] was not to support the art form per se or as such but to recognize that some of those organizations are critical to the health of the City of Chicago. (emphasis added)

He thought other philanthropists also justified their support of Chicago organizations in a similar way, something he thought was "both altruistic and self-interested."

What has created this into a robust system was the coming together of various foundations and individuals to help different nonprofit organizations. In a way, the foundations of both the living and the dead have created networks that reinforced the work of philanthropy in the city. Different organizations in Chicago were understood to be crucial to the city's health: cultural institutions like concert halls and museums as well as educational institutions like Northwestern University and the University of Chicago. Included too here was the Chicago Public Schools which was indirectly supported by the philanthropic community through the work of education-focused nonprofit organizations.

Going back to his image of the exoskeleton that supported the work of Chicago schools, Lewis talked about how he did not think this image was unique to Chicago but that "it's unusually strong here, and so the philanthropic families are critical to it." He explained there was a culture and expectation of responsibility among Chicago elites, a *noblesse oblige*, where "the various people feed off of each other, and there's a very robust informal community."

In these different distinctions among philanthropic foundations, two things were of paramount importance. First, while many studies conceived of philanthropies driving organizational changes, the story of Chicago suggested that philanthropic foundations were more

heterogeneous: Some directed activities while others were merely supportive. Some provided complete flexibility in how their funds were used while others were more tied to particular aims. Some were highly professionalized and bureaucratized as in large traditional foundations while others were sustained more by relationships and trust as in family foundations. Second, while studies looked at how individual organizations experience resource dependence on particular foundations, the networked view of shared philanthropies asserts that nonprofit organizations had greater independence than was normally ascribed to it. To be sure, some organizations had difficulty gaining resources for controversial topics that philanthropies were hesitant to fund. But overall, these nonprofit organizations were able to leverage on diverse networks to adapt their funding strategies.

Taken together, these findings challenge how we usually conceived of relationships among philanthropies and nonprofit organizations. Our common assumptions have overestimated the power of philanthropic dollars and underestimated the power of nonprofit independence. While not denying the interdependent relationship between foundations and nonprofits, I believe the networked perspective of having diverse types of foundations opens new ways of understanding the relationship among institutional entrepreneurs. Here, I argue that nonprofits through the diversity of funding types can retain their independence, even as they had to transact competing priorities.

From Organic to Organized Networks: The Case of Philadelphia

In the first three sections of the chapter, I highlighted the importance of the webs of organizations, schools, and philanthropies that brought about the spread of EWIs in Chicago. Across these connections and networks, a theme that ran across was how institutional entrepreneurs were not

necessarily intentionally strategic nor were they formally organized. The insights and narratives emphasized the core argument in this chapter about the role of entrepreneurial interactions in facilitating collaboration and legitimacy as well as spread and sustainability. In this section, I draw on the case of Philadelphia to show how the city started like Chicago that had more organic connections among organizations and how it transitioned to more formalized and organized systems because of the previous experiences in both cities.

While Philadelphia presents the story of a city that had a mix of unintentional and intentional strategies, the core emphasis on entrepreneurial interactions is kept. Thus, I show how the interactions across organizations can be shaped by informal connections and formal partnerships. Moreover, while Chicago had the same set of organizations, Philadelphia had different organizational configurations depending on district leadership, with the early 2000s being populated by researchers from Johns Hopkins University and the late 2010s being organized around the efforts from the University of Chicago.

Given such differences in organizational configurations, I suggest three key periods. The first was between 1999 and 2009 when the group from Johns Hopkins University had been connected to the School District of Philadelphia through the Philadelphia Education Fund, starting the Talent Development school reform by partnering with district schools. The second period was between 2010 and 2016 when the researchers from Johns Hopkins had received a large grant to apply their reform model in other cities, and the district leadership had not been as supportive as previous administrations. The third period started in 2017 and continued until the time of writing in 2022 when much of the EWI effort in the city had been led by a group from the University of Chicago. In these three periods, I show how the efforts had moved *from* more organic connections and spread *to* more organized, formalized, and directed strategies for spreading EWIs. It shows

how entrepreneurial interactions at times happened by chance while at other times through intentional plans.

Informal Connections and Organic Spread

When the researchers from Johns Hopkins University started their work in Philadelphia schools, one of the research scientists Ruth Neild referred to it as a product of "serendipity." Neild continued that Robert Balfanz, another research scientist at the university's Center for the Social Organization of Schools, "had met some other people in Philadelphia, and there was an organization called the Philadelphia Education Fund at that time that… jumped on connections into the district to sort of communicate with the superintendent and explain what Talent Development could accomplish and could run." Given that Johns Hopkins was in Baltimore, about a hundred miles away from Philadelphia, it was perplexing how and why the organization started its high school work in Baltimore and its middle school work in Philadelphia. But by 2003, the organization was partnered with six middle schools and seven high schools in Philadelphia to work on their whole-school reform model called Talent Development.[35]

As with the story of Chicago, it was informal connections that were key in bringing about EWIs in Philadelphia. One key organizational actor was the Philadelphia Education Fund that both Neild and Balfanz referred to as a "local intermediary organization" that connected them as researchers with the School District of Philadelphia. Neild described the Fund's leader as someone "who could really speak the district language, who could make an argument [for] this high school redesign program." Balfanz also highlighted how their work studying early warning indicators was

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[35] Corinne M Herlihy and James J Kemple, *The Talent Development Middle School Model: Context, Components, and Initial Impacts on Students' Performance and Attendance* (New York, NY: MDRC, 2004); Kemple, Herlihy, and Smith, *Making Progress Toward Graduation: Evidence from the Talent Development High School Model*.

driven by a study the Education Fund commissioned about the "characteristics of ninth graders who got arrested," which developed into studying factors that reduced the students' odds of high school graduation.

Another informal connection was highlighted in a 2005 report regarding the connection between district leadership and staff at the Center for Research on the Education of Students Placed At Risk (CRESPAR), the organization that led the Talent Development work and that combined the work of researchers in Johns Hopkins and Howard University. In this report, Kemple and colleagues wrote how the "superintendent of the School District of Philadelphia at that time had previously been an educational leader in Maryland and had personal relationships with CRESPAR staff."[36] But they also noted that such connection was mainly informal, receiving neither direct institutional support nor formal endorsement from the district. They detailed that,

> The district would agree to sanction Talent Development's presence in the schools. This in fact fit in well with a district mandate… that all failing high schools adopt some reform model. The district would also provide funding and support, on a school-by-school basis, for introduction of Talent Development (even as it would support other reform models). But these agreements were not expressed in official contracts or agreements. There was no recognition by the district of Talent Development as a "model of choice" for improving high schools in Philadelphia.[37]

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[36] Kemple, Herlihy, and Smith, *Making Progress Toward Graduation: Evidence from the Talent Development High School Model*, 15.
[37] Kemple, Herlihy, and Smith, 15.

However, such lack of formality and official sanction proved to be beneficial because the organization was given greater latitude to work on their own reform models, "without the need to develop formal protocols or get procedural approvals from the district for how those contacts would be made."[38]

Through informal connections between the researchers from Johns Hopkins University, the staff at the Philadelphia Education Fund, and the leadership at the school district office, Balfanz and his colleagues were able to use and collect data that would form the base of their study of middle school and high school indicators of being on-track to graduate. Another incentive such networks provided them was a ready audience and a way of disseminating more widely their findings.

It was 2005 when they presented their findings about how sixth-grade academic performance and attendance was predictive of eventual graduation to a local conference in Philadelphia. Balfanz recounted that "the Philadelphia Education Fund put the PowerPoint up on their website, and from there, that PowerPoint went everywhere." Even as their peer-reviewed research article would not come out until 2007, the idea spread in a very organic manner across different schools. Balfanz attributed it to the fact that "this made sense to people in schools." He contrasted this to what was happening at that time with a lot of top-down reforms, remarking that,

> This was at the height of test-based NCLB accountability, and schools were used to a mandate from the Fed[eral government] saying you have to do this. There was no mandate from the Feds saying you have to use early warning indicators, yet it still had decent spread.... Now, the challenge with that is because it was a little bit unorganized and organic,

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38 Kemple, Herlihy, and Smith, 16.

sometimes the schools didn't get the full support they needed to create those systems to make it really powerful and sustainable.

Fully cognizant of the pitfalls of such organic spread of initiatives, Balfanz nonetheless highlighted the potential of a resonant idea to animate people's practices. He described a number of practices as being "do-it-yourself" initiatives where schools wanted to track students' data and provide different forms of interventions. Noting that such organic spread of an idea was not enough, their team from Johns Hopkins started to systematically collaborate with other organizations.

From Organic Systems to Organized Strategy

As these researchers gained more insights regarding the importance of early warning indicators, they also knew that they had to create more formal systems that combined prevention and intervention strategies with the indicators and data systems that were being created. Robert Balfanz emphasized three key components of early warning systems: (1) regularly updated data on each student, (2) regular teacher team meetings to discuss students off-track, plan interventions, and follow up on interventions, and (3) having systems of tiered interventions that may draw on a second team of adults aside from teachers.[39] Noting the importance of supports beyond those available in schools, the team from Talent Development partnered with two other organizations to form what would become Diplomas Now.

In 2009, three Philadelphia middle schools piloted the Diplomas Now model that combined the work of three organizations. Based at Johns Hopkins University, *Talent Development Secondary* provided organizational, instructional, curricular, and data support through the

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[39] Martha Abele Mac Iver and Douglas J. Mac Iver, *Beyond the Indicators: An Integrated School-Level Approach to Dropout Prevention* (Arlington, VA: George Washington University Center for Equity and Excellence in Education, 2009), 18.

deployment of school transformation facilitators, instructional facilitators, and instructional coaches. The second organization *City Year* had a team of AmeriCorps members assigned to different schools where team members had the task of "paying attention to students and working with them both in- and outside of classrooms."[40] The third organization was *Communities in Schools* that provided site coordinators who helped channel school and community resources for students who had the highest risk of dropping out.

By 2011, the work had spread to 32 middle and high schools in eleven school districts, which was particularly thrusted by its winning the Investing in Innovation Fund from the United States Department of Education. Yet around this time as well, the Philadelphia school district leadership had waned in its support of the EWI work. Ruth Neild from Johns Hopkins shared that,

> Things kinda fizzled out, and then, it's just an example I think of how issues can go dormant and work can go dormant when school district leadership changes…. It became really clear that the district wasn't as supportive of Talent Development as had then [been] under the Hornbeck administration…. I felt like it was becoming difficult to get work done in the school district and it was becoming difficult to do research.

This was confirmed by a program director from the William Penn Foundation, who talked about waning of district support. Elliot Weinbaum, the Foundation's program director for education, said, "the district has, kind of, had an on-again-off-again relationship with the Ed Fund and with the use of on-track indicators or early warning indicators." Despite the waning support, not everything was abandoned as Weinbaum shared that the "district incorporated some of the practices from the

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[40] Corrin et al., *Addressing Early Warning Indicators: Interim Impact Findings from the Investing in Innovation (I3) Evaluation of Diplomas Now*, 3.

early warning indicator's approach into its ongoing operations so that dashboards that teachers and administrators could see, for example, flagged students based on those attendance, behavior and grade indicators."

These changes, however, came at an interesting period since the team from Johns Hopkins was focusing on their national work with Diplomas Now. In a way, the organic networks between Johns Hopkins, the Philadelphia Education Fund, and the district made way for the more organized and intentional networks that Johns Hopkins cultivated with City Year and Communities in Schools on a national scale. It came about from the realization that students in under-resourced schools needed more adults and supports than what the school usually was able to provide. Nonetheless, the connection with the Philadelphia Education Fund had also morphed as it became a "national technical-assistance consultant to Diplomas Now effort."[41] It was thus a story of networked organizing in new and different ways.

A crucial development also happened when the team from Johns Hopkins had withdrawn from Philadelphia: It created a space for the Philadelphia Education Fund to continue the work with another organization. Robert Balfanz recalled,

The Philadelphia Education Fund continued to work to support a cohort of schools doing early warning systems from 2006 to 2012, or something like that. And also in that period, United Way got involved…. United Way became a local intermediary sort of promoting and helping pay for but also train districts on using early warning systems.

[41] Bruce et al., *On Track for Success: The Use of Early Warning Indicator and Intervention Systems to Build a Grad Nation*, 37.

In 2014, United Way and the Philadelphia Education Fund worked with 12 underserved middle schools in Philadelphia, given the insights from the work with the researchers from Johns Hopkins. One article highlighted that,

> Together, they [United Way and the Philadelphia Education Fund] provided training, tools and support for administrators and teachers to help match students at risk of dropping out with the existing school resources they need most—such as tutoring, mentoring and counseling—and worked with local nonprofits to fill any gaps in the available school-based services.[42]

It was thus a story of how the organic connections among organizations can shift with the passage of time and the changes among people. The organized work of Johns Hopkins had moved to a number of schools on a more national scale and the relationships in Philadelphia had also changed with new actors and support organizations.

But this EWI work in Philadelphia had also stalled in the absence of the original initiators such that Ruth Neild who came back in 2017 said, "everything old is new again… it was like Philadelphia is still in the same place like before." During her coming back to Philadelphia, now as director of the city's education research consortium, Neild would do a similar research on early warning indicators but with a new team, not so much from Johns Hopkins but from the University of Chicago.

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[42] United Way of Greater Philadelphia and Southern New Jersey, "United Way and Philadelphia Education Fund Boost Academic Success for Philadelphia Students."

Organized and Formalized Networks

The third period of the EWI work in the district could be traced to Joseph Neubauer, a Philadelphia businessman and philanthropist who was also then chair of the University of Chicago's board of trustees. Being aware of the work of Freshman OnTrack, his foundation proposed a similar program to the district superintendent, William Hite Jr. The Neubauer Family Foundation's executive director Rebecca Cornejo recounted,

> I think we convened a meeting and said, "Listen, Dr. Hite. Your goal is to improve the high school graduation rate. We have observed and applaud the success that's happening in Chicago. Why don't we try to bring that here to Philadelphia?" And so hence began the early To&Through work here at Philly.

In the background of all this, of course, was the past work of the researchers from Johns Hopkins, which were in a number of Talent Development schools, and the continued work of the Philadelphia Education Fund and United Way in a number of middle schools in the city. What set this "new" initiative apart from the previous ones was its focus on all high schools in the district. Moreover, the network of organizations was not so much organic as it was intentional, centralized, and formalized.

With the philanthropic support from the Neubauer Family Foundation and the approval of district leadership, an organization was given the task of bringing together other school improvement organizations and the district. In 2017, the To&Through Project, an organization off the University of Chicago, was, at that time, limited to doing data analytic and public interfacing projects on EWIs. However, with this new initiative, their director Alex Seeskin mentioned that

"in Philadelphia we're the show… we're positioned a little bit more like the experts on this, and have been able to take a more active leadership role than in Chicago." Given that Chicago already had the Consortium that did most of the research and the Network for College Success that was working with teacher teams in schools, To&Through found that it could bring the insights from Chicago and formally organize the efforts in Philadelphia.

Seeskin further mentioned that their task included building data tools that enabled schools to use just-in-time early warning indicators, piloting these tools in a different schools "very similar to the Network for College Success," and providing professional learning opportunities on data tools and their use in schools. To accomplish these goals, To&Through did not solely rely on its own organization as it created a triumvirate with two other organizations: One was *Revolution Impact* that dealt with project management and the other was *Philadelphia Academies, Inc.* that worked directly with and in schools. One other organization that they interacted with during the beginning was *Research for Action*, a Philadelphia-based research organization that worked with the district's research office to study on-track. As seen on the top half of Figure 3.5, these organizations were financially supported by the Neubauer Family Foundation with Research for Action's EWI research also receiving support from the William Penn Foundation.

Pivotal in all these connections were the fact that they were all formalized among organizations, and that these connections were closely tied with district partners. The outside research organization was working with the district's office of research, evaluation, and accountability. The programs within high schools were driven by both the Philadelphia Academies, Inc. and the district's Chief of Schools, composed of assistant district superintendents. Moreover, the three organizations had created a hub with each other to interact regularly with the district. Revolution Impact's CEO Pranav Kothari spoke about these interactions that they often organized,
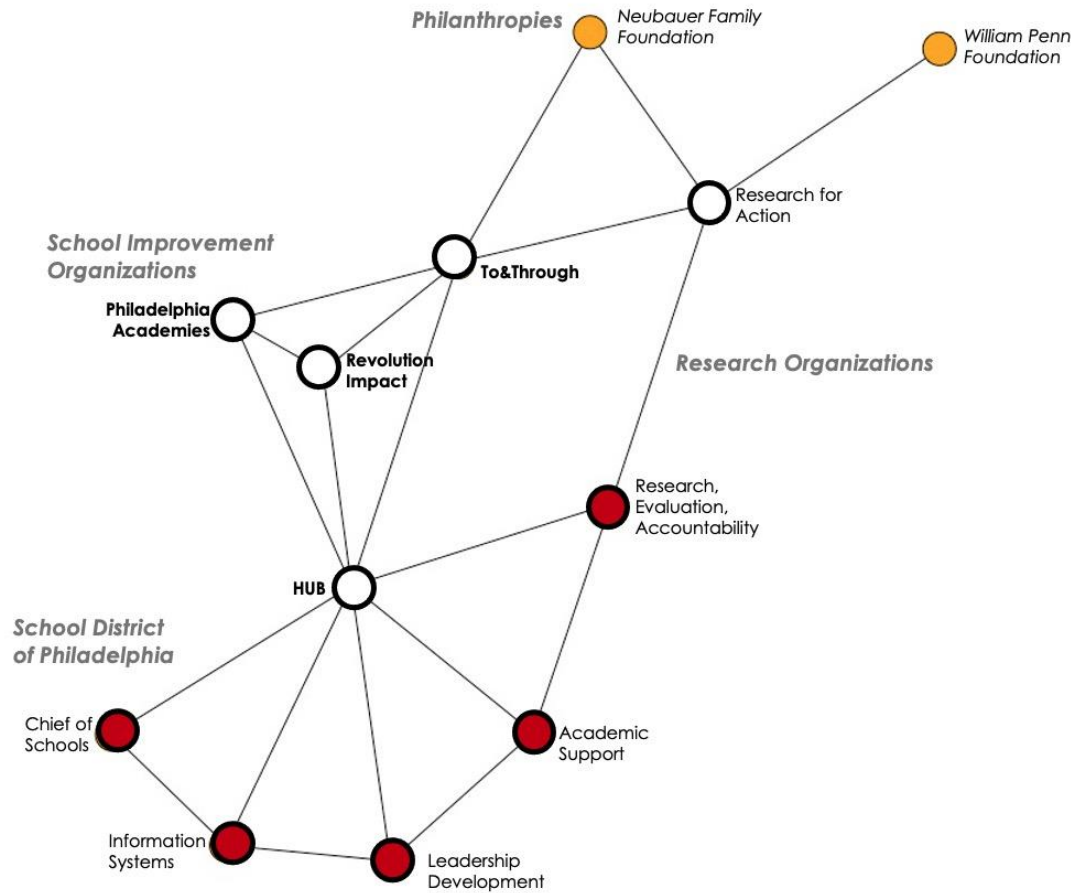
Figure 3.5 Interorganizational Networks in Philadelphia
Notes: Hollow circles are "outside" school improvement organizations, yellow circles are funders, while red circles are district government offices.

> We have a cross-organizational, cross-functional team that meets weekly online to help develop the data tools, develop the professional learning around the data tools, and then also overall inform how the district is implementing Ninth Grade On-Track. Actually, the meeting I had before this was an introduction on Ninth Grade On-Track to new assistant principals in the district and folks that are new to their roles for the current year.

He detailed that their trio of outside organizations regularly met with members from five different offices: research, academic support, leadership development, information systems, and the chief

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of schools. Figure 3.5 shows how the three organizations created a hub that was also connected with different departments in the district office. Such close engagement can be distinguished from the more loosely connected informal relationships that marked the Chicago organizations and the earlier EWI efforts in Philadelphia.

What was similar across these efforts of promoting EWIs, however, was the relational work—whether formalized or informal, contract-driven or relationship-driven—that happened between outside organizations and the district office, and between outside organizations and the schools. For this latter relational work, Philadelphia Academies, Inc. worked directly in schools to provide coaching, technical assistance, and professional development. In particular, they worked with a group of eight to thirteen schools that shared best practices to help ninth graders remain on-track, similar to what NCS in Chicago did for its partner schools. Its director for data supports Nadia Schafer spoke about their work as,

> using data and teacher teams to talk about common students, talk about interventions for those students, what the team can do to support them in a collaborative environment. So, I've been working in that kind of more data work for about eight years now, and we started the Ninth Grade Success Network about four years ago… with more of a focus on ninth grade.

Evident in this remark was the fact that their work had predated the coming of To&Through in Philadelphia, showing that the organization was working with schools already. However, they were working across different grades and on different areas, but with their connection with Ninth Grade On-Track program, they had focused on fostering the relationships among schools.

Schafer highlighted how important the interpersonal connections were among principals and ninth-grade assistant principals across different schools, again with similar tenor to what happened in Chicago. She detailed,

> Relationships between assistant principals across schools have allowed other strategies, I think, to proliferate. We have one assistant principal who was just like friends or somehow got connected with a couple of the assistant principals in our Ninth Grade Success Network and they would kinda meet often and just share ideas, and then we find that they share the tools that helped them discover us. So, then, they're kind of doing what our schools are doing just because of [these] natural relationships.

Despite the more formalized nature of organizational relationships in Philadelphia, the interpersonal and informal elements of networks still contributed to the spread of the EWI initiatives.

On the side of the district, they created new structures that were adopted in different schools: having ninth-grade assistant principals and having ninth-grade academies, that were "essentially a school within a school, where freshmen have a dedicated group of specially selected teachers and extra supports."[43] In addition to these, a number of district efforts also focused on ninth grade such as having ninth-grade teacher teams, having a designated wing or floor of the building devoted to this grade, having ninth-grade orientation or spirit day. These were formal structures that were being incorporated in schools and at times informally shared through networks of schools.

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[43] Kristen A. Graham, "1 in 3 Philly Students Doesn't Graduate on Time. To Fix That, High Schools Focus on Freshmen," *The Philadelphia Inquirer*, May 18, 2018, https://www.inquirer.com/philly/education/1-in-3-philly-students-doesnt-graduate-on-time-to-fix-that-high-schools-focus-on-freshmen-20180521.html.

In sum, the organized, centralized, and systematic spread of EWI practices in Philadelphia was influenced by previous experiences in Chicago and by previous researchers who had worked in the city. Such is an example of the intentional use of strategic action and networks for spreading innovative practices among schools and getting support from different levels of the educational bureaucracy. Moreover, such webs of connections were critical in legitimizing the effort of organizations that each had their audiences—a theme that ran between the two cities.

Creating Organized Networks in New York City

Across this chapter, I have shown that institutional entrepreneurs rose not because of who they were but because of the interactions they participated in. Many of these interactions happened between district leaders and organizational executives, researchers and intermediary organizations, coaches and school staff, as well as philanthropic managers and grant-seekers. What led institutional entrepreneurs to affect institutional changes like the adoption of EWIs were the interacting nodes of organizations and individuals. Contrary to the image of mavericks that pushed their way come hell or high water, many of the actors I've described were unassuming of how significant EWIs would eventually turn out. Many too did not set out with a clear, organized agenda for EWIs. As Chicago's Sara Stoelinga retorted, "We just didn't have a clear enough picture yet of what it takes to improve schools."

But as other organizations and districts saw what were happening in Chicago and Philadelphia, they took notice. New York City was one of those keen observers as it had its own research consortium patterned after the Chicago model and had a school support organization with its own EWIs based off the metrics used in Chicago. Similar to the two other cities, New York also had different organizations work with each other, with one doing research and another creating

data systems. One key distinction though about the city was the scale at which this was done in conjunction with two of among the largest institutions in the United States, the New York City Department of Education (NYC DOE) and the City University of New York (CUNY) that had a million and a half students combined. In particular, this happened through data systems that tried to connect what were happening to students as they transitioned from K-12 to higher education. A second distinction was how the grounded networks in New York were not just comprised of schools but also of other community-based organizations (CBOs). A third distinction was the large influence of the Gates Foundation in pushing for these initiatives to use data and metrics in schools.

What I highlight in these distinctions and in the EWI work in New York is the way actors have strategically organized themselves, highlighting how entrepreneurial interactions had been actively sought through organizations and individuals creating these intentional webs. In the case of New York, as seen in Figure 3.6, a school support organization (New Visions for Public Schools, upper right) was able to obtain data from the NYC DOE and CUNY, both of which were also connected and provided data to the Research Alliance, a research organization similar to UChicago Consortium. The Research Alliance was then connected with other CBOs through the Data Co-Op, an initiative started by another CBO, #DegreesNYC. As I show in this section, these interorganizational webs were intentional and formalized, and can inform how to draw on previous networked strategies to spread a school innovation.
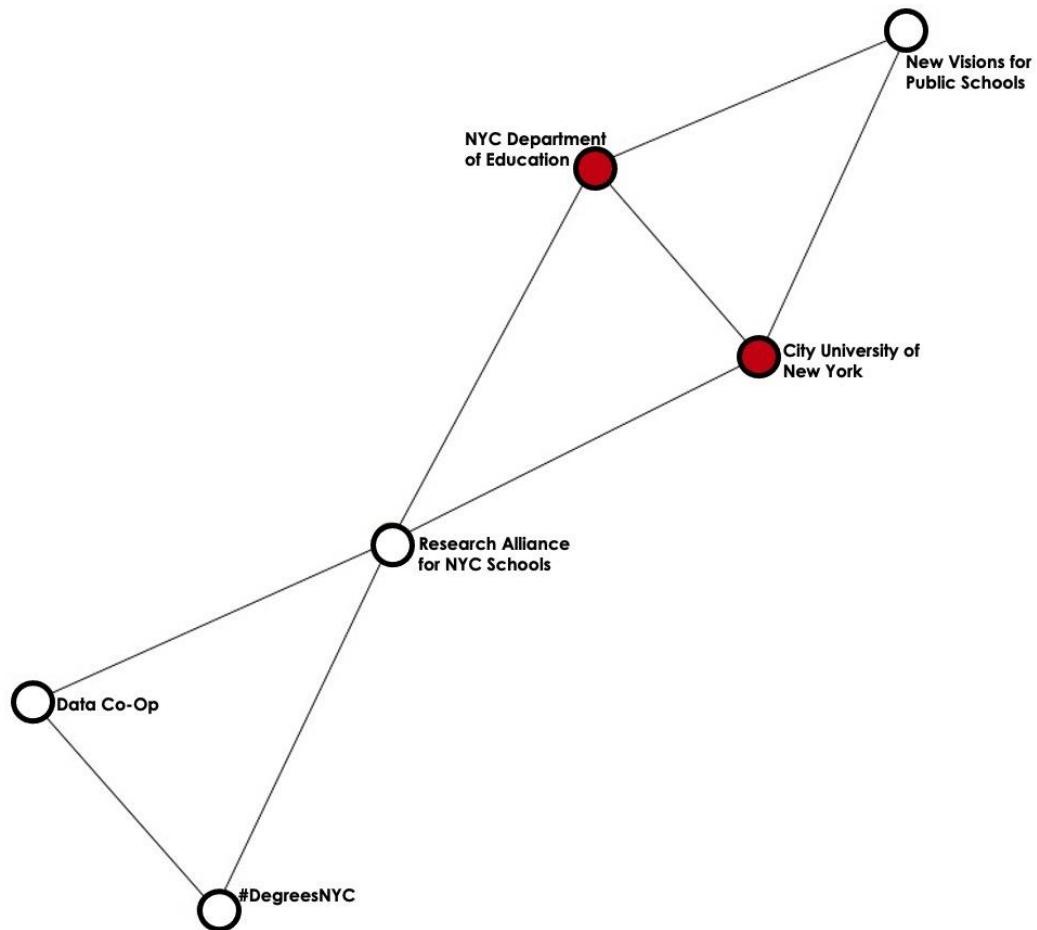
Figure 3.6 Interorganizational Networks in New York City
Notes: Hollow circles are "outside" school improvement organizations and red circles are large government organizations.

Interorganizational Networks for Data Systems

In 2008 as Chicago and Philadelphia were creating early warning indicator and intervention systems, New York had two organizations that had become aware of the work in these places and had also tried to set up similar metrics and systems in the nation's largest school district. One of the organizations was a research organization while the other was a support organization that provided professional development, training, instructional tools, and data supports to select NYC schools.

During this year, the *Research Alliance for New York City Schools* (Research Alliance) was being established as a research organization similar to and patterned after the University of Chicago Consortium on School Research. Research Alliance's director James Kemple shared about "a very high degree of collaboration with John Easton and Melissa Roderick at the time, and Elaine Allensworth, about how you would start a similar organization to CCSR [UChicago Consortium] in a New York City context." Aside from the connection with the Chicago researchers, Kemple was also well aware of what was happening in Philadelphia because he was the researcher who studied the work of Talent Development schools in the early 2000s. It was not long after this that the Research Alliance also used data from the NYC Department of Education to analyze what ninth-grade on-track indicators were predictive of eventual high school graduation.[44]

In their study of on-track indicators for ninth-graders who entered high school between 2001 and 2011, they found that a student earning 10 or more course credits in ninth grade was a reliable predictor of graduating high school with a Regents diploma. The New York State Education Department required students to pass five Regents exams starting for the class of 2013 and students in New York City needed 44 course credits in high school to receive a high school diploma.[45] In Research Alliance's 2013 study, Kemple and colleagues found that earning 10 or more course credits *and* passing at least one Regents exam in ninth grade represented a substantial improvement for predicting eventual graduation for ten cohorts of ninth-graders.[46] While the Research Alliance had done this systematic analysis of data from the city's Department of

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[44] Kemple, Segeritz, and Stephenson, "Building On-Track Indicators for High School Graduation and College Readiness."

[45] Jennifer Medina, "New Diploma Standard in New York Becomes a Multiple-Question Choice," *The New York Times*, June 27, 2010, sec. Education, https://www.nytimes.com/2010/06/28/education/28regents.html.

[46] Kemple, Segeritz, and Stephenson, "Building On-Track Indicators for High School Graduation and College Readiness."

Education, Kemple noted that similar indicators and their use in accountability had preceded their doing research on it.

> I think that [indicator] was on the radar in the New York City Department of Education and with researchers in New York City probably before the Research Alliance was ever established. [The] focus of how do you know whether students are "on-track" or are likely to be in a good position to receive a diploma, that probably didn't start until about 2003 or 2004 under the previous mayor, Michael Bloomberg, and the chancellor at the time, Joel Klein. They were trying to develop a whole range of metrics to try to assess the effectiveness and the performance of schools, and they came up with a whole system of indicators that were looked at the school level, including an indicator whether students were earning enough credit to be on-track after the ninth grade and they may have even extended to the tenth and eleventh grade. […] But the idea was that they would put out these school reports, these annual reports on school performance [that placed a] very high premium on data, data use, public reporting of data, use of data for accountability.

In the current public reporting system of NYC schools, high schools still had an indicator of the percentage of students who "earned enough credits in ninth/ tenth grade to be on track for graduation."[47] In the district's school performance dashboard, schools had multi-year data on the percentage of students earning more than ten course credits during freshman, sophomore, and junior year—a sign that the district continues to use this "on-track" definition.[48]

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[47] One can use the tool at https://tools.nycenet.edu/snapshot/2021/. Here is an example from one high school, Landmark High School in 2021: https://tools.nycenet.edu/snapshot/2021/02M419/HS/.

[48] The dashboard is available at https://tools.nycenet.edu/dashboard/. Here is an example from the same school as before, Landmark: https://tools.nycenet.edu/dashboard/#dbn=02M419&report_type=HS&view=City

While the Research Alliance had done studies on on-track metrics, this engagement did not result in changes such as that of the UChicago Consortium that had supported the district in designing real-time indicators to identify students who were on-track and who were at risk of being off-track. Kemple acknowledged that they had not created similar tools that "the folks in Chicago have created but [...] the very best of those tools [in New York City] has been developed by New Visions for Public Schools." While Kemple was referring to the tools created by New Visions in the 2020s, this school support organization's engagement with EWIs had emerged at around the same time that the Research Alliance was established.

This second organization *New Visions for Public Schools* (New Visions) was a school support organization that managed a set of charter schools and supported a larger set of 71 district high schools in New York City. In 2008, this organization developed an on-track metric "based partially on [the UChicago Consortium] research and findings from NYC's Department of Education's Office of Multiple Pathways."[49] It had color-coded categories of blue, green, yellow, and red denoting levels between "on track to college readiness" and "off track to graduate." Moreover, they created early warning systems that dynamically studied students not just at one point at the end of ninth-grade, but at different semesters in high school as students moved between the four different color-coded levels of being on- or off-track.[50] The organization's investment in data systems, however, continued to grow and they had created sophisticated data systems through collaborations with other large institutions in New York.

One key partnership New Visions cultivated was its partnership with the *New York City Department of Education* (NYC DOE). On one hand, the organization was already considered a

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[49] Pinkus, *Using Early-Warning Data to Improve Graduation Rates: Closing Cracks in the Education System*, 6.

[50] Fairchild et al., *Student Progress to Graduation in New York City High Schools. Part II. Student Achievement as Stock and Flow: Reimagining Early Warning Systems for At-Risk Students*.

partner by virtue of its being an organization that provided coaching, professional development, and instructional tools to a set of 71 "affinity" schools. These schools were NYC public secondary schools that the organization provided "curriculum resources, teacher and leadership coaching, and professional development to."[51] But there was another way New Visions was connected with the city DOE, and it was through data sharing agreements with the department. One part of the data sharing was New Visions using DOE data to feed into their dashboards while the other was New Visions making these dashboards available to all New York City schools.

With data coming from teachers' online records, New Visions started working on the Student Sorter, which its chief of staff Nikki Giunta described as a "spreadsheet that was 276 columns long that was updated… monthly and then we went biweekly." They then moved from a spreadsheet tool to the Portal by New Visions, a secure website that school staff can access and provides daily updates on students' course and Regents exams credits, attendance, academic performance, marking period grades, and demographic data. Staff may view data across different levels of aggregation like viewing performance for the whole school, particular grade levels, or specific students. Giunta mentioned of other developments that were happening during the time of our conversation:

> We have thousands of data points per student that's categorized within the context of the Portal. So, it allows them [school staff] to see attendance alongside academics alongside planning. It's a very comprehensive tool. Right now, the Department of Education is rolling out academic screener data, an SEL [social emotional learning] screener data, and so we

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[51] Norm Fruchter, "New York City's Affinity District (Part 1): What Is It?," New York University, June 16, 2020, https://steinhardt.nyu.edu/news/new-york-citys-affinity-district-part-1-what-it.

work to try to incorporate all the data types so that schools can go on there and have a true comprehensive picture of what's happening with the student.

Such collaboration with the district did not only lead to information being included in New Visions' web Portal but also schools in the district having access to real-time data on their students.

Another large institution that New Visions had collaborated with was the *City University of New York* (CUNY), the United States' largest urban public university serving more than 250,000 students.[52] The organizations' deputy director of college success Jeremy Greenfield spoke about such collaborations with CUNY including data sharing agreements and admissions information talks. In our interview, he detailed how,

> We [New Visions] bring the director of Admissions and Enrollment into the College Access and Success space to speak to all of our counselors and to let them know what's new with CUNY this year. I think about a year and a half ago, we completed a data sharing agreement with CUNY that puts all of the college application data for all New York City public schools into the Data Portal, and so in that way, we're connecting the DOE and CUNY… And then we have personal relationships and we try to stay connected with them to understand what their efforts are and try to support them to achieve their goals.

Because New Visions had created the Portal that was being used in different New York City schools, it led to data from CUNY, particularly on college applications, to be included in the same system. Moreover, Greenfield added that because two thirds of their students went to CUNY, they

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[52] City University of New York, "About CUNY," *The City University of New York* (blog), accessed May 17, 2022, https://www.cuny.edu/about/.

found it crucial to harmonize their data with the university. In a way, New Visions functioned like a one-stop shop for New York education's data needs: providing access to real-time aggregate and individual student reports with the Portal, delivering professional training on these tools, and piloting processes that leveraged on and made use of these information. It functioned similar to the hub that was created in Philadelphia and the set of organizations in Chicago.

Independent of New Visions, however, the CUNY and the NYC Department of Education had also been connected with each other through GraduateNYC, an organization that brought in staff from both institutions to look at issues confronting or preventing student success. CUNY's then dean of K-12 initiative Cass Conrad spoke about this collaboration as,

CUNY was initially very interested in doing analysis to try to understand what factors in a high school transcript were predictive of college success. We had some of the data from the application pool, but I think this data sharing agreement allowed much more fine-grained analysis, and similarly DOE was interested in trying to understand what's happening to students once they graduated. So, there was a lot of interest in both directions—that's what generated the agreement.

Her counterpart at the Department of Education Gregg Betheil shared that the data agreement between these two large institutions had led their respective teams to "figure out how to organize the data on one hand and figure out what questions we wanted to ask of the data on the other hand and what that might mean for policy and practice." Betheil was then director of the district office of postsecondary pathways and planning, and spoke about how this led community organizations to search for gaps and support college advisement and planning. On the side of CUNY, Conrad

mentioned how the connection of data had led them to change remediation policies as well as credit transfer policies.

Interorganizational connections were thus being brokered not just for research but also for new (and very sophisticated) data systems to be created. Knowledgeable of the things happening in both Chicago and Philadelphia, James Kemple of the Research Alliance noted how far ahead the data systems in New York was. He said, "The traditional Chicago Consortium style on-track indicator is way too blunt an instrument. That does not tell [teachers] enough about what they really think should be known about how students are doing and whether they're falling behind, and [the New Visions Portal] have gotten much more sophisticated than anybody that I know of." Of course, behind such system were networks of organizational connections between Research Alliance, New Visions, NYC DOE, and CUNY. It was thus strikingly similar with the connections being created and hubs being formed in the two other cities—a reminder for the integration of collaboration and niche making for entrepreneurial interactions.

Grounded Networks of Schools and Community-Based Organizations

Similar to Chicago and Philadelphia, the spread of these data systems started with a group of schools that New Visions were already in partnership with. New Visions had 10 charter schools that it managed and 71 district high schools that it provided coaching and continuous development for. These schools had adopted and used the Student Sorter—the predecessor of the Portal. Then, New Visions worked with a number of "community schools" that had been the initiative under Bill de Blasio's mayoral administration, and that brought together community-based organization

partnerships and real-time data use for schools across the city.[53] Nikki Giunta of New Visions narrated the spread of this tool as,

> [The Student Sorter] started with our network, then it went to our network and this group of community schools, and then when we kind of moved into the Portal, it became, "All high schools should be doing this," and we expanded to all high schools. And then, recently, when Meisha Ross Porter… when she was executive superintendent of the Bronx, she had it for all of the schools in her portfolio and she knew the value, so she wanted to provide that value to all executive superintendents. And that's when we just recently scaled to every school in New York City.

Giunta highlighted their close working relationship with Porter, who in 2021 became the first Black woman chancellor of the NYC Department of Education.[54] This situation paralleled with Chicago's Network for College and its close connection with CPS CEO Janice Jackson.

The story in New York followed similar trajectories and dynamics regarding the need for proof of concept, collegial networks, scale, and sustainability. Aside from investments in relationships with leaders in the school system, New Visions also invested on intentional coaching and professional development. In a conversation with the organizations' deputy director of career readiness Jessica Sasko, she highlighted what they did to spread the use and utility of the Portal.

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[53] William R. Johnston et al., "Developing Community Schools at Scale: Implementation of the New York City Community Schools Initiative" (Santa Monica, CA: RAND Corporation, October 11, 2017), https://www.rand.org/pubs/research_reports/RR2100.html.

[54] Meisha Ross Porter's tenure as Chancellor of NYC DOE was short-lived though as she was only chancellor between March and December 2021.

For the schools that we work with, there's intentional coaching provided so that they know how to use the tool and access it. When we meet with principals in pods, it's also demonstrated like, "This is how you could use this tool for this. If you're looking at X, Y, and Z, you could pull the data in such a way with the fields that you want mapped out to make certain determinations for other things." So…, there's intentional coaching to also use it for postsecondary planning—so, planning for college or career exploration or things for after high school.

Thus, the innovation was not left to chance but rather catalyzed and pushed by agents of change (coaches) in schools that they worked with. Given that not all schools had coaches devoted to them, New Visions had trainings for different functionalities in the Portal: planning for students' Regents exams, monitoring GPA, creating graduation plans and credit gaps analyses, understanding attendance data, and introducing the Portal interface. Moreover, the Portal had weekly office hours over Google Hangout on Wednesdays between 10:00 to 11.00 AM.[55]

But the use of data to improve student outcomes in New York was not limited to schools. Another set of actors that was not as apparent in Chicago and Philadelphia but very much important in New York was the group of community-based organizations (CBOs) working with youths and students. Judith Lorimer was the force behind rallying CBOs into using and gaining access to more data. She was the director of #DegreesNYC that was a collective impact organization working with New York City youths to close the postsecondary attainment gaps by providing college and

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[55] See the following links for details: (1) https://portal.newvisions.org/, (2) https://docs.google.com/document/d/1GGjdtfa1BwB8CJRrtpVC34JZG0JJru3p2f3_4wAGs-8/edit#, (3) https://drive.google.com/file/d/16h-3fUy6BeAjkPFeZLUcrcaZTe50ZED5/view

career initiatives. Being plugged into the network of New York nonprofits, she and associates at the Research Alliance saw an opportunity to create the Data Co-Op. Lorimer detailed,

> The Data Co-Op is what we've worked on in close partnership with the Research Alliance. Originally, it was a group of 14 community based organizations that were joining their data at the student level with the Research Alliance's longitudinal educational database… And so, these community-based organizations were sharing data and then getting reports back not at the individual level but at the group level.

The group started in 2018 with different New York City nonprofits convening and thinking about what the most important indicators were for educational and life success. They came up with four individual indicators and four contextual indicators: academics, college and career exploration, social emotional wellbeing, racial identity, basic needs, access to high quality learning environments, social capital, and just living environments. Part of the goal with the Data Co-Op was to add labor force data that some CBOs had into the education data that Research Alliance had "so we can have a longitudinal education and career and workforce database."

Two key partners on the side of Research Alliance were Kristin Black and Lisa Merrill who were research associates at the organization. Talking about this initial impetus for the Data Co-Op, Black spoke about the integration of assets from the research side and CBO side,

> Research Alliance has this giant administrative dataset where we can see where students go at a pretty granular level what's happening to them in college and high school… but the CBOs don't have access to any of that, right? And on the other hand, CBOs know a lot

about students in terms of their intentions for the future, their aspirations, what their home life is, what their economic circumstances are—and those are all things that we [researchers] never see…. And so, the idea was, "Well, why can't we just bring these two pieces of data and gather in some secure environment?"

While it was clear what the benefits were for CBOs getting information on their youths, it was relatively less clear what the Research Alliance received. For Black, it was the motivation that such data "will allow people to improve their practice."

When asked about what the most significant thing the Data Co-Op had achieved to date, Merrill shared that even as they had not yet figured out "what the young people need in order to be successful in college and career," they had developed "a sense of community among community-based organizations around thinking about data across organizations." She highlighted how organizations were now able to receive data on their students that they would not have had if not for this partnership. Thus, the most significant aspect of the work was arguably the potential for networks of CBOs to more readily use data being made available by other organizations.

Resource Networks with the Gates Foundation

Many of the early warning indicator and data efforts in New York City were driven by the interactions among state organizations and nonprofit organizations, between the Department of Education and CUNY on one hand, and the Research Alliance, New Visions, #DegreesNYC, and other CBOs forming the Data Co-Op on the other. As data were shared between state and nonstate entities, a common refrain I heard was how many of these efforts were supported by the Bill and Melinda Gates Foundation. For example, when I interviewed Gregg Betheil and Cass Conrad about

the creation of GraduateNYC that combined data between the DOE and CUNY, they highlighted how this was a "result of an opportunity to apply for some Gates Foundation funding." Judith Lorimer of #DegreesNYC said that they received funding as well from the Gates Foundation, detailing that,

> We're getting grants from their global advocacy and communications department…. So, they have advocacy goals or systems change goals for New York and fund, I don't know how many but, I would say ten to fifteen organizations around the state around their priorities… the data work is big for them. We've had two visits from their senior folks and one of them, who's like head of US advocacy, [and] he came to a presentation with us and the Research Alliance. And after we presented the Data Co-op he sat back and laughed and he was like, "Oh my god. This is the Mecca of data! How did you do it?"

New Visions had also had some ties with the Gates Foundation, particularly with the small schools initiative in the early 2000s, the creation of new charter schools in New York, and teacher coaching and curriculum materials for the Common Core. During the first fifteen years of the new millennium, New Visions has reportedly received $76 million from the Gates Foundation.[56] In 2016, some New Visions' leaders moved to the Gates Foundation, with the organization's previous president Bob Hughes becoming the director of the foundation's K-12 education strategy section, and the organization's previous research director Susan Fairchild becoming a senior program officer at the foundation. In 2018, New Visions received a $14 million Network for Schools

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[56] Patrick Wall, "After Navigating Leadership Change at City Hall, New Visions Prepares for One of Its Own," Chalkbeat New York, February 17, 2016, https://ny.chalkbeat.org/2016/2/17/21103229/after-navigating-leadership-change-at-city-hall-new-visions-prepares-for-one-of-its-own.

Improvement grant from the Gates Foundation to "increase postsecondary readiness and reduce disparities between the academic readiness of black, Latino, and low-income high school students and their peers in New York City high schools."[57] Bob Hughes, however, did not participate in this decision on which organizations received the grant.

While the different organizations had other supports from various local and national philanthropies, the support and investment of the Gates Foundation was difficult to miss. Part of the reason for this support was the alignment of one of the Gates Foundation's K-12 education areas on school improvement networks. In the Gates Foundation website, it stated,

> We invest in partnerships between *networks of schools and school support organizations* so they can collaboratively solve common problems by using evidence-based interventions that best fit their needs. These networks also use continuous learning approaches that are *driven by data*—in which schools use data to identify a problem, select a strategy to address the problem, set a target for improvement, and iterate to make the approach more effective and improve student achievement. (emphasis added)[58]

Using the language from the resource network section of this chapter, one may consider the Gates Foundation as a large, traditional, and directive philanthropic foundation that provided project-based funding to specific organizations that aligned with their mission. For the Gates Foundation, it was clearly about school support organizations that worked directly in schools and that used data to make improvements on student learning and achievement.

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[57] New Visions for Public Schools, "New Visions for Public Schools Selected for $14 Million Grant to Improve PostSecondary Success," New Visions for Public Schools, August 27, 2018, https://www.newvisions.org/blog/entry/postsecondary-success-grant.

[58] See: https://www.gatesfoundation.org/our-work/programs/us-program/k-12-education

But while the foundation seems highly bureaucratized and professionalized, part of their work too was about creating relationships and having what one of their program officers called the foundation's "convening power." Edwin Darden was a senior program officer at the Gates Foundation, and when he spoke about his work, he highlighted the importance of being "able to bring people together who have good conversations that can result in action afterward." In the case of data work in New York, he saw the synergies between New Visions, Research Alliance, #DegreesNYC, and the two large public education institutions in the city. He also spoke about how philanthropic support can come about through the partnerships between organizations, detailing that,

> I was working with the Research Alliance through my partnership with DegreesNYC. And so, I knew about them and their work and the quality of their work through that connection, and thinking about who would be in the best position to do this kind of work. The Research Alliance already had some preexisting agreements, they have an alignment with a prestigious university in NYU, and they have had a proven track record through the work they had done with Degrees and elsewhere—and so, given those three elements and others, it seemed to me that they were indeed the best position, the best natural partner, to be able to do the [data] work.

Asked about the possibility that such the foundation has had too powerful a hand in determining the direction of education programs, Darden conceded that "the early history of the Gates Foundation may have been more of a driving force" in terms of setting policies. However, he noted

that "over the last three to five years, we really have turned and became a lot more collaborative with the field."

Comparing Interorganizational Networks

Organizational theory has often emphasized the role of entrepreneurial individuals who drew on their social position and leveraged their legitimacy and networks to further a particular institutional change. While not discounting this core insight, I add that researchers must attend to the role of entrepreneurial interactions, both intended and unintended, organic and organized, most of these happening across interconnected levels of organizational, grounded, and resource networks. The examples of Chicago, Philadelphia, and New York City organizations suggest how organizations have opted to leverage their webs of organizations to spread school innovation.

Across all three examples, I show that they had *interorganizational networks* that facilitated clear division of labor collaboratively engaging with specific niche audiences; *grounded networks* that were necessary for legitimacy, spread and sustainability; and diverse *resource networks* that were not as monolithic as some would assume, given the differences among supportive and directive philanthropies that provide either flexible or project-based funding, in an environment more often characterized as either bureaucratic or personal. What the case of EWIs in the three cities provide is a sense of how these networks actually operate and how webs of organizational and personal connections mattered in bringing about new organizational arrangements and institutional transformations.

What I had emphasized in the previous sections were the similarities of these organizations. However, there were also differences in the interrelationships between schools and outside organizations in the three cities. In Chicago, coaches were more facilitative rather than directive

in their work (see Figure 3.7). In this way, these coaches were able to provide crucial feedback from the classroom to the organizations. In 2012, Amy Torres joined NCS as a leadership coach. Aside from working with principals, she also worked with different schools' instructional leadership teams composed of assistant principals and other teacher leaders. Initially, she thought that her role was to spread and disseminate to the schools early warning indicators and processes— a more directive type of role. After all, she was the one who knew more about the research and her being in an intermediary organization was mark of her ability to translate research into practice. But she had a shift in thinking as she began working with these schools. She said,

> When I started at Network for College Success, I thought my role was to convince the principal and the people in the school that this [early warning indicator system] is important work and teach them how to do it the right way. And what I've learned since is that *I'm there to help and support the leaders and our network*. When they meet together as principals…, that in and of itself, the sharing of ideas, spotlighting schools to have practices that are really helping them around attendance, [helped schools]. (emphasis added)

She recounted how a principal had initially resisted her idea about bringing data to the school's ninth-grade teacher team meetings. The principal justified that bringing in data was a controversial move that teachers were sensitive to and he was scared to bring this up for fear of opposition.

But Torres shared that change happened when school leaders went into the principal network meetings and heard other principals speak about the same issues they were experiencing, particularly "what they did, what the results and the impacts were, what were the pitfalls, what wisdom they shared, and then we had principals collaborate around these ideas." Torres explained

that it was as if the initial resistance of that principal melted away with the assurance of colleagues who had already practiced what the coach had initially suggested.

During the next coaching session, that particular principal said, "Oh yeah, I definitely wanna bring data to my freshman team meetings now." Torres explained this as the power of their network because it was best for principals and schools to receive ideas about something new from principals that were working and at times struggling with that same new initiative. While Torres still had a coaching role with individual schools, she highlighted that what the principal also needed "was the dialogue and conversation and the examples to make this change, number one, possible, and number two, concrete." Through the close connection and partnership of individuals from schools and from outside organizations, they were able to create ways of learning from each other.
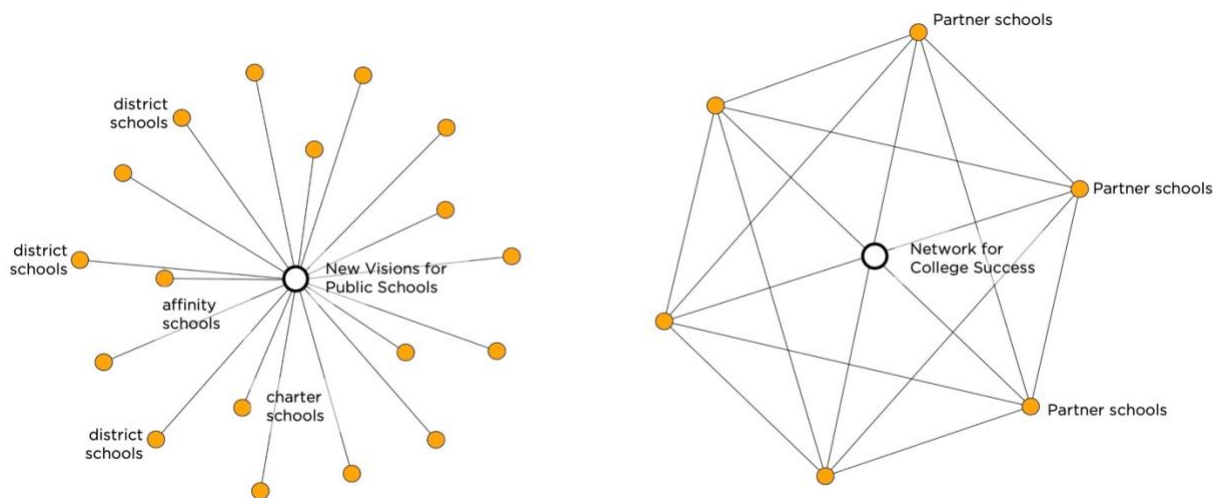
Figure 3.7 Comparison of New York City and Chicago Networks
Left: Network structure for New York City's New Visions for Public Schools. Right: Network structure for Chicago's Network for College Success
Source: Interviews from organizational actors in both cities

On the other end is the example of New York City where the network is less about collaborative engagement and more about centralized distribution (see Figure 3.7). In this context, New Visions for Public Schools was a central node providing the data tools and data coaching to the schools they were in. One of New Visions' continuous improvement coaches was Jamie Esperon. She described her work as coaching teams of teachers or mentoring specific persons so that their schools could use data in actionable ways. Out of the eleven schools she was the coach in, seven of them focused on supporting ninth grade teachers so that ninth graders can earn GPAs with a B average. The work entailed her being the central node working with point persons in the school and such work further branching out from these individuals. She shared,

> This morning, I did a professional development with this school, and I've been with the school for five years and so I have a pretty deep relationship with them…. So, I met with the assistant principal to plan this professional development, and what we really wanted to do was… for teachers to be aware of student progress in the current term, and two, to have an action to support the data that we're presenting.

Jamie Esperon went on to talk about how she assembled data on attendance, credit accumulation, marking period grades, and Regents exams passing rates, finally adding that "my role as a coach is to make [data] meaningful."

After showing the data to the teachers, they created *focal groups* to look at students who had at least a 70 percent attendance and were failing one course. With this list of students who needed closer attention, Jamie said the school had "an advisor program, an advisory structure, where there's a point person for each kid… and [they discuss] what the clear next steps are." In

this way, the organization functioned to catalyze interventions, "coaching" schools to use data, foster conversations on students, and support on-track programs.

More than just about New Visions' coaches in New York City, this type of network structure is common in many coaching, professional development, and early warning systems work. Coaches help individual teachers or groups of educators to identify goals, sequence activities, and foster new interventions. Professional development providers can emphasize particular instructional routines and help implement specific policies—making them central actors that influence schools' actions. In the case of early warning systems, schools often had coaches that ensured they would use their "on track" data, hold teacher team meetings, and create appropriate interventions for students exhibiting early warning indicators. By creating this structure with a central node, organizations were able to institute practices that were strikingly similar across different contexts. In such a web, everything emanates from the center with many of the peripheral nodes only weakly connected to other nodes on the periphery.

When Chicago emphasized a network that was organic, flexible, and capable of providing forms of feedback across schools and organizations, New York City was much more directive and centralized in terms of schools "receiving" tools and coaching from outside organizations. Partly, such differences are because of these organizations' understanding of their role in educational change as Chicago's Network for College Success viewed itself more as a convenor while New York's New Visions for Public Schools viewed itself more as a source of innovation. Partly too, these differences were because of the times these organizations were established with NCS coming at a time when schools were testing different ways of using EWIs while New Visions establishing EWIs when many other districts have already started it. It is beyond the objective of this current

chapter to explain the various factors for differences in network structures. What I emphasize with

it, however, is the subtle but salient ways that even similar networks can have important variations.

Chapter 4

Web of Practices: **Organizational Routines to Address Individual Resistance**

As organizations tried to institute early warning indicators (EWIs) and practices on the ground, these were met with varying forms of resistance. This, of course, doesn't come as a surprise given the many studies documenting the strategies and reasons for resistance to change in schools. These strategies spanned active and passive forms of behavior, with some simply ignoring new policies, others creating work-arounds with them, and others intentionally sabotaging new initiatives.[1] In urban schools in particular, the usual churn of new policies and practices can create a dizzying list of initiatives and creative ways that school staff resist them. In the book *So Much Reform, So Little Change,* sociologist Charles Payne paints the picture of how teachers resist reform efforts—not just through pragmatic strategies of resistance but also through cultural schemas—i.e., shared ways of thinking—that permeate the school and further the status quo.[2]

Although many of these forms of resistance were successful in challenging new initiatives, some organizations have pushed through with organizational changes.[3] Moreover, studies often limit their research to initial responses and resistances to planned organizational changes that they

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[1] Jose Eos Trinidad, "Teacher Response Process to Bureaucratic Control: Individual and Group Dynamics Influencing Teacher Responses," *Leadership and Policy in Schools* 18, no. 4 (October 2, 2019): 533–43, https://doi.org/10.1080/15700763.2018.1475573; Verena Wolf and Daniel Beverungen, "Conceptualizing the Impact of Workarounds – An Organizational Routines' Perspective," in *Proceedings of the 27th European Conference on Information Systems (ECIS)* (Stockholm-Uppsala, Sweden, 2019), https://ris.uni-paderborn.de/record/9676.

[2] Payne, *So Much Reform, So Little Change*.

[3] Kathryn Bell McKenzie and James Joseph Scheurich, "Teacher Resistance to Improvement of Schools with Diverse Students," *International Journal of Leadership in Education* 11, no. 2 (April 1, 2008): 117–33, https://doi.org/10.1080/13603120801950122; Ewald Terhart, "Teacher Resistance against School Reform: Reflecting an Inconvenient Truth," *School Leadership & Management* 33, no. 5 (November 1, 2013): 486–500, https://doi.org/10.1080/13632434.2013.793494.

fail to show how resistance were addressed—and at times, quelled—by processes administrators employed to bring about the intended changes. In this chapter, I view the work of school improvement coaches, facilitators, coordinators, and data strategists who were working with schools on the ground and who faced different forms of resistance as they introduced new school processes related to EWIs. With colorful narratives and rich details, they described strategies school teachers had done to delegitimate EWIs, create a sense of fear for their use, and ignore facets of the work. It thus shows that even a program with flexible meaning and webs of organizational support still met resistance when done on the ground.

But resistance was addressed not by changing the culture, but by promoting and steadying the course for organizational routines. The literature describes these organizational routines as behavioral and cognitive regularities that structure people's interactions, expectations, responses, and procedures within an organization.[4] Many studies highlight how important these routines are to promote stability, or viewed negatively, to further organizational inertia.[5] However, studies have also suggested how such practices can create a space for flexibility and change, leading to routines that help organizational transformation and adaptation.[6] In schools in particular, these routines have been shown to help in more tightly connecting the formal "official" policy with the implementation of practices on the ground.[7] In the case of EWIs more specifically, these routines were introduced and propelled by organizations outside the school system—a case that may either

[4] Markus C. Becker, "Organizational Routines: A Review of the Literature," *Industrial and Corporate Change* 13, no. 4 (August 1, 2004): 643–78, https://doi.org/10.1093/icc/dth026.

[5] Richard R. Nelson and Sidney G. Winter, *An Evolutionary Theory of Economic Change* (Cambridge, MA: Harvard University Press, 1982); Michael T. Hannan and John Freeman, "Structural Inertia and Organizational Change," *American Sociological Review* 49, no. 2 (1984): 149–64, https://doi.org/10.2307/2095567.

[6] Yi, Knudsen, and Becker, "Inertia in Routines"; Feldman and Pentland, "Reconceptualizing Organizational Routines as a Source of Flexibility and Change."

[7] Spillane, Parise, and Sherer, "Organizational Routines as Coupling Mechanisms."

be advantageous because of their outsider status or disadvantageous because of their presumed lack of legitimacy.

As the coaches and coordinators from these outside organizations initiated new routines in schools, they found not only changes in the staff's practices but also in their schemas, or their shared perspectives in making sense of their work. As teachers used new data systems, created teacher teams, and facilitated student interventions—partly through the help of these coaches and coordinators—they had also thought differently of their role and that of their students. Similar to studies that suggest the role of routines in changing schemas, I suggest that similar dynamics happened as teachers' practical and cognitive resistances were addressed not so much by directly changing mindsets but by promoting routines that create new meanings for work.[8]

This chapter is divided into three sections, documenting the movement from individual resistance to practical organizational changes to schematic organizational transformations. The first section discusses in detail the various ways EWIs were initially received and resisted by teachers and staff on the ground. The second section highlights the routines these outside organizations introduced within schools, showing the potential for these organizations to change school practices by instituting routines that were allotted space, time, and mental bandwidth. The third section moves further by showing how these organizational routines translated not just to practical changes but also to changes in mindsets and schemas. Taken together, this chapter suggests the grounded dynamics for the spread of EWIs despite resistance and opposition. It contributes to understanding strategies that these outside organizations employed to steady their work and change the culture by having webs of routines and practices.

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[8] Rerup and Feldman, "Routines as a Source of Change in Organizational Schemata."

Individual Resistance

How do teachers respond to new policies? There's a great variety in terms of teachers' responses and the answer to the question often depends upon individual teachers' characteristics and the environment they are in.[9] A number of studies have documented that such forms of resistance can be more passive or active, with some teachers ignoring, misinterpreting, or misusing policies while others actively protesting or pursuing litigation.[10] Yet these different forms of resistance are not just behavioral actions and strategies; they also affect shared cultural schemas in a school. For example, teachers can often employ different discourses to resist accountability reforms such as "accountability systems are destructive to teaching" or "suggesting change is critique."[11] In this section, I explore how teachers resisted new and supposedly helpful data tools by delegitimating them, playing up fears for their use, or ignoring them altogether. I note these to set the context for the routines outside organizations pushed and to show that all was not smooth-sailing for EWIs.

Delegitimating Data

One form resistance took was the various ways that school staff tried to delegitimate the indicators or the predictiveness of those indicators. Teachers emphasized how the data using grades were inaccurate, how grades themselves were very subjective, or how predicting dropping out at ninth-grade was a futile endeavor. In their encounter with staff on the ground, coaches and data strategists would be on the receiving end of teachers challenging these researched concept and ideas.

Detailing her early work as an instructional coach at the Network for College Success (NCS), Amy Torres shared about her experience of working with freshmen teacher teams as they

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[9] Trinidad, "Teacher Response Process to Bureaucratic Control."

[10] Terhart, "Teacher Resistance against School Reform"; Monty Neill, "The Testing Resistance and Reform Movement," *Monthly Review* 67, no. 10 (March 2, 2016): 8–28, https://doi.org/10.14452/MR-067-10-2016-03_2.

[11] McKenzie and Scheurich, "Teacher Resistance to Improvement of Schools with Diverse Students," 117.

received and used the five-week data on students who were on-track or at risk of being off-track. There was a note of exasperation as she talked about how teachers challenged the accuracy of the data "literally every time." Teachers, she said, would remark that "this isn't accurate because it was pulled on this… date, and I've entered grades since." For her, it was a sign of teachers resisting the EWI efforts by saying that such data did not work even before they got the chance to actually see the data.

A similar observation was made by Lakecia Whimper, who was a senior data analyst at the Chicago Public Schools and worked to provide the five-week data to schools. When asked about what forms of resistance she saw on the ground, she mentioned,

> I think the biggest resistance sometimes would be like, "Oh, it's old data," or, "That's not accurate. All our data is not in there." But that just became more of a push for administrators in their buildings to have those conversations that people put data in at a timely manner. And I believe once it became the web interface, it was even more user-friendly and people were more likely to buy into it because they realized now it's pulling from the system directly.

She noted how this attempt from teachers to question the data had been used by administrator to actually get teachers to input the data more regularly. Moreover, it also became a push for the district office to create an interface to make this easier. While changes were eventually made, the example nonetheless showed the predisposition to questioning and criticizing these new metrics.
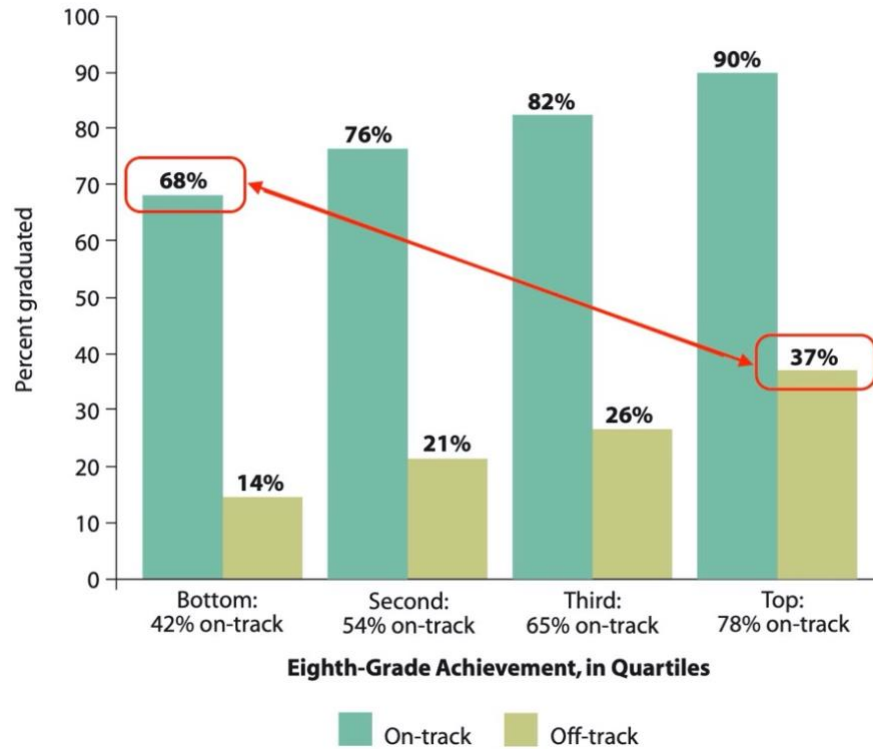
Figure 4.1 Four-Year Graduation Rates by On-Track Status after Freshman Year and Incoming Reading and Mathematics Achievement (Chicago Public School students entering high school in 2000)
Note: Students who dropped or transferred out of CPS before the end of the school year are not included.
Source: *The On-Track Indicator as a Predictor of High School Graduation* (Allensworth & Easton 2005); used with permission from the University of Chicago Consortium on School Research.

But even as the data were becoming a more accurate, some delegitimated not so much the data themselves as the predictiveness of those data. Elaine Allensworth, the director of the UChicago Consortium on School Research, outlined at least three other discourses for how teachers were skeptical of EWIs: (1) grades as subjective, (2) ninth-grade as inconsequential to graduation, and (3) dropping out is unsolvable.

Teachers tried to challenge the predictiveness of EWIs by sharing what Allensworth said was a common refrain that "grades are variable, [and] they're subjective." In the context of the early 2000s with the advent of test-based accountability regimes, many thought that standardized tests were constitutive of a more legitimate and less biased measure for student achievement.

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However, Allensworth and her colleagues at the University of Chicago showed that a student who was at the bottom quartile of a standardized test and was on-track in ninth-grade had better odds at graduating than a student who was at the top quartile of a standardized test but was off-track in ninth-grade. Figure 4.1 shows the difference between these two groups of students, with the on-track students at the bottom test score quartile (right part of the figure) being 68 percent likely to graduate, compared to the off-track students at the top test score quartile (left part of the figure) being only 37 percent likely to graduate.

Another discourse that was common was that ninth grade did not matter because it was a time for students to take it easy and figure things out. Many people did not believe the initial research because graduation was too far ahead, and that ninth-grade would have supposedly been quite inconsequential. A discussion that was related to this was when teachers thought that graduation was not something teachers or schools had control over because it was their environment and prior skills that mattered—not things that could be controlled in high school. But as Allensworth pointed out, "there were all these evidence that, no, it's really important that students pass their classes in ninth-grade, and that really sets the stage for the rest of high school."

In these examples, change agents on the ground met a lot of resistance primarily through individuals trying to delegitimate EWI efforts. It was then one form of resistance to create a strawman out of the change that was being asked of them. But these outside organizations and individuals knew—whether beforehand or after the fact—that part of their work was to change narratives regarding the legitimacy of data and its predictiveness.
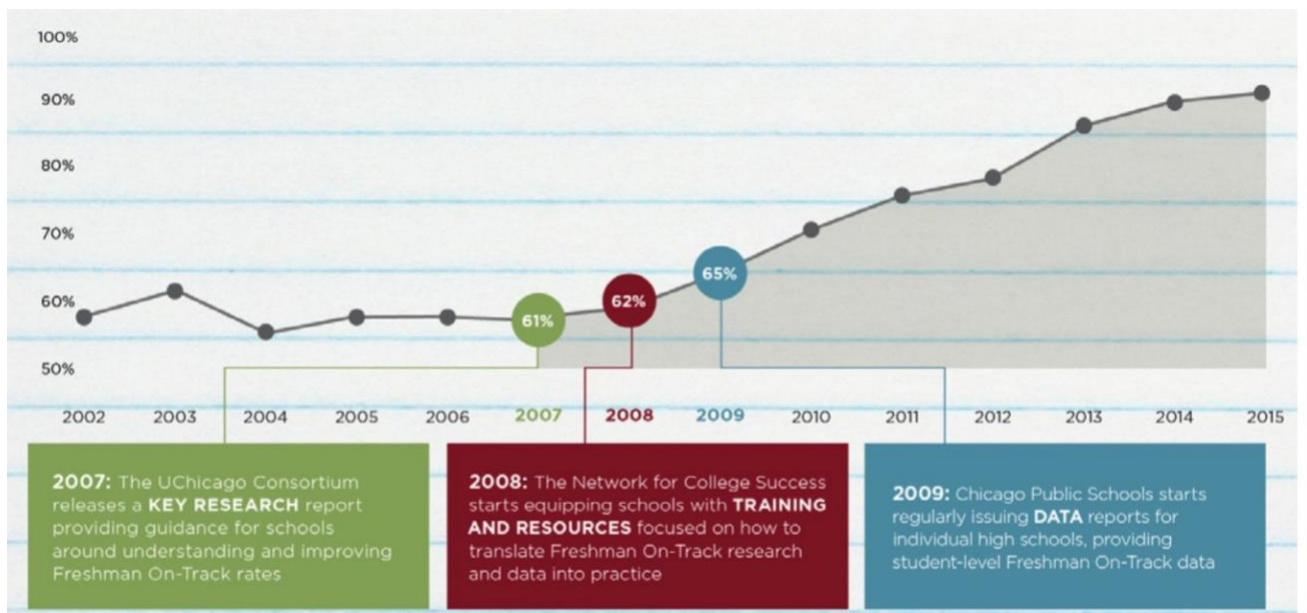
Figure 4.2 Freshman On-Track Rates from 2002 to 2015
Source: *What does UChicago Consortium research say about why Freshman OnTrack matters?* (Issue Brief ca. 2016); used with permission from the To&Through Project.

Fears

Yet even if the data were considered legitimate, the use of such data was still suspect for teachers on the ground. One part of where this was coming from was the fact that grades were wholly within the control of teachers. The reasoning was that if a school wanted to raise its on-track metric for accountability purposes, teachers can be pressured to tinker with their students' grades such that students who were not deserving of a passing mark were actually given one. Teachers resisted by preemptively assuming that this new metric would bring about pressures for them to pass students who were not deserving to pass, and that schools can easily game the system.

One example of this was given by Adelric McCain who was an NCS school coach before transitioning to be the organization's director of equity and national impact. He was working with a school that was trying to turn things around and that was accused of "gaming the system… [by] just changing grades." He continued that there were accusations that "some teachers… translated

the pressure that we were putting on them to justify the F's that they were giving to students as changing grades but [they] were never asked to change any grades." Although there were no explicit pressures to change grades, a skeptical reader may see in this example some truth to the fears that teachers had. Figure 4.2 shows a sudden jump in on-track rates in 2003, the year on-track was included in the school accountability system. However, this quickly went back to levels as before. Thus, it was not impossible to assume that EWIs had momentarily shifted practices to privilege turning students at the cutoff to get a grade of D rather than an F. What was clear though was that such efforts did not become sustained, and only after a number of resources and data systems were set in place that significant changes in on-track rates started to happen.

Of course, even researchers were wary about this potential for EWIs to be misused in an accountability system. John Easton, one of those who started this research, said, "There were lots of fears at the beginning where teachers are just gonna move kids from F's to D's, they're gonna be on-track [in freshman year], but then they'll flunk out in sophomore year—well, that didn't happen." One of the signs for Easton that this was not the case was the fact that the graduation rates mapped out almost as cleanly to the freshman on-track rates four years prior.

But the fears remained and were potently used to resist what they thought was promoting lower standards because of this focus on students passing freshman year. Justin Gumiran, a data strategist at NCS, saw how this happened with teachers who feared that students were being ill-prepared for the "real world" when teachers change their grading practices. He observed that,

> [Some teachers] feel like they're holding the line and doing the correct thing by upholding high standards, and a lot of times, they feel like other teachers who have changed their practice to be more responsive to student needs are *doing a lesser job* of… preparing

students for the real world. And I think that's the biggest thing… when you present data and say like, "Here's how your kids are doing," and they say, "Well, then those kids need to work harder." (emphasis added)

Thus, teachers did not just employ fear for the misuses of data but also created panic for when practices changed as a result of this emphasis on supporting students. In a way, EWIs were thought of as promoting lower standards and teachers resisted such challenge to the status quo.

On the flip side of this and in a different context, fear was also used to show that EWIs was promoting much higher standards that may then inadvertently hurt some students. In Philadelphia, prior to the ninth-grade on-track metric, many schools had the practice of ninth-grade students not being required to take a credited math course since they would take some form of remedial math in their first year of high school and catch up in subsequent years.

However, because the definition of being on-track in Philadelphia included having a credit for each of the four core subjects that included mathematics, being on remedial math automatically made students in these non-credit-bearing courses labelled as off-track. Thus, the district said that the practice was no longer going to be supported. When Theodore Wills, a director in Philadelphia's office of research and evaluation, talked about it, he mentioned how "some people felt [it] was not the best way to serve the students." He spoke about the resistance and friction that can happen with such a change. But he also noted that the practice did eventually change and "pretty quickly I stopped hearing about whether this continued to be a source of disagreement."

These examples show that teachers and school staff leveraged fear when resisting changes to the status quo. At times, they said that the change was going to lower the standards for students while at other times it was going to unnecessarily increase the standards for them. Moreover, there

were fears of inducing pressure and gaming systems that were often tied to unintended consequences of well-meaning policies in education. I highlight these sources of fears to show that many of them were strategies employed to prevent changes to the status quo, and that many fears were proven to be a bogeyman eventually.

Foot-dragging

Another set of ways that school staff employed in resisting was just good old foot-dragging, or simply ignoring tools or outside help related to EWIs. One such episode was meeting resistance with staff that did not want to be contacted. NCS coach Amy Torres recalled an incident both distressingly familiar but also patently humorous. She said,

> I experienced a lot of resistance, and what that looked like was a lot of meeting cancellations. We had appointments and I would show up and be in the lobby, and [the principal] would not show up. Security would say like, "He's in a classroom, blah, blah, blah." [But I saw him and] literally chased him down the hall one time.

Because of this, she just settled with working with the school's instructional leadership team that had more enthusiastic teacher leaders who were willing to institute changes in their schools. These two teacher leaders were bringing together their ninth-grade colleagues to form a teacher team.

However, even with the enthusiasm of some colleagues, most others were not as elated. Torres said the teachers just thought it was another thing coming into their school that these teachers just figuratively (and perhaps literally) dragged their foot into meetings, saying, "How do

we know it's gonna work? We're just tired and we don't want anything else to do. Just tell us what to do."

Just tell us what to do. This was the way they thought initially about EWIs and teacher team meetings. My conversations with other coaches highlighted teachers' dejected response of just being told what the district wants. It came in a number of variations with some teachers remarking that they had little time to speak with their colleagues and that they would just rather have coaches "just tell me the thing you want me to go back in my class and do." This sense of time—or more accurately, the lack of it—was a critical aspect. Nadia Schafer, a coach in Philadelphia, spoke about this sense as common challenge she had encountered when in schools,

> I guess another pushback is always around time. Like, teachers will be like, "Okay, when do you want me to do all this intervention work? When am I supposed to call home? When am I supposed to meet with the kids? … I already am teaching. I'm already going to this meeting and that meeting. These are my hours. When do you want me to do this extra work?" It can feel that way, I think, sometimes.

Schafer was sympathetic because it was indeed an additional ask from teachers, which was why she emphasized the need for school leaders and administrators to create the space and allocate the time for these things to happen.

While delegitimating the data and leveraging fears could easily be addressed with evidence showing that the data were predictive or the fears unfounded, foot-dragging was a lot more difficult to address. Amy Torres saw that the only thing that really helped address it were the relationships they built with the staff on the ground. It was a relationship that acknowledged that these were

legitimate concerns and that such foot-dragging forms of resistance was wholly expected, even merited.

Organizational Routines

How do practices spread even with resistance? For EWIs in particular, how did it spread even with the strategies of delegitimating them, leveraging fear for their use, and people just ignoring them altogether? One potential reason could be that, as with any innovation, EWIs just needed more time for more people to adopt them. The literature often emphasizes the traditional institutionalization curve, where the adoption of new technologies happens with few early adopters, which then gets diffused over time, gain legitimacy, and stabilizes with a critical mass of adopters.[12] While not discounting the importance of time, such curve does not engage with the problem of active resistance, which was present in the case of EWIs. Thus, we needed to understand how spread happened *with* such resistance.

I argue that part of the answer lies not inside the organizational hierarchy in schools but on outside organizations—particularly coaches, coordinators, and data strategists—instituting organizational routines despite resistance. Rather than view these organizational routines as promoting the status quo, I take inspiration from other organizational researchers who viewed organizational routines as bringing about change and organizational flexibility.[13] Applying this insight to education, education researchers Jennifer Sherer and James Spillane argued that "[n]ew

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[12] Thomas B. Lawrence, Monika I. Winn, and P. Devereaux Jennings, "The Temporal Dynamics of Institutionalization," *Academy of Management Review* 26, no. 4 (October 2001): 624–44, https://doi.org/10.5465/amr.2001.5393901.

[13] Rerup and Feldman, "Routines as a Source of Change in Organizational Schemata"; Feldman and Pentland, "Reconceptualizing Organizational Routines as a Source of Flexibility and Change"; Yi, Knudsen, and Becker, "Inertia in Routines."

routines can serve as a mechanism to build instructional coherence, internal accountability, and professional community."[14]

With a more directed focus on teachers' resistance, I show that such organizational routines were key not only in changing behaviors but also in creating new mindsets. The focus of outside organizations was not about changing the culture in the school or challenging people's belief systems. It was a humbler task of these outside entities suggesting and creating new habits, or new ways of proceeding. When NCS started, Krystal Payne was one of its early Freshman Success coaches. About fifteen years after, she became co-executive director of NCS. During our conversation, she said one line for how she made sense of what outside organizations bring when working against resistance.

In describing how to challenge the resistance, Payne mentioned, "I have to work on their actions to change their beliefs." It was about creating organizational routines, which when one becomes habituated to could lead to changing one's schemas, and more importantly, the school's collective understanding. One such example was James Spillane and colleagues' research on organizational routines as a means of aligning practices on the ground with school policies, especially since schools have been assumed to be very loosely coupled or unable to reify official policy in practice.[15] In their research, they described how routines like aligning common standards, monitoring teachers and students, and making facets of instruction transparent had led to tighter coupling in schools. For EWIs, routines were important to bring about continued practice, challenge resistance, and transform specific schemas. Asked about what the most important routines were, Krystal Payne answered,

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[14] Sherer and Spillane, "Constancy and Change in Work Practice in Schools," 611–12.
[15] Spillane, Parise, and Sherer, "Organizational Routines as Coupling Mechanisms."

I think it's… the data and the relationships and the interventions. So, actually, it's tri-fold: student experience through the relationships; the interventions when students are demonstrating academic or socio-emotional distress; and the data.

This was similar to what Robert Balfanz of Johns Hopkins described as the three key components of early warning indicators and systems, which included updated data systems, regular teacher team meetings, and systems of tiered interventions. Many of my other respondents also mentioned variations of these three practices as core organizational routines that they tried to institute inside schools. In this section, I describe how these happened in schools, why they were important, and how they potentially varied across Chicago, Philadelphia, and New York City.

Data Systems

All three cities had updated data systems that teachers can access in order to see the performance of their students, not only for their class but also in other classes. These color-coded data systems introduced in Chapter 2 were slightly different across the three cities but they had the same goals of alerting adults in the building of the progress of students and providing high-level aggregate statistics regarding the overall picture for students in the school. Here I detail how data systems were used to create routines for investigating individual students, attending to groups of students, and marking the calendar with specific practices related to using data.

Sarah Howard was a previous leadership coach and now a senior director at NCS, and she worked with Chicago schools as they used data systems in attending to individual students, grouping students into specific buckets, and helping teachers reflect about their practice. As freshmen teachers received five-week data (around mid-quarter) on their students, she would coach

them and school teams on various ways of using such data. She gave the example of her working with teachers to look at a list of students who had one F grade. Howard explained that "this one F means [the students] generally know how to do it, but in this class, it's not working for them." It thus brings attention to what individual teachers can change in their practices because the student actually is performing well in other subjects. Other coaches also used data for attending to such individual students, particularly those that needed more attention and supports.

The other way these data systems were used was with grouping students into particular performance categories. For example, Howard shared that they may group students into different categories "by their first semester point-in-time on-track [status]:"

A group of kids who had a 3.0 [GPA] first semester,

A group of kids who were on-track below a 3.0 [GPA],

A group of kids who had some failure but were still on-track, and

A group of kids who were off-track

After grouping students according to their first semester GPAs, they would compare their performance to their second semester performance, where teachers would discuss, "here are students who had no failure in the first semester and had a new failure." In this example, they did not so much look at individual students as they did the larger categories they belonged to.

Howard referred also to how they would categorize incoming freshman students to "risk" and "opportunity" groups, according to their eighth-grade academic performance. Howard was quick to point out that "we see kids who are in the high-risk group suddenly get 3.0s in freshman year and we see kids at the high-opportunity group suddenly be off-track." While not particularly

foolproof, the categorization did show how data were being routinely used through either individualized planning or grouping students with similar performances to understand what can be done for groups rather than individuals.

In Philadelphia, teachers and coaches employed similar routines with using data to alert teachers on the performance of their students. They had the Grades Monitoring Tool that provided attendance rates, course marks by subject area, trends in student GPAs, and estimated on-track status. When I spoke with a data coach and dashboard developer with the district, Lucas Westmaas, he highlighted the move in the city of having "data for improvement," which "we all believe is very important towards increasing graduation rates, increasing students' later life outcomes, [with] useful research behind it, but you're not actually being scored on this."

In New York City, coaches did similar work of surfacing individual and grouped students who needed support, which was systematized through regular routines with clear timelines. Jamie Esperon worked as a continuous improvement coach at New Visions for Public Schools, where she described that part of her role was "building capacity [in schools…] to be able to use data in an actionable way, to support kids or to inform decisions." She described using the Portal by New Visions to help teachers, counselors, and principals to make sense of their data and attend to different metrics like attendance data, credit accumulation, marking period GPAs, and Regents examinations pass rates.

These meetings—what New Visions called *strategic data check-ins*—had been routinized through a clear calendar of when things actually happened. They usually had grad planning in the summer, programming and credit accumulation meetings throughout the school year, marking period data in the fall, and Regents examinations planning in the spring. Esperon detailed their work as,

In the summer, a lot of what we're doing is we're doing grad planning. And when we're doing grad planning, we're trying to really put a plan and a path together for a student based on their accumulation of credits [and] based on their pass rates of Regents… And then as we go into the school year, it's still an ongoing grad planning but it's also looking at programming and looking at credit accumulation and pass rates. And as we go through into the fall, it's looking again at the marking period data. Because we are a testing state, in January, it's really looking at Regents planning data. So, there's real intentional timeline and flow to our strategic data check-ins.

With a clear timeline of when to attend to graduation planning, credit accumulation, and test-taking data, New Visions was able to organize the way work happened in their schools.

In a sense, the word "organizational" in organizational routines can mean two things. First, it can mean the organization as a noun, where the routines are created by and set inside the organization. However, a richer second meaning of "organizational" was for such routines to be an organizing principle and an organizing element to the work. As shown in the work of Jamie Esperon in New Visions schools in New York, the cadence of the school year was marked and organized with the data in mind. In Chicago and Philadelphia, similar data-seeking and analysis became routinized practices that quelled initial resistance to new data systems. But it was not just routine data systems and processes that mattered, but also the social relationships behind such data.

Relationships and Teacher Teams

As data systems became available for regular practices in schools, it could just as easily meet resistance without the help and push of outside coaches and facilitators. But one of the insights

that was indispensable for the spread of innovation was the importance of networks of teachers working together because of how this shared social expectation can grease the wheel of new practices. Researchers like Ken Frank and Cynthia Coburn have drawn on extensive data to show the importance of such personal and professional ties in the diffusion of innovation.[16] Here I show that such insight was adopted by outside organizations as a strategy for bringing about not only organizational change but also addressing individual resistance. Thus, the second organizational routine concentrated on people's relationships with each other, particularly the formation of teacher teams.

When the data systems were being introduced in Chicago around 2008, the district had six schools that were considered OnTrack Labs, where facilitators would help schools institute practices to support EWIs. One of the OnTrack Lab coordinators, Rodney Thomas, was assigned to a particularly challenging high school in Chicago's south side where majority of students came from poverty and experienced some form of emotional or physical trauma. Thomas mentioned one of the most important changes they had made when they brought teachers together.

What we did was we brought teachers together to look at freshmen data and to create kind of like interventions based on who these particular students were, because they were not doing that at the time. Teachers were not having those types of meetings to look at student data so we brought these cross-functional kind of teams together to begin to look and

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[16] Kenneth A. Frank, Yong Zhao, and Kathryn Borman, "Social Capital and the Diffusion of Innovations Within Organizations: The Case of Computer Technology in Schools," *Sociology of Education* 77, no. 2 (April 1, 2004): 148–71, https://doi.org/10.1177/003804070407700203; William Penuel et al., "Analyzing Teachers' Professional Interactions in a School as Social Capital: A Social Network Approach," *Teachers College Record* 111, no. 1 (2009): 124–63; Cynthia E. Coburn and Jennifer Lin Russell, "District Policy and Teachers' Social Networks," *Educational Evaluation and Policy Analysis* 30, no. 3 (September 1, 2008): 203–35, https://doi.org/10.3102/0162373708321829; Coburn, Mata, and Choi, "The Embeddedness of Teachers' Social Networks."

analyze and make sense of the data and have targeted strategies to meet the needs of these students.

He and other coaches shared that most teachers worked with their colleagues teaching the same subject (e.g., ninth-grade math teachers spoke with other math teachers in other grades), but would not have these "cross-functional kind of teams" who were teaching students in the same grade level. With the ninth-grade on-track research and with the help of these outside groups, grade-level teacher team meetings in high school had become more common.

Thomas shared that one of the goals of such teacher teams was to identify root causes for trends in the school. He shared the story of how the school had low attendance rates because students would not come to their first and second period classes. When they looked at the data, they found that those periods were usually Physical Education (PE) for majority of the students who did not attend first or second period. Thus, their team asked what was happening in PE, and they found that "students did not want to get undressed for gym and put on uniforms because they were concerned about their hygiene… because they could not afford to wash the uniforms that they had." Through such concerted knowledge-sharing and problem-solving, teachers were able to bring about meaningful changes.

But not everyone shared this enthusiasm for teacher teams since Thomas also shared the continued resistance from veteran teachers who did not want to give up their lunch break or stay in school for yet another meeting. Although there were some that were more open to these meetings who Thomas said had the attitude of "I wanna be involved in this [and] I'm gonna sacrifice my break or stay a little later," there were others who chided Thomas saying, "Look, I've taught for years in that school. I'm tired. I just wanna go home, okay? Rodney, I just wanna go home. I don't

wanna go to another meeting." Other coaches heard of similar resistance, which was why they emphasized the importance of such team meetings being scheduled and routinized through leadership consciously pushing for it.

When things work as intended, however, these processes and routines for adult teams coming together can be so embedded that their being unavailable can be met with fierce emotions. In Philadelphia schools, teachers and students used a data feature called Check-and-Reflect that allowed them to see an individual student's cumulative and projected Grade Point Average (GPA), attendance record, grades, and behavior (see Figure 4.3). Cari Cantor, the director of the Philadelphia district's planning and evidence-based support office, talked about how this tool had become widely used in schools. During the week that I interviewed her, the tool had malfunctioned and she spoke about how others reacted to such disruption to their routines,

Check and Reflect

Cumulative GPA: 2.77	Projected GPA: 2.75
Represents completed courses	Represents cumulative GPA + projected courses

Attendance
Goal: 95% attendance or above

	Term 1 In-Progress	Year-to-Date
Days Enrolled	41	41
Days Present	40	40
Days Absent	1	1
Attendance Rate	97.6%	97.6%
Days Tardy	6	6

Grades
Goal: A's and B's, no D's and F's

	Term 1 In-Progress	Projected Final
Biology	88	88
English	79	79
Algebra	78	78
Social Science	90	90
Phys. Education	85	85

Behavior
Goal: 0 suspensions

	Term 1 In-Progress	Year-to-Date
Period Cuts	7	7
Out-of-School Suspension	0	0

Figure 4.3 Check and Reflect Tool
Source: School District of Philadelphia (rendering by the author)

That tool is a huge benefit to my schools. And when it's not working—like, I guess there was a glitch in the system this week—schools were really mad, students were mad, you hear some of the vocalization of students saying, "I wanted to check!" And obviously, there are other ways for them to check their data, but *they're just so used* to these systems being there. (emphasis added)

When people become "just so used" to particular systems—even ones they had initially resisted—reversion to the original often met its own set of resistance. Aside from Check-and-Reflect, Cantor also mentioned how "the district is actually intentionally putting moments in time for that professional learning and growth to use research… or the tools [like EWIs]." This emphasized the routinization of such initiatives, providing a cursory reminder that once things become routine, such as Check-and-Reflect as well as teacher team meetings, people on the ground can experience discomfort in their absence.

When explaining why teacher teams were important, coaches did not just talk about what teachers could collectively know about their students but also about how their students would have felt being known and seen by their teachers. Jessica Sasko was in a unique position after having worked with Diplomas Now—the program started by the group from Johns Hopkins University—and currently being the director for career readiness at New Visions for Public Schools in New York City. She spoke about the work of teacher teams in the schools she worked with in New York, and how important it was not only for teachers but also for students,

The point is that even in a large school, you could have a group of teachers who know you

well because they all have like a smaller subset of the students in the school together; kinda

like a teacher team. And so, we would look at the data to see which kids were on-track by

their attendance and course performance in which kids were starting to slip off-track and

develop interventions with the teachers. So, there'd be like a point-teacher who would

champion for the rest of the teachers depending on their relationship with the student and

then talk through them and do case reviews and make referrals as needed to counselors or

social workers.

Teacher teams then did not just provide important insights for teachers who shared information

with each other but provided students a way of being "seen."

Tiered Interventions

The third core facet of EWIs—one that integrated the data systems with the teacher teams—was

the employment of tiered interventions. By tiered, they were thought of as strategies that could be

applied either to the whole school, to specific groups of students, or to specific individual students.

These can come in the form of new school policies, calls to parents of absent students, or

personalized supports for homework or class activities. Across the three cities, the coaches would

generally categorize these interventions into these three tiers.

Kareem Sayegh was a former Chicago high school teacher who became the team lead for

their school's freshman success team and who later transitioned to NCS to become the

organization's national student success manager—supporting clients outside Chicago in

developing these freshmen teams and their interventions. Sayegh spoke about working with

different teams from different schools, and how staff provided supports for different "tiers" of students. He explained that,

> Tier 1 intervention is something that influences all students. A Tier 2 intervention is something that would either support an individual student or a group of students. So, a Tier 2 intervention that I've seen is like a check in-check out procedure, it's very common, where a student or a group of students need to check in with somebody at the beginning of the day… So, they have like a tracker for the day where every teacher signs off and gives notes on that student's behavior for the day, and they go in at the end of the day and they check out with whoever… Tier 3 interventions are generally more intensive. These are like the wrap-around supports. Like home visits, they are definitely a Tier 3 intervention.

This vocabulary of using "tiers" to describe interventions was also common across the informants because of the literature that has supported "tiered intervention models"[17] and "multi-tiered systems of support."[18] Similar to how Sayegh described it, the first tier was devoted to plans, practices, and policies that affected all students that was meant to be preventative or responsive to student challenges. The second tier was for a small group of students that may encompass progress monitoring or behavior teams. The third tier was for individuals who needed a lot more support that may come from professionals supporting the student's academic and social-emotional needs.

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[17] Markku Jahnukainen and Tiina Itkonen, "Tiered Intervention: History and Trends in Finland and the United States," *European Journal of Special Needs Education* 31, no. 1 (January 2, 2016): 140–50, https://doi.org/10.1080/08856257.2015.1108042.

[18] Fien, Chard, and Baker, "Can the Evidence Revolution and Multi-Tiered Systems of Support Improve Education Equity and Reading Achievement?"

One example of a Tier 1 intervention was when Sayegh was trying to lead their school's freshmen success team, and they had "some important dialogue about how to best support students in alignment to the ways that we thought about it." In particular, their teacher team debated how they should think about grading in response to what they learned about Freshman OnTrack. Sayegh explained that they did this in order for teachers "to get on the same page so that freshmen have some level of consistency." This thought came from data that students were experiencing inconsistencies in grading, and from teachers working together in teams.

In a different context, Nadia Schafer, the data supports manager at the Philadelphia Academies, Inc., helped form similar team of teachers in what the district called ninth-grade teacher teams. Aside from Tier 1 interventions, she also noted a more specific practice that she suggested to schools that would fall under Tier 2 interventions. This intervention is called two-by-ten relationship-building because,

> it's essentially a sort of formula for building relationship with a student which is to talk for two minutes about anything not related to school for ten days in a row. It's the idea of chatting and getting to know a student, sharing about yourself, asking what they're doing on the weekends, asking what they're passionate about, or talking about a movie or other pop culture reference.

By consistently speaking with specific students about non-school-related things, teachers gain the students' trust, essential in building relationships with them. She also noted how successful this was for many teachers who told her variations of this spiel, "I was really stuck with this kid, but

like after I did that, they came into the fold. They're much more willing to participate or they felt more engaged."

But such changes only came about because of routines that were created. For Schafer and her colleagues at the Philadelphia Academies, Inc., who were providing professional learning and development, they provided school orientations on ninth-grade on-track, created professional development opportunities for teams crafting intervention strategies, and teams being assisted with interventions, "whether it's for attendance, or it's for grades, whether it's Tier 1 for the whole school or the whole grade, or Tier 2 [as] something more focused." The role of these outside organizations, then, was particularly crucial as they were sources of routinizing practices in schools.

Similar things were happening in New York with a group called New Visions for Public Schools. One of their continuous improvement coaches, Jamie Esperon detailed how they supported schools in creating strategic plans for attending to certain segments of students. An example of their attention to Tier 2 students was when she along with the school created what they called focal groups. She justified this by noting that "If I look at everything, it becomes too much. If I can look at an isolated focal group, I can make movement and I can make an impact." For the school she was working with, their focal group was that of students who had 70 percent attendance and failing a course. What the school did was to create an advisory program where the team "identify who the advisory teacher is and then what the clear next steps are." As with the previous examples, this process became routine such that teachers knew how to work with each other and how to work with coaches and facilitators who had one foot in and another foot out of the school.

Such tiered interventions, together with data systems and teacher teams, were organizational routines oftentimes introduced and pushed by outside organizations. Nonetheless, a thread also ran about when such changes were faster and more sustained. With over a decade's

experience at NCS, Krystal Payne had seen what distinguished schools that were more successful in initiating EWIs, saying that "this movement was faster in schools where the principal latched onto the idea of Freshman Success." It was about leadership, particularly as leadership was able to bring about the routinization of the aspects that were core to EWIs. For schools that were successful in implementing EWIs, Payne saw that these had principals that "build in structures and systems," that in a way, built and supported the organizational routines that were important for EWIs. It harkens back to what Payne said earlier for how "I have to work on their actions to change their beliefs."

Schematic Changes

Organizational routines were key to spreading EWI practices amidst the initial resistance experienced in Chicago, Philadelphia, and New York. Outside organizations through their coaches, coordinators, and data strategists were key actors who facilitated such routines, trying to make these practices embedded in the work in schools. Yet I argue that it was not just individual and organizational behaviors that changed but also people's mindsets or schemas.

Schemas are often defined as "mental shortcuts that organize and process incoming information and perceptions in the light of previously stored knowledge… about given objects, concepts, events, and evaluations."[19] In different schools, teachers have closely shared views about their students, instruction, assessment, discipline, accountability, and other facets of their work.[20] Often, collective schemas permeate individuals' behaviors and actions, all while also becoming difficult to change.[21] However, research has also suggested how organizational change in terms of

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[19] Orlando Patterson, "Making Sense of Culture," *Annual Review of Sociology* 40, no. 1 (July 30, 2014): 9, https://doi.org/10.1146/annurev-soc-071913-043123.

[20] Joanne W. Golann, "Conformers, Adaptors, Imitators, and Rejecters: How No-Excuses Teachers' Cultural Toolkits Shape Their Responses to Control," *Sociology of Education* 91, no. 1 (January 1, 2018): 28–45, https://doi.org/10.1177/0038040717743721.

[21] Patterson, "Making Sense of Culture."

shared schemas can be induced through the collective and regular performance of organizational routines.[22]

In a similar way, I argue that organizational routines did not just influence behavioral changes that addressed *practical* resistance to EWIs but also schematic changes that addressed *cognitive* resistance to these data systems. In this section, I detail how schematic changes were happening in schools as teachers changed and challenged original ways of thinking about their (collective) work and their view of students. But not all changes were positive as a schematic change that focuses on one aspect of the work (i.e., intervention) can unintentionally downplay other facets.

Changing Schemas about Teachers

How did organizational routines influence how teachers thought about their work? For a coach from NCS, the largest shifts were cultural in that teachers saw the importance of collaboration, knowing their students, and using data. Adelric McCain started at the Network for College Success in 2012, initially as a transition success coach before being director for the organization's equity and national impact work. In our conversation, he outlined three large shifts in culture that he saw with the introduction of new routines, saying that the focus was not so much to change the culture but to "develop the systems and structures so that [teachers] can use those as tools."

The first shift he noted from the introduction of these tools was the collaboration and interaction among teachers and staff, particularly those teaching in ninth grade. A theme that has been explored a lot in the education literature is the fact that schools were loosely coupled

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[22] Rerup and Feldman, "Routines as a Source of Change in Organizational Schemata."

organizations with teachers privileging their autonomy in instruction.[23] In interviews with different coaches, they detailed how this was the case from before and shared that high school teacher collaborations often happened across grade levels among those teaching the same subject rather than teachers within the same grade level. McCain said that there was a shift primarily because of the structure and system that had to be created, saying,

> And so, spaces of structures and systems had to be recreated to enable this adult collaboration, right? So, in partnership with the CTU [Chicago Teachers Union], principals throughout the district would negotiate to have space and time designated exclusively for adult collaboration around freshmen. That in itself was one of the most significant changes. We're getting together within a school day or after school to do professional development, to do professional learning.

Such shift was not just about making space and time. For McCain, it was about a shift in the perspective for thinking about the collective responsibility teachers had of students. He shared that one of the most significant changes was the shift in language and tone, where "instead of *these* kids and *these* families; it was more about *our* kids, *our* families, and these people are showing up better in service of the communities they were in" (emphasis in the original). Such change in thinking about the collective role of teachers was in some sense brought about not through

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[23] Meyer and Rowan, "Institutionalized Organizations"; John W. Meyer, "The Effects of Education as an Institution," *American Journal of Sociology* 83, no. 1 (July 1977): 55–77, https://doi.org/10.1086/226506; Karl E. Weick, "Educational Organizations as Loosely Coupled Systems," *Administrative Science Quarterly* 21, no. 1 (1976): 1–19, https://doi.org/10.2307/2391875; Jianping Shen, Xingyuan Gao, and Jiangang Xia, "School as a Loosely Coupled Organization? An Empirical Examination Using National SASS 2003–04 Data," *Educational Management Administration & Leadership* 45, no. 4 (July 1, 2017): 657–81, https://doi.org/10.1177/1741143216628533; Viki M. Young, "Teachers' Use of Data: Loose Coupling, Agenda Setting, and Team Norms," *American Journal of Education* 112, no. 4 (August 2006): 521–48, https://doi.org/10.1086/505058.

challenging perspectives directly but through changing everyday routines like creating shared professional learning communities.

A second shift in perspective came from the fact that teachers had systems to identify students at risk and create interventions for them. Similar to other coaches, McCain noted the shift in how teachers saw their students who might be performing poorly in their class even as they were thriving in other classes. He mentioned how the shift was that teachers "got to know [their] students… beyond just what they're presenting in class…, to start seeing kids from a strengths-based approach instead of a deficit approach." Because of new routines for sharing information about the same students, teachers obtained a larger picture of the students they had. Other coaches in Philadelphia and New York City also detailed similar narratives for how teachers' perspectives of particular students were challenged because of information they got from outside their classrooms.

A third shift for teachers and teaching was about the use of data in their classroom and data's role in decisions, interventions, and instruction. After speaking of these two shifts he had seen, he talked about this third one, saying,

> And then the third big thing that I wanna put in there is around this idea that "I'm a professional that can look at data and can use that data to inform my practice." Before, even when I first got here [to Chicago], there was just a disbelief. There's not a lot of teacher service programs that support us in how to look at data and how we can translate it into practice. I would actually say in the past decade, there's been a lot more of that now because of the result of our work.

Because data became readily available and easier to use in terms of color-coding students as being on-track or at risk of being off-track, teachers started using data and, as McCain pointed out, thought of their professional work as imbibing the use of data. However, not all teachers saw this for themselves as Rodney Thomas from earlier noted that a lot more of the receptivity came from relatively newer rather than veteran teachers.

Taken together, the organizational routines that were established challenged certain beliefs regarding the autonomy of teaching, teachers' knowledge of students, and the use of data. By intentionally having organizational routines that emphasized collective knowledge-sharing about students through data, schools—and their outside organizational partners—were able not only to change practices but surprisingly belief systems and cultures as well. Thus, schemas were as much part of the changes brought about by new organizational routines, established and push forth by these outside organizations.

Changing Schemas about Students

One principal in New York City shared that such changed schemas among teachers ultimately influenced their beliefs about students. Mr. Costa[24], a principal of a New Visions partner high school in Brooklyn, shared how he would hear teachers and school staff saying, "Oh, the kids are better, so much better." He would challenge this perspective, however, saying, "We're not getting better kids; we're just treating them differently, and so they have a chance to be better." It was a shift not so much in the demographics of the school but in the schemas teachers employed.

Mr. Costa continued that through teacher team meetings and data systems, they were able to learn more about the students they had, thereby changing their attitudes and beliefs about them.

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[24] The principal and the school are not named in accordance to my research protocol that only organizations are named. No particular school in Chicago, Philadelphia, or New York are identified for this research.

He further explained it as, "We know our students better. [Data] let me know what their strengths and weaknesses are, both academic and personal. And we're more invested. And so, that's the difference!" Similar to the previous section, it was not about creating new cultural narratives but simply about employing new organizational routines that slowly brought about changes in beliefs.

Of course, not a few studies have shown the potential dangers and risks of predictive surveillance, particularly for minoritized populations. Research on predictive policing and racially biased algorithms had become more common, alerting the public to how supposedly bias-reducing and "objective" technologies can have unintended and undesired consequences.[25] Even in schools, the supposed promised benefits of data-based accountability systems can reproduce inequalities given how schools of different demographic composition employ such systems quite differently.[26]

In their school with a racially diverse student population, Mr. Costa noted that "we use [data] to improve; we don't use it to police." That for him was the core difference for why these dangers were averted for EWIs. Many other coaches and researchers said similar things as they talked about how they saw this predictive technology as a means of supporting because they could not turn a blind eye to "students metaphorically waving their hands," needing help and support. Indeed, if EWIs were not used for identification and improvement, it would be difficult to imagine where else it might be used for. Mr. Costa shared a story of when race figured into their work,

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[25] Sarah Brayne, "Big Data Surveillance: The Case of Policing," *American Sociological Review* 82, no. 5 (2017): 977–1008; Sarah Brayne and Angèle Christin, "Technologies of Crime Prediction: The Reception of Algorithms in Policing and Criminal Courts," *Social Problems* online first (March 5, 2020): 1–17, https://doi.org/10.1093/socpro/spaa004; Ruha Benjamin, *Race After Technology: Abolitionist Tools for the New Jim Code* (Cambridge, UK: Polity Press, 2019); Sara Safransky, "Geographies of Algorithmic Violence: Redlining the Smart City," *International Journal of Urban and Regional Research* 44, no. 2 (March 2020): 200–218, https://doi.org/10.1111/1468-2427.12833; Cathy O'Neil, *Weapons of Math Destruction: How Big Data Increases Inequality and Threatens Democracy* (New York, NY: Crown, 2016); Aaron Shapiro, "Predictive Policing for Reform? Indeterminacy and Intervention in Big Data Policing," *Surveillance & Society* 17, no. 3/4 (September 7, 2019): 456–72, https://doi.org/10.24908/ss.v17i3/4.10410.

[26] Diamond and Spillane, "High-Stakes Accountability in Urban Elementary Schools"; David Gillborn, Paul Warmington, and Sean Demack, "QuantCrit: Education, Policy, 'Big Data' and Principles for a Critical Race Theory of Statistics," *Race Ethnicity and Education* 21, no. 2 (March 4, 2018): 158–79, https://doi.org/10.1080/13613324.2017.1377417.

When we looked at our social emotional data, and we started seeing that they, the ones that are labeled as "needs improvement," 15 out of 16 of the students that were labeled "needs improvement" were young men, and then not just young men. They were specifically Black and Latino young men and so that's the part for us to be able to reflect and say, "Why is this going on? What is our perception? Is our perception skewed?" And so, we see systemic issues and then we survey kids based upon [those], and then we, and then we delve into different ways of teaching, in different ways of looking at a curriculum. And then we say, "All right. Well, maybe you know [there is something wrong]." And then we got into culturally, culturally and historically relevant education.

In this example, the organizational routines did not only challenge schemas about students; it also provided a means for shifting actions from such changed schemas.

As coaches in Chicago and Philadelphia detailed, the surveillance of EWIs did not so much change the behaviors of the surveilled as it changed the behaviors—and more importantly, the beliefs—of the ones surveilling. Such social technology thus changes not only the teachers' work routines but also their schematic orientation with the people they interact with.

Unintended Consequences of Changing Schemas

As I show, organizational routines are critical in bringing about schematic changes in schools—whether these are shifts for thinking about teachers or students. As the EWIs had routines emphasizing just-in-time data, teacher teams, and student interventions, coaches highlighted the role of data and dialogue to bring about positive changes for students' high school experiences.

However, this larger focus on the intervention had unintended consequences regarding the privileging of one form of improvement over another. In the case of EWIs, it was the privileging of intervention instead of instructional change.

Eliza Moeller was a continuous improvement and equity coach at the Network for College Success, and she spoke about the emphasis placed by many schools on interventions to help specific individuals or groups of students. She spoke about the many ways in which the intervention mentality has taken over the instructional improvement mentality. She said that "most schools kinda start with those interventions that aren't really about instruction." Moeller further explained why this is the case,

Instructional change is still very hard because… we have a lot of safeguards in place in our systems to give teachers a lot of autonomy in the system…. We believe that teachers are professionals and teachers have the right and responsibility to create their own syllabi, to create their own curricula, and to really master their own craft in a way that works for them in their context. That makes the work of instruction tremendously personal. Whether we mean for it to be or not, I think *there's a tendency to hear feedback about your instructional practice as sort of feedback about your value as a teacher* or as a person. (emphasis added)

While not advocating to take out this independence afforded to teachers, Moeller did see how providing interventions was a much more palatable change rather than changing people's instructional practices. Her colleague at NCS, Kareem Sayegh, echoed this sentiment as he explained how there were schools "where we react to the data and then just spend a ton of time and energy on interventions with students." Thus, organizational routines that focused on certain

interventions unintentionally emphasized a particular theory of action privileging an intervention mindset even as organizations had wanted for changes to permeate teachers' instruction.

NCS's founder Sarah Duncan was also honest about the greater emphasis on interventions even as they tried to improve instructional practices. Noting that the dropout and on-track rates in Chicago were so low, she said, "In the beginning, we didn't improve instruction, let me be clear. We were working on improving instruction, but you could get a jump of 10 percentage points [in on-track rates even as] instruction was not improved at all. You just fix some little, really broken, systems." In a way, the interventions and systems changes were low-hanging fruits that can be easily changed with organizational routines. However, a challenge lay ahead with how the instructional changes can be incorporated with the interventional mentality.

The discussion regarding the unintended consequences of focusing on interventions should provide a cursory caution and reminder that there is no such thing as a free lunch. Organizational routines privilege certain facets of the work to the sidelining or downplaying of other facets. These routines impact not only individual behaviors but also shared schemas and mindsets, a key aspect that outside organizations leveraged as they met initial resistance to their initiatives. This chapter has detailed the connections among individual resistance, organizational routines, and schematic changes. It used an organizational perspective to situate and explain how EWIs spread on the ground despite strategies to delegitimate and ignore them, and I show how outside organizations have learned to use this as a strategy in their toolkit for bringing about organizational change.

Chapter 5

Dynamic Webs and the National Spread of Early Warning Indicators

What was fascinating about these ninth-grade early warning indicators (EWIs) was not just that they spread in urban school districts notorious for their large bureaucracies, constant churn of senior leadership, powerfully adversarial teachers unions, and perennial reforms that fail to transform schools. What was so fascinating was that these EWIs spread to many other school districts beyond Chicago, Philadelphia, and New York City. Sociologists would refer to this as the institutionalization of a practice, the fact that it had become so taken-for-granted that just-in-time student data can be utilized for identification, intervention, and accountability. Although most sociologists may explain this either through top-down state capacity and incentives on one side or bottom-up teacher mobilization and buy-in on the other, I show that such institutionalization came as a result of interactions among "outside" research, philanthropic, and nonprofit organizations— a key facet that may at times be an invisible infrastructure supporting public education in the United States and other countries with a large civil society sector.

As I have argued, the spread of this innovation was not so much because of coercive forces from the government or supportive assent from teachers. On one side, there were no central mandates or incentive structures from the federal government to use these EWIs. Dissimilar from legislation like No Child Left Behind or Race To the Top that used federal incentives to push test-based accountability, the spread of EWIs was absent of such top-down intervention. On the other side, the support and buy-in from teachers were not immediate. In fact, some of the initial reactions to EWIs was concentrated on fears of its misuses, delegitimation of its data, and resistance to such

additional work. Thus, I had to challenge these original conceptions by looking for the answer elsewhere, and part of the answer lay in how organizations not part of the school governance structure were pushing forth different aspects of the initiative.

To address this puzzle, I suggest the concept of "webs of improvement," where changes within schools are initiated, developed, fostered, and sustained by outside organizations' influence on school practices, relationships, and meaning making. I employ the image of webs for a number of reasons. First, the work was neither initiated nor done by only one actor or set of actors. It was the interaction and interconnections among different organizations that pushed it forward—similar to the lattice-like structure of webs. Second, these outside organizations seemed almost invisible to the unknowing public. Researchers were seldom present within schools, school improvement coaches came every so often, and philanthropists were almost wholly absent so much so that our concepts for school improvement are so reliant on the work of teachers and school leaders. However, just like a web that is initially imperceptible, this ecology of outside organizations can become quite glaringly present to someone attuned to its influence in public education. Finally, webs are both precarious and resilient in the sense that they could easily be distorted while at the same time be just as easily reconstituted. In a similar vein, these webs of school improvement I am suggesting are dynamically changing—attending to changes in funding and organizations, attentive to shifts in other fields and institutions, and acquiescing to larger transformations in society.

The three previous chapters have highlighted the specific strategic actions and structural configurations that contributed to these webs of improvement in Chicago, Philadelphia, and New York City. In these chapters, I detail the webs of practices, relationships, and meaning so crucial in the initial spread of EWIs. In this chapter focusing on the spread of EWIs in the United States,

I bring these three webs together, making them speak to each other and using such webbed integration to clarify the connections between the micro, meso, and macro-levels of an institution like education. I start by showing that the webs of practices shared by these organizations and codified through their research have formed the basis for organizational routines that impact everyday interactions, making them slowly taken-for-granted. Such practices, however, did not arise from mere utility but from the strategic actions and networks of organizations outside the school system crucial for the spread of new innovations. Finally, these connections created multiple ways of making sense of EWIs and helped to mature our institutional understanding of it.

Table 5.1 suggests a framework for understanding webs of improvement, or a network approach to institutional change. It tries to integrate theories of organizational routines, institutional entrepreneurship, and institutional logics by showing that everyday practices were facilitated by entrepreneurial interactions and sustained by the meanings people gave to the change. From a micro-interactionist perspective, institutions are built on and rely upon practices, routines, and habits among people on the ground. I argue too that such practices are not singular but multiple, providing agents not with *an* action but with a repertoire of actions and activities that further the new institutional arrangement. However, these actions and practices did not arise out of nowhere. Often, they were facilitated by organizations that operate on the meso-level, with individuals employing strategic interactions and leveraging networks to change the institutional conditions or the status quo. Such organizational efforts—often by organizations outside the core institution that is hoped to change, e.g., education—need to make inroads to macro-level changes that often happen through meaning and cognition. Part of the work here is identifying other fields and institutions similarly changing in order to bring about sustained ways for new institutional arrangements to emerge.

Table 5.1. Webs of Improvement

	Organizational Aspect	Institutional Element	Level	Focal actors
Dynamic webs of				
Practices	Behavioral habituation	Routines	Micro-level	On-the-ground staff
Relationships	Relational spread	Entrepreneurship	Meso-level	Networked Leaders
Meaning	Cognitive change	Logics	Macro-level	Researchers

In this chapter, I argue that a core place to start understanding the spread of school innovation in a lot of US schools should start at the meso-level of organizations, where many of the changes were enacted by institutional, education, and policy entrepreneurs that were connected with each other. At this meso-level, what was core to spread of innovation was not the individual skills of entrepreneurs but the collective interactions found in entrepreneurship. As people interacted with each other—in the very spirit of inhabited institutionalism—new institutions were slowly built, refined, made sense of, and recreated. Through the dynamic coming together of researchers, philanthropists, organizational leaders, and coaches on the ground, the idea for this new field of dropout prediction and prevention was being made. Such meso-level organizational changes through networks of individuals were then subsequently able to filter into micro-level routines and macro-level logics for understanding the dropout crisis.

Web of Organizations and the Creation of a New Field

Before EWIs spread to different schools, the idea of EWIs had to first spread across different organizations that were bringing about this change. In this section, I detail how networks of researchers, organizations, and schools had facilitated the spread of EWIs. These webs across different fields—research, nonprofit, philanthropy, and education—created a new field that

brought them together. In a way, it became taken for granted that research was supported by philanthropy, then translated by intermediary nonprofit organizations, and became consequential in schools. It was something that was happening not just in the three cities but also beyond them, particularly in urban areas that have a density of these organizational arrangements.

Research Networks

While the researchers from Chicago and Philadelphia had investigated these EWIs independently in their respective districts before 2010, their work surpassed the boundaries of these school districts because of people's dynamic movement from one location to another, their work with larger government and collaborative agencies, and their published reports and research reaching wide audiences. Thus, part of the reason for the spread of this innovation may be through the dynamic changes that individuals go through and the dynamic interactions they have with others in specific organizations.

One example of this was Vanessa Coca who had previously worked with Melissa Roderick and Jenny Nagaoka from the University of Chicago Consortium on School Research. While in Chicago between 2003 and 2011, she worked on a variety of projects concentrated on high school students' transition to college. Among their studies included papers on "College readiness for all: The challenge for urban high schools," and "Potholes on the road to college," highly cited papers that have shown the trajectories for college enrollment among many low-income students in an urban school system.[1] In a way, this was intimately related to the on-track work in Chicago,

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[1] Melissa Roderick, Jenny Nagaoka, and Vanessa Coca, "College Readiness for All: The Challenge for Urban High Schools," *The Future of Children* 19, no. 1 (2009): 185–210; Melissa Roderick, Vanessa Coca, and Jenny Nagaoka, "Potholes on the Road to College: High School Effects in Shaping Urban Students' Participation in College Application, Four-Year College Enrollment, and College Match," *Sociology of Education* 84, no. 3 (July 1, 2011): 178–211, https://doi.org/10.1177/0038040711411280.

extending it from just high school graduation to also college-going and persistence. But by 2011, Coca had to move to New York University to pursue a doctoral degree in the sociology of education. While at the university, she started working at the Research Alliance for New York City Schools, where she and the director had started to create a data archive. She detailed,

> So, we were working… to create a data archive that has information across the two systems in the New York City Department of Education as well as the CUNY [City University of New York] system, and we were working together to work on respective research projects that sort of all speak to questions around students' readiness and access in college.

Coca explained that her director at the Research Alliance wanted to recreate what she had done in Chicago with regard to tracking students' college enrollment experiences. Such work would then help the Research Alliance not only with an early warning indicator that predicted who were most at risk of dropping out of high school but also a "college readiness indicator" that provided data on who were successful in getting to and through college. This also became the basis for wider work with the Data Co-Op in New York that brings Research Alliance data to community-based organizations in the city.

This New York research organization's director, James Kemple, was himself also connected to another group working on EWIs. It was the Talent Development organization, the group in Philadelphia that worked on whole-school reform with a strong emphasis on early warning indicators. Prior to joining Research Alliance, Kemple was director at MDRC's K-12 education policy area and did the evaluation for the Talent Development middle and high school models—the work that was pioneered in Philadelphia and Baltimore. In the early 2000s, he and

other researchers from MDRC came up with papers documenting the changes from this, published in their reports on "The Talent Development Middle School Model" and "Making Progress Toward Graduation: Evidence from the Talent Development High School Model."[2] In this role, Kemple had interacted with the likes of Robert Balfanz who helped clarify the components and implementation of Talent Development, and Liza Herzog who provided context and perspectives on the process of Talent Development in Philadelphia.

Kemple was also closely involved with his Chicago colleagues because their Midwest counterpart was a model for place-based research-practice partnership. In our conversation, he said that when Research Alliance "was started in 2008 there was a very high degree of collaboration with John Easton and Melissa Roderick at the time and Elaine Allensworth, about how you would start a similar organization to [UChicago Consortium on School Research] in a New York City context." Such networks and interactions with both Chicago and Philadelphia were in a way critical for EWIs to also be more thoroughly investigated in the United States' largest school district with up to a million students every year. In 2013, their group from Research Alliance systematically studied predictors of being on-track to graduate high school since these indicators were being used as "components of school performance measurement and accountability systems, and to monitor the progress and address the needs of individual students."[3] Taken together, these dynamic movement of people across organizations were crucial to ideas spreading.

This also happened when John Easton, previously the executive director at the UChicago Consortium, was appointed director of the Institute of Education Sciences, a federal government

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[2] Herlihy and Kemple, *The Talent Development Middle School Model: Context, Components, and Initial Impacts on Students' Performance and Attendance*; Kemple, Herlihy, and Smith, *Making Progress Toward Graduation: Evidence from the Talent Development High School Model*.

[3] Kemple, Segeritz, and Stephenson, "Building On-Track Indicators for High School Graduation and College Readiness," 8.

agency that functioned as the statistics, research, and evaluation arm of the U.S. Department of Education. During his time at the Institute of Education Sciences, the regional educational laboratories (RELs) were under his leadership, and he mentioned that a lot of these laboratories "did early warning indicators with networks of school districts." Examples include projects on "High School Dropout and Graduation Rates in the Central Region" (REL Central), "A Practitioner's Guide to Implementing Early Warning Systems" (REL Northwest), "Comparing Methodologies for Developing an Early Warning System" (REL Southeast), and "Early Identification of High School Graduation Outcomes in Oregon Leadership Network Schools" (REL Northwest).[4] Another senior leader at the Institute of Education Sciences was Ruth Curran Neild, who was previously connected with the work in Philadelphia through the researchers at Johns Hopkins University. Of course, the fact that Arne Duncan from Chicago was the secretary of the U.S. Department of Education was also significant because he was a vocal champion of these early warning indicators. Such expanding networks and influence in larger agencies were not insignificant in this story of the spread of a school innovation.

Yet another research aspect that has contributed to this spread was the continuing enlarged presence of research-practice partnerships that in 2016 had created an infrastructure for mutual support and learning through the National Network of Education Research Practice-Partnerships. What started out as 16 member organizations in 2016 had grown to more than 50 members in 2022 spanning university research centers, for-profit research firms, and nonprofit research collaboratives. In the past few years, research organizations in Oregon, Philadelphia, Atlanta, and

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[4] See IES Early Warning Systems website: https://ies.ed.gov/ncee/edlabs/projects/ews.asp

Los Angeles—all part of the network—have investigated the role of on-track or early warning indicators in their local districts.[5]

Finally, while the organizational connections, networks, and interactions can be contributive, just the presence of research and the availability of reports have itself been crucial in bringing about this spread. From a research that was limited to Chicago and Philadelphia in its early days, this agenda has grown as more research look into early warning indicators and intervention systems. It has grown so much that special issues on this topic have been put forth by journals like in the *Journal of Education for Students Placed at Risk* in 2013 and *Teachers College Record* in 2020.

In all these, Ash Vasudeva, who was senior program officer at the Gates Foundation before moving to his vice president role at the Carnegie Foundation for the Advancement of Teaching, spoke about the importance of the credible research that came out of the original sites for EWIs. He said,

> Something that was important in the work in Chicago, New York, Philadelphia, and Baltimore… was that they all had *credible bodies of evidence* underneath them. The close partnership with research communities to understand these phenomena is really important. And so, the actors in these places… were early adopters of evidence-based practices, and I think they saw each other as like-minded travelers in this educational journey. (emphasis added)

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[5] This was explored by looking at the annual reports of the National Network of Education Research-Practice Partnerships, available at https://nnerpp.rice.edu/annual-report/

What Vasudeva highlighted was not simply that there was research and evidence that came out of these early studies but that these research and school improvement organizations were connected with each other, and were moving ideas and sharing information from one urban center to another. It was also from these urban sites that others saw the potential of doing similar things in their own spaces.

Interorganizational Networks

As the research base on EWIs has expanded because of the spread of research in different parts of the country and the interaction among researchers, the role of school support organizations, such as the Network for College Success (NCS) and the Talent Development whole school reform model, had likewise become wider. Webs of school support and "intermediary" organizations had become more prevalent as bridges needed to be made between policymakers and researchers on one side, and implementers and school staff on the other.[6] In the case of EWIs, the organizations in Chicago and Philadelphia were instrumental in bringing about larger national movements to support freshman success.

In Chicago, part of the NCS's national expansion was due to their idea that the model could be scaled to other organizations and districts. In the process of expanding their work to other school districts, the organization was able to come in contact and support other nonprofits who were trying to do similar work of supporting schools or networks of schools. The organization's co-executive director Sarah Duncan highlighted their work and relationship with these other nonprofits as one of learning. She detailed,

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[6] Honig, "The New Middle Management."

We had the research and a set of clear ways to respond to the research: how to use data in high-functioning teams to drive improvement in student outcomes. I think we were in a good position to say, "Here's what we've learned." We had, sort of, the pieces in place, like, "Here's the coaching model we use." We had all the pieces in place, and so we were in a good position to help them… We couldn't necessarily fly out to every place and do the on-ground coaching, but to have someone on the ground to do the follow-through and do the problem-solving and the thought-partnership with the schools, I think, it's an excellent model.

Part of what happened was school support organizations and their partner schools would send staff, principals, and teachers to the National Freshman Success Institute in Chicago to receive training on EWIs and how to use on-track identification and intervention systems. Sarah Duncan mentioned how they connected with nonprofits like the Connecticut Rise Network and CORE Districts, and how these nonprofits "would come with their schools to the National Freshman Success Institute and we could be actively building their capacity at the same time as we were trying to build the school's capacity."

One of the founding members of the Connecticut RISE Network worked directly with Sarah Duncan and Jacquelyn Lemon of NCS to bring about such collaboration. Caitlin Gallagher, who was at one point also a fellow for New Visions for Public Schools in New York, shared about how their organization working with Connecticut schools were connected with the Chicago organization,

We brought teachers to Chicago three times for their freshman success conference… It was like a freshman success symposium and there would be people coming from across the country. It was like 100 people, and we brought freshman teachers and then we brought those strategies back to their high schools.

Similar to NCS, the Connecticut RISE Network supported a group of schools in terms of "on-track and postsecondary culture" as well as "targeted transition supports" for ninth-grade students.[7] RISE stood for resources, innovations, systems, and empowerment—core facets that they leverage in supporting nine high schools across eight school districts in Connecticut, collectively serving more than 13,000 students.[8]

Another example of a school support organization incorporating these EWIs was the CORE Districts, an acronym for the California Office to Reform Education.[9] Composed of eight school districts including Fresno, Los Angeles, Oakland, and San Francisco with more than a million students, the organization serves as "a hub for this collaboration and supporting partnership and shared learning at the superintendent, central office, school leader, and teacher levels."[10] Its school improvement strategy had emphasized aspects similar to NCS: supportive eighth to ninth-grade transitions, freshman success teams, and strong adult-student relationships. Moreover, aspects of both coaching and collaborative learning were also highlighted in this organization, similar to NCS, Connecticut RISE, and Talent Development.[11]

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[7] Connecticut RISE Network, "CT Education Network Improvement | The RISE Network," *CT RISE Network* (blog), 2022, https://www.ctrise.org/what-we-do/network-improvement/.

[8] Connecticut RISE Network, "Our Partners," *CT RISE Network* (blog), 2022, https://www.ctrise.org/who-we-are/our-partners/.

[9] Joel Knudson and Mark Garibaldi, *None of Us Are As Good As All of Us: Early Lessons From the CORE Districts* (Washington, DC: American Institutes for Research, 2015).

[10] See CORE Districts LinkedIn page: https://www.linkedin.com/company/core-districts/

[11] CORE Districts, "School Improvement," *CORE Districts* (blog), 2022, https://coredistricts.org/our-work/school-improvement/.

Aside from supporting other organizations, NCS also had collaborations with particular districts. Kareem Sayegh was the organization's national student success manager whose role was specifically to support national clients in developing freshman success teams, implementing their strategies, and supporting data systems for freshman on-track. Sayegh spoke about how they were working with school districts in Colorado, Nebraska, Texas, and Illinois. Asked about how the organization initially made these connections, he answered,

> A combination of things. Some of the districts, we have previous relationships with, so… there are educators in those districts that used to work in CPS [Chicago Public Schools] and knew of our work when we were supporting CPS schools. Also, we have… something called the National Freshman Success Institute which happens every year. So, we have hundreds of districts who have come through that, and every year there's a couple of folks at the end of the year that want to move into some continued learning and partnership coaching.

Such spread of EWIs was thus brought into a larger audience because of these organizations that were, in a way, creating similar models. In our conversation, Sarah Duncan had noted that the spread was "organic more than strategic," highlighting that they had not originally expected for their work to spread this far. It was, however, interorganizational networks and entrepreneurial interactions that brought this about.

A similar entrepreneurial ethos came with the work that had originally started in Philadelphia and Baltimore with the group from Johns Hopkins University. While the work of Talent Development whole school improvement model started with these two districts— the

middle school work in Philadelphia and the high school work concentrated in Baltimore—they found that they needed more help in managing students that were on off-track to graduate. Thus, they collaborated with City Year which provided mentors who can check-in and help groups of students, as well as Communities in Schools that provided more directed supports for highly vulnerable students. This collaboration between these three organizations became what would be known as the Diplomas Now model. Robert Balfanz of Talent Development and Johns Hopkins spoke about this time as,

> We did rapid prototyping in Philadelphia actually in around 2008 and then a couple of districts around the country in 2009. In 2010, we got one of the large i3 awards that came out of Obama's [American Recovery and Reinvestment Act of 2009]. It was like a $30 million award with $10 million private funds. With that, we did this massive 12-district, 60-school RCT [randomized controlled trial], and that's really what consumed us from 2009 to 2015.

Unlike what Chicago did as it coached and shared knowledge with other school support organizations, the team from Philadelphia focused on partnering with different schools and districts across the nation as it created these whole-school reform models in places like Boston, Denver, Los Angeles, and San Antonio. In 2022, Diplomas Now was working with 29 schools in 13 cities with plans to expand to other schools and districts.[12] Although they have not necessarily

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[12] See Diplomas Now website: https://diplomasnow.org/about/where-we-work/

partnered with other nonprofits who did similar work, their work did show promising impact of EWIs across different locations.[13]

In 2022, diverse school support organizations became part of a collaborative called Grad Partnership, which aimed to work with school districts, schools, communities, and organizations to "make high quality student success systems typical."[14] In my conversation with Robert Balfanz, he excitedly talked about this collaboration,

> The interesting thing that will be a good coda for your story… is that we're now going to lead with Chicago, with AIR [American Institutes of Research], with BARR [Center], and a bunch of others a big national effort to bring on-track systems to scale…. I guess in a way the Gates Foundation brought us together because they're the ones that sort of put the money up. But it started with Bob Hughes [who was the K-12 director] of the Gates Foundation but used to be the head of New Visions in New York and they themselves do early warning work in their schools and they've been big on continuous improvements.

Here, the story of EWIs comes full circle as the national work for these indicators have been catalyzed by the Network for College Success in Chicago, the Talent Development from the group that started in Philadelphia, and supported by the Gates Foundation, whose K-12 education arm was headed by the former president of New York's New Visions for Public Schools that pioneered many of the early EWI work in the city. In addition to these organizations in the three cities, the collaboration also included, among others, the BARR Center with its presence in more than 200

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[13] Corrin et al., *Addressing Early Warning Indicators: Interim Impact Findings from the Investing in Innovation (I3) Evaluation of Diplomas Now*.
[14] See Grad Partnership website: https://www.gradpartnership.org/

schools, the American Institutes for Research that led work with regional education research laboratories, and the Carnegie Foundation for the Advancement of Teaching, which was given a grant to "develop and propose a plan for how to greatly expand adoption of Early Warning Systems/ on-track work in the broader field."[15]

Patricia Balana was the managing director of the Grad Partnership and spoke about the nine different organizations that were coming together. She first spoke about the uniqueness of what they were attempting saying, "It's a new model… to fund very national cross-cutting issues: chronic absenteeism, issues around students not graduating on time. It's a national issue, and with the pandemic, a national emergency." To address this, different organizations had "talked about the potential to come together under a collaboration, or under a framework of partnership and do the work together… the rationale being something as simple as, 'If you can get results as individual organizations, how much more could you do and how much deeper could the impact be if we work together?'."

While still in the early phases of the work, the Grad Partnership had already been forming a healthy professional community of other organizations, researchers, and school district advocates interested in the work of on-track metrics and student success systems. Asked about why there has been such a powerful reception of this innovation, Balana highlighted four aspects of the work of these organizations,

> First of all, the work of the organizations is evidence-based; many of these organizations have done work on chronic absenteeism and on-time graduation…. Second is the credibility of the organizations, and the third is just where we are in the US in terms of the

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[15] See Gates Foundation website: https://www.gatesfoundation.org/about/committed-grants/2021/04/inv032278

issues that affecting students, particularly… Black students, brown, low-income, ELL [English Language Learner] students, students with disabilities. You add the layer of the pandemic, just where we are right now is another reason why the Grad Partnership is a really compelling option for schools and districts. And then the final one is how we approach our work around the human interaction piece.

She was particularly emphatic about the importance of the last aspect that highlighted how these were not merely technical solutions as if only to add data systems in schools but a need to change mindsets and perspectives in the schools and districts they were in.

Philanthropic Support and their Role in Network Creation

The national work and spread of these student success systems or early warning indicators have been supported by one philanthropic organization that has brought together these various organizations. As Robert Balfanz has already hinted at, the Gates Foundation has had a profound convening influence in the creation of interorganizational networks supporting EWIs. In addition to the individual funders of the different organizations in Chicago, Philadelphia, and New York as well as the federal agencies that provide them grants, the Gates Foundation had supported early research on EWIs, helped shift the focus from dropout prevention to college readiness, and had recently brought together nine organizations to further spread these data and intervention systems.

Bob Hughes was K-12 director at the Bill and Melinda Gates Foundation and was previously the president of New Visions for Public Schools. Speaking about the Foundation's support for these systems that help prevent dropping out, he highlighted two aspects of the program. First was about the practical and workable aspects of the program that included its providing clear

targets, being based on research, and having an easily understandable theory of change. He said that,

> [EWIs] give concrete targets that people can work towards, one. And two, the research community has demonstrated how consequential they are, so that you've seen some real reason to do it…. And then I think it's just, it's clear and understandable. You can communicate it to students and teachers quite easily, and I think those things are really helpful. You don't need a whole lot of fancy systems.

The other reason was the alignment between aspects of EWIs and the foundation's strategy for creating Networks for School Improvement. These networks were composed of school support or intermediary organizations that brought middle and high schools together to advance high school graduation and college readiness rates among Black and Latino students in particular. Hughes described it as happening when "a group of schools with intermediaries focus on a problem…, use a common strategy to identify root causes, and create [an] action plan to address that, and then implement that plan through iteration."

Such Networks for School Improvement had a lot of overlaps with the early warning indicator and intervention systems in terms of the role of intermediary organizations, the importance of networks of schools, and the goal of helping graduate students. Thus, philanthropic support came as a consequence of being practicably useful and also aligned with or complementary to the foundation's main initiatives.

At times though, and as seen in other studies, a philanthropic foundation itself can play a role in directing the work of organizations through what they fund and focus on. One example of

this was the funding the Gates Foundation made for the College Readiness Indicator Series (CRIS) that tried to subtly shift the focus from dropout prevention to college readiness. Thus, it was no longer just about graduating students from high schools but about making them ready for gainful postsecondary transitions such going to college or starting their careers. Eli Pristoop was senior program officer at the Gates Foundation, and described how the Foundation had a hand on this but also acknowledged that wider changes were happening as well,

> I think like we are trying to be clear in our work that *the goal was college readiness* and trying to emphasize that and so that kind of became reflected in this series of investments we made called CRIS, C-R-I-S, College Readiness Indicator Series. And the Annenberg Institute at Brown, John Gardner Center [at] Stanford, and the Chicago Consortium [at the University of Chicago] were all involved in that along with New Visions [for Public Schools], Pittsburgh, Dallas [school districts]. (emphasis added)

He highlighted how their aim was to see what on-track work can look like "with a focus on college readiness," and also noted that inasmuch as they had supported this shift, there were also things "happening more broadly in the field" that pushed the work in this direction.

In addition to the power of philanthropic foundations to direct shifts in the focus of organizational priorities, they too can have a unique role in creating the networks of nonprofits, research, and intermediary organizations necessary for the spread of school innovations. In the case of CRIS that started in the early 2010s, the Gates Foundation was able to support research

institutes at Brown, Stanford, and the University of Chicago; three school districts in Dallas, Pittsburgh, and San Jose; and one school support organization in New York City.[16]

Around 10 years after in 2022, the Foundation again convened organizations to further the work of EWIs through the Grad Partnership, which was composed of nine organizations. As was mentioned earlier, it included organizations that had figured prominently in Chicago and Philadelphia like the Network for College Success, and the Talent Development Secondary and the Everyone Graduates Center based at Johns Hopkins University. The Grad Partnership included research organizations like the American Institutes for Research and the National Center for Learning Disabilities as well as foundations like the Carnegie Foundation for the Advancement of Teaching, and the Schott Foundation. It also included other intermediary organizations like the BARR Center and Rural Schools Collaborative, that provided more directed and grounded supports in schools. Eli Pristoop highlighted that the Gates Foundation convened them to "build the field of organizations that… are ready to support schools with [EWI] implementation and develop resources for people trying to do that work."

Kelly McMahon, a senior associate at the Carnegie Foundation for the Advancement of Teaching and the director of the Grad Partnership at the Carnegie Foundation[17], mentioned four drivers for the Grad Partnership. She detailed them as including (1) increasing awareness of these on-track systems, (2) developing tools to support them, (3) building networks and capacities of intermediary organizations, and (4) creating an infrastructure for scaling these practices. Patricia Balana, the managing director of the Grad Partnership, highlighted how each of the four drivers had specific organizations that led it: the BARR Center led the work on awareness; the Everyone

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[16] Jacob Mishook, "Building Capacity for College Readiness Indicator Systems," *Voices in Urban Education* 38 (2013): 2–5.

[17] The Grad Partnership has a managing director, Patricia Balana, who is the director of the Grad Partnership at Johns Hopkins University.

Graduates Center at Johns Hopkins University led the development of resources and tools; the American Institutes of Research helped with recruiting schools and intermediary organizations; and the Carnegie Foundation led the work on creating infrastructures for scaling the effort.

McMahon also mentioned how this systematic and intentional work of bringing together different organizations complemented the early on-track work that "sort of organically has grown." She further noted the important role the Gates Foundation played as,

> The origin story of the Grad Partnership actually starts with the Gates Foundation that decided to try [a different funding approach]. Sometimes the way the Gates Foundation will do funding is that they have a priority; they want to support work in that; and they put a [request for proposal] out in the field. And this was set-up differently, where it was sort of, we know there's this larger problem that we wanna solve around [being] systematic and being more intentional about the growth of on-track work.

Taken together, the web of organizations can be driven organically by researchers and intermediary organizations finding pockets of collaboration, or they may be intentionally driven by philanthropic support for the scaling of their collective efforts. Core to this discussion of the web of organizations was the web itself, and how the web can leverage the individual nodes that themselves were connected to specific schools and school districts. Such connection to specific schools was core to practices being implemented and used as the practices themselves become routinized and institutionally embedded.

Web of Practices and Being Taken-for-Granted

Webbed Routines

At the homepage of the Grad Partnership, an observant reader will notice a subtle change in the reference to EWIs or on-track data systems. In a way, the organizations that had initially promoted these systems were using the term "student success systems" to emphasize the positive aspects of bringing students towards successful postsecondary trajectories. The two decades of research on EWIs and high school dropout predictors have also helped distill core ideas for the specific practices most commonly associated with helping with student success systems. This homepage for Grad Partnership spelled it out into three core facets:

- Research-based, predictive indicators

- School-based analysis and response/action human system

- Shared set of mindsets

Put differently, Robert Balfanz referred to this system as "the combination of the indicators and the tiered interventions…. [and] bring[ing] teams of teachers together." Many individuals in the various organizations had cautioned against thinking about these systems as merely data systems that told schools and teachers which students were at risk. Instead, they were webs of practices and routines that brought together various aspects of just-in-time data systems, teacher teams, and tiered interventions.

These routines are often introduced by organizations outside of the school system, oftentimes resisted because of how they become additional boxes to check off a list of things teachers have to do or reforms they have to be subjected to. But EWI advocates thought differently

in terms of how these systems need to be embedded in the work. Kelly McMahon from the Carnegie Foundation spoke about this problem of schools feeling that they had to add one more thing on their plate. But she also emphasized that "if we get better at knowing what those interventions are… it just becomes the new normal of 'This is just what we do in school'." Jessica Sasko, New Vision's director of career readiness, similarly referred to how their data and intervention system has become normalized when the system was "taken for granted 'cause it just makes sense and then people will think back how [we did] this before having it."

But how does a practice become embedded in the culture so that it becomes a common way of working? Susan Fairchild of both New Visions for Public Schools and the Gates Foundation relayed with enthusiasm how this happened in New Visions schools in New York. Before being a senior program officer at the Gates Foundation, Fairchild was the chief of staff and vice president for knowledge management at New Visions, leading the organization's research on their version of early warning systems. She shared how these routines for continuous improvement were facilitated by "backing" into them through learning routines. She further explained this different perspective as,

> You learned about [continuous] improvement by actually engaging in these big learning routines—Strategic Data Check Ins—that happened at specific, consequential times throughout the school year. In this way, we were embedding continuous improvement into workflows as opposed to leading explicitly with continuous improvement approaches that would feel unfamiliar to a lot of folks during this time. It's just … It's genius.

She credited Mark Dunetz, New Visions' president, for leading with user-design and aligning the work to critical, time-bound decisions school teams were making throughout the school year. According to Fairchild, Dunetz would say that tools and processes are not neutral but communicate values and shape the mindsets of those working in organizations. By privileging routines that shape workflows, New Visions was not explicitly leading with Plan-Do-Study-Act cycles or root cause analyses, core aspects of continuous improvement. Rather, the team at New Visions engaged in Strategic Data Check Ins with school leadership teams.

Strategic Data Check Ins were protocol-driven analysis and planning conversations that aligned to the school calendar. These conversations allowed New Visions staff and school teams to examine progress against goals and to ensure that there was a strategic, coherent, and comprehensive approach to recurring, high stakes planning tasks. Before the start of the school year, New Visions staff and school teams engaged in planning and expectation setting for individual students in the school. With transparent, individualized student plans, the subsequent strategic data check-ins ensured school staff were monitoring progress against those plans at critical touchpoints throughout the year (scheduling into classes, looking at marking period grades throughout the semester, passing state exams). It was, in a way, doing continuous improvement without the label.

Core to this being "taken for granted" was the fact that these routines were subtly added on each other and worked with each other. It was impossible to only have data without teams of teachers needing to talk about them and interventions being made. It was such webbed character that reinforced and created momentum for such routines. Moreover, these routines were embedded within the structures that were already in there in the schools they were in.

The Process of Routinization

Similar to studies documenting the use of EWIs and ninth-grade data systems, school improvement coaches in Chicago, Philadelphia, New York City, and elsewhere had shared that the web of data, relationships, and interventions form the backbone of ninth grade on-track. But what the data did, how relationships helped, and which interventions get used were all, in a way, unique to different schools and organizations. These sources of variations become important as the webs of practices were not set "things to do" but principles to adhere to. Such variations in practices and failures of certain initiatives emphasized even more that practices become authentically integrated in schools.

In California, CORE Districts was one of the organizations working with and in schools to promote ninth grade on-track work. Gina Pascual was a senior improvement coach for three schools in the Oakland Unified School District, and regularly met with each school's assistant principal and a set of about five teachers instructing ninth grade. Part of her work was providing schools data about their students, highlighting how such data were necessary to compel them to action. She noted,

> I have a bunch of data I ask these administrators to give me where I am basically cleaning it and trying to make sense of it because I'm gonna give it to them for two reasons: (1) to compel them, based on their own data; and (2) to try to make them make some goals based on this data, which is like, essentially, their on-track.

Here, data systems were similar to what other schools had. They had attendance data, grades data, and even behavior data. For Pascual, she often focused on making sense of the larger aggregate data but other coaches would drill down as well on the specific students. Pascual also highlighted

an insight into when people were most compelled to act. She said, "I believe that schools are more interested in data that is their own, versus like, 'oh, research shows!'… They respond more when it's their own data." While the data from Chicago or Philadelphia have been systematically researched, she noted that specific data on *their own* students were far more consequential than rigorous studies published in peer-reviewed journals.

One example of this importance of data from within the schools was when Pascual showed a group of ninth-grade teachers a visualization of two of their colleagues being positive outliers in what she called, "some benign metric." Upon working with the teachers, they found that these two teachers—out of the ten teaching that grade—had "make-up days" for students to do work that they were missing or that could improve their performance. Pascual explained that rather than have students opt-in to come in during lunch to do make-up work (not surprisingly, none of the kids went!), they had instituted days and times when all students were asked to do things to make up for what they were missing. And because two teachers had shown positive gains from the practice, the school had subsequently adopted it. Pascual said she learned two things: "that having a visualization is super important, and when it's benign and safe and there are peers doing something that worked for them, and it's in front of everyone, people leap."

This story emphasizes the webbed character of the three aspects of early warning indicators, systems, and interventions. Data were not separate from teams of teachers looking at them, and these two were also connected to the actions and interventions that came out of simple data analysis and collective responsibility. But Gina Pascual also saw that her role meant that the school was able to focus on these EWIs. She spoke about how the district had a sophisticated data system but the school still relied on her analysis of the on-track data, when they say, "Oh, okay, right now, at this point in time, you have this many kids on-track." Using this example, she saw the role of

outside organizations as "bring[ing] a lot of energy to the school… like maintain[ing] the torch for schools." It was, in a way, about infusing routines with the principles that underlie EWI practices.

Yet not all initiatives and interventions flew as well. While she was proud about the adoption of make-up days in the school, Pascual also noted that other initiatives did not get similar enthusiasm. For example, she created a graph that illustrated the percentage of D's and F's by teacher, which she showed to one administrator in one school. However, the administrator "just didn't even act." But even as this did not work, she saw other interventions that did. One was the two-by-ten practice of talking with a student for two minutes over ten days about anything not related to school, which she acknowledged only "affected one kid, whereas make-up day… affects hundreds of kids." Another one was the minimum grading of 50 percent (getting between 0 to 60 percent is usually an F), a policy where no student received a score of zero because this score was difficult to bounce back from it.

Taken together, these examples show that not every intervention or data system was successful but that schools incorporate aspects of EWIs that were important enough for teachers. In the case of "webbed" practices, these were not so much three distinct practices of having data systems, teacher teams, and specific interventions. Rather, webbed practices meant that these new initiatives tied to EWIs were conceptually related with each other and reinforced the interrelated messages regarding the importance of student engagement in ninth grade, the collective responsibility of teachers, and the ability for some form of data to help in the process.

Web of Meanings in Sustaining Institutions

As I have shown, the spread of EWIs started at the meso-level with networks of diverse organizations pushing for closely similar technologies in US schools. This then had to be translated

and reinforced at the micro-level in terms of everyday practices and webs of routines that assisted with its being taken for granted. Such instrumental uses, however, if they were to be sustained, should have a life of their own. In this sense, EWIs should mean something for people at the macro-level. EWIs had to have not just an instrumental value but also a conceptual value for how people—teachers, researchers, philanthropists, and other stakeholders—understand a problem in education.

Here, I draw on the many ways that the same technology—both the technical one and the relational one—had been conceived dynamically through the years. This section attends to the web of meanings people give to EWIs and how such flexibility and dynamism were contributive to its being palatable and shape-shifting. First, I show that the concepts of accountability, intervention, and systems improvement were core ideas that have ebbed and flowed with EWIs. Second, I detail how different organizations have helped in "maturing" the concepts related to EWIs, shifting its language and focus from deficit and intervention to assets and improvement. Third, I show that all these were furthered by the role of trust and evidence in the creation and sustenance of meaning.

Accountability, Intervention, and Systems Improvement

One of the challenges with EWIs having multiple meanings is that people can take the wrong lessons from the initiative. This has motivated Emily Krone Phillips to write about the experience of the University of Chicago Consortium on School Research, where she was previously the communications director. Her book *The Make-or-Break Year: Solving the Dropout Crisis One Ninth-Grader at a Time* looked into how various Chicago organizations initiated EWIs and how schools in the city responded to them, particularly detailing narratives from people and students on the ground. Speaking about the book, she said,

The biggest part of the challenge was that there was just a lot of ways in which you can imagine people would take the wrong lessons from it and just say, "Oh, well, OnTrack works; we just need to do OnTrack!" […] I was very nervous that people were gonna take really bad lessons from what had happened in Chicago and were gonna just put in an indicator, not work on any of the relational aspects, not work on any of the hard work that had happened at schools that stayed involved over time to get better at supporting freshmen, and then they would say, "Oh, well. It just didn't work."

Phillips was scared that school leaders and teachers might think that it was all about the indicators, and that one just needed to improve on those numbers. She highlighted that such perspective had lent itself easily to gaming the system and unceremoniously passing students without any real work.

She highlighted that the logic of accountability was not enough. While different people made sense of the EWI differently, she thought that it was crucial to show how the technology was not only about metrics but about relationships and cultures being transformed through the everyday practices schools and teachers instituted. If others thought of it differently, she mentioned that EWIs "would just be in the big trash heap of reforms that haven't worked."

One dynamic aspect, however, of these EWIs was their shifting focus. In a sense, the understanding of EWIs had also gradually matured as people became comfortable to use them. In our conversation, Phillips said, "In the beginning, it was more of an *accountability strategy*, and it was also, in a lot of places, the work of *one person*, where there would be OnTrack coordinator and they would be running around." These coordinators had to move around the school, keep students on-track, provide tutoring, and monitor students' progress. While the accountability system was helpful, she noted that what was then emphasized was systems improvement. She said,

I think the big shift in Chicago was, over time, … it moved to being a strategy [of] really examining all of the underlying systems and structures that were contributing to supporting or not supporting kids, and helping people iterate over time to keep improving those systems. That's when it became just incredibly powerful.

She furthered this by talking about the experience in one of the schools she was in. It was a story of how Freshman OnTrack started in this Chicago south side school with "one woman who was very heroic in her efforts to try to keep Freshman OnTrack." In the beginning, she was concerned with different students failing and keeping track of all these students. However, when they created teams of teachers to work on supporting freshman students, Phillips noted, "they started recognizing here are the things that are happening across the board that are affecting kids, whether it was our attendance policies or our disciplinary policies, [or] grading policies."
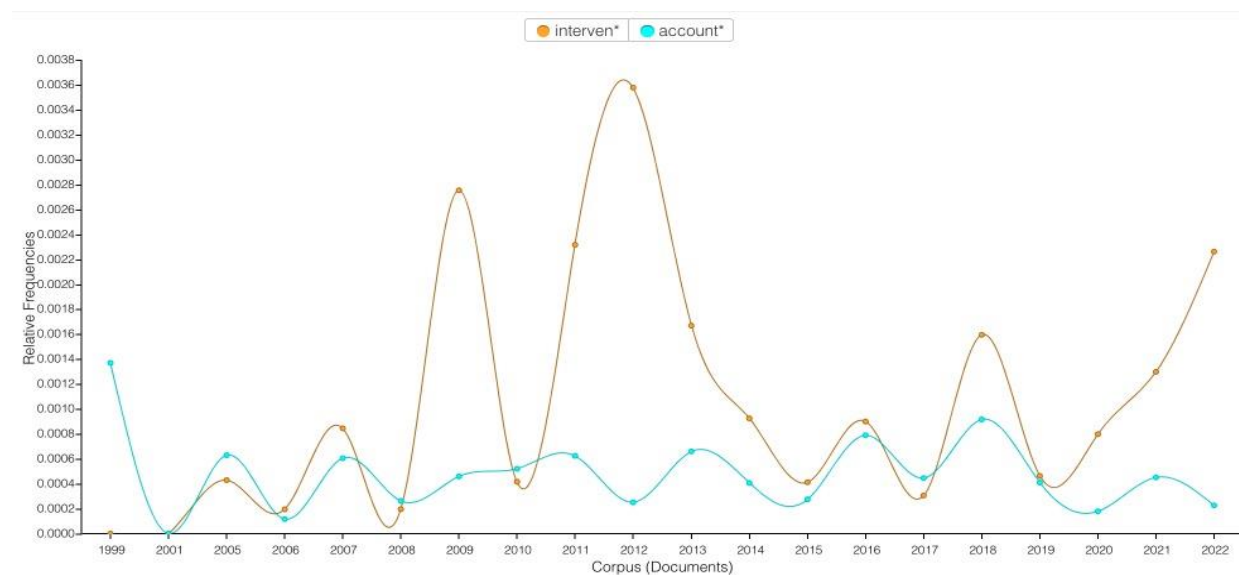

Figure 5.1 Relative Frequency of Words Regarding "Intervention" words and "Accountability" words
Source: 91 documents spanning 1999 to 2022 (2,800 pages)

This idea about narratives was particularly important as the concept of EWIs started spreading to different school districts. Given her work as communications director at the UChicago Consortium where many of these innovations started, Phillips had the task of letting others know of EWIs. In the course of speaking to and working with other people, she documented these districts' responses as "people were really interested in what was happening in Chicago but were also kind of skeptical and unclear about what happened." She noted that people would look at the increasing on-track rates and graduation rates—and poke holes in the data as if the data were always suspect or the people in Chicago had fudged their numbers. Of course, this was no surprise because Chicago after all was, at one point, considered the nation's worst school district by a US education secretary.

But what tipped the needle for Chicago were the countless stories not of effective accountability systems but of different interventions and relational changes that were happening in schools. To test whether such observations were cogent, I compiled documents related to early warning indicators in Philadelphia, Chicago, and New York City during the period of this research from 1999 to 2022. As shown on Figure 5.1, even research had moved away from seeing EWIs as simply a set of accountability metrics, given its higher relative frequencies during the early 2000s, to seeing them as interventions that helped students improve their performance. It was about narratives of supports and teams of teachers working, and not merely about good incentives and accountability policies.

For Phillips, the spread of EWIs was because of these stories. She noted that "when I would start telling stories about individual kids or about teachers or how did it change teachers' mindsets or how did it change the kids' mindsets or how did it change relationships between kids and

teachers, that was what really moved people." Narratives of interventions and support had become core to the message and meaning behind EWIs. And in many documents, the emphasis had been less on accountability systems and more on intervention mechanisms.

As this research documents and as Phillips also noted in our interview, the scale of change had also shifted. When she talked about how schools improved, she noticed that "there are sort of popular accounts of how schools improve, it'll be about one school or one fearless leader or one big personality or one big idea." But for her, school improvement was "messy and iterative and takes a lot of time and doesn't go in a straight line and requires a lot of people pulling in the same direction." Thus, the core idea that has shifted for the spread of this innovation was from focusing on discrete efforts to understanding the improvement of the larger system. It was less about what each school did and more about the larger improvement that included these outside organizations that pushed schools to change.

Shifting Emphases of Early Warning Indicators

The shifts were not just about shifts from accountability to specific interventions to systems improvements. The presence of other organizations and researchers have also led to the maturing of the ideas about EWIs. In particular, there have been greater consideration about the importance of behavioral rather than demographic predictors of dropping out, and a shift from a deficit-language emphasizing "risks" and "warning" to an asset-based language emphasizing "support" and "success." Aside from these, shifts have also come with the change from specific ninth-graders to ninth-grade as a whole as well as the movement from having many discrete indicators to a single one. These shifts and the organizations that have initiated them were key to understanding changes in EWI practices and the logics individuals employed.

One of the first organizations outside Chicago or Philadelphia to nationally take on the work of early warning indicators was the American Institutes for Research (AIR), particularly as they worked in the 2000s with high schools across the United States. Jenny Scala was a principal researcher at AIR who has overseen the implementation of these systems and other efforts at dropout prevention. She noted how early they had become aware of what was happening in Chicago and Philadelphia, and how they used EWIs in their work with schools. She explained, "It started with National High School Center work in 2008 where we were looking at some of the research that was coming out of the Consortium in Chicago, [Robert] Balfanz's work in Philadelphia, and looking at those early warning indicators. And from there we were helping people to better put all their data together to make it be a little bit more user-friendly."

Just as Chicago, Philadelphia, and New York City were creating just-in-time data tools for their respective schools in 2008, the American Institutes for Research was incorporating these technologies and insights as they worked with schools and school districts. Scala detailed that their work consisted of creating the indicators, organizing them, and setting up a process for these to be used in schools. She said,

> The early warning indicator data at that point were really about attendance, course performance, and behavior. So, it's data that the schools already had, but just really kind of [need] organizing it and displaying it in ways that they could then be used to take action [to get] students assigned to interventions and supports. From there, the organization and our colleagues at the High School Center created the seven-step process called Early Warning Intervention and Monitoring System.

Their work had become widespread because of the regional centers and research laboratories they operated, and because of the national scope of their work. Among their tasks included a study to identify the most accurate early warning indicators in three Ohio school districts[18] and provide guidance to district on how to create these indicators and systems to educators in California, Arizona, Nevada and Utah. In a publication in 2015, AIR had documented that it "has provided targeted early warning system implementation support to more than 300 schools, 100 districts, and 12 states and has offered technical assistance to countless others."[19]

In their reports, the research organization often emphasized the seven steps for using EWIs in schools, starting with the establishment of responsibilities for those part of the EWI team in school until the evaluation and refinement of the EWI process. Their reports also highlight the distinction between "early warning indicators" that often use end-of-year markers and "early warning data tools" that identify students who are showing signs of risks for not graduating.[20] These are key distinctions that distinguish the facets of EWIs that are more related to *accountability* such as the indicators and those more related to *identification* such as the data tools—the two logics that are often employed when describing EWIs.[21] In line with this, the organization also endeavored to highlight the distinction of EWIs with other predictive data that may be undesirably used. In an AIR report, Alex Marken and colleagues explained why these EWIs were different from other predictive systems.

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[18] David Stuit et al., *Identifying Early Warning Indicators in Three Ohio School Districts. REL 2016-118* (Washington, DC: Regional Educational Laboratory Midwest, 2016), https://eric.ed.gov/?id=ED566958.

[19] Mindee O'Cummings and Susan Bowles Therriault, *From Accountability to Prevention: Early Warning Systems Put Data to Work for Struggling Students* (Washington, DC: American Institutes for Research, 2015), 31, https://eric.ed.gov/?id=ED576665.

[20] Alex Marken et al., *Early Warning Intervention and Monitoring System Implementation Guide* (Washington, DC: American Institutes for Research, 2020).

[21] Janet A Weiss, "Data for Improvement, Data for Accountability," *Teachers College Record* 114 (2012): 1–7.

It is important to emphasize that students are not identified based on their demographics (e.g., race/ethnicity, gender, status as an English learner) or other unchangeable factors (e.g., students with disability, socioeconomic status, member of a single-parent household). Rather, students are identified for demonstrating one or more mutable early warning indicators (e.g., attendance rate, inappropriate behaviors, or poor course performance).[22]

In this quote, researchers at AIR were aware about the potential fears or downsides with predictive indicators that could help identify students in need or stigmatize them for needing help. Across research published by AIR, the University of Chicago Consortium, and Johns Hopkins' Center for the Social Organization of Schools, they often highlighted how their indicators were predictive even as they controlled for key demographic variables such as race/ethnicity and socioeconomic status. These reports emphasized the need for them to distinguish and to shift the idea of identification of risks to more behavioral indicators rather than immutable demographic factors.

In line with this distinction, Scala emphasized the importance of reframing data in the spread of EWIs because none of those data were really new data. For her and other researchers at the American Institutes for Research, the core element of the change was about the "usability" of data in order for it not just to live in student information systems but to bring about targeted conversations, interpretations, and interventions.

Another facet of reframing that Scala found was how researchers have tended to move away from deficit language emphasizing risks and warnings, and give more attention to more proactive language emphasizing success and attainment. She said,

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[22] Marken et al., *Early Warning Intervention and Monitoring System Implementation Guide*, 1.
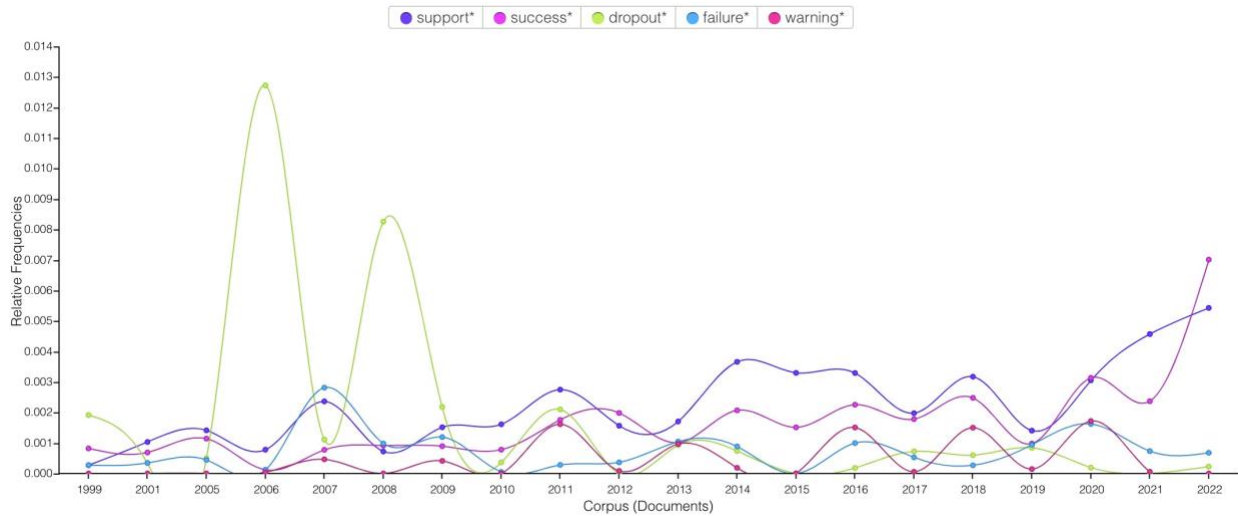
Figure 5.2 Relative Frequency of Words Regarding Deficit and Asset-based Language
Source: 91 documents spanning 1999 to 2022 (2,800 pages)

> In some ways, I see the language shifting *from* "early warning systems" and "early warning indicators" *to* "success indicators." Rather than being a… deficit language which is how this work started in terms of those early warning system-type language, [it has moved from] being more of a deficit- to really being more asset-based.

Similar to the previous figure that used data from documents between 1999 and 2022, I tried to compare whether the relative frequency of asset-based words like "success" and "support" have become more prevalent than deficit-based words like "dropout," "failure," and "warning." Figure 5.2 shows that words like dropout and failure obtained a larger percentage in the earlier years like before 2009 and that more recently, the words that had a larger share since 2014 were words related to positive asset-based ideas about success and supports.

While on-track early *warning* indicators were still used to identify students "at risk" of being off-track, the logic and rationale of identification had been less about preventing failure and more about bringing about student success. More broadly, some of my informants detailed that the

most important things EWIs tell teachers were not so much who particularly had a problem but that, first, the ninth-grade experience was important and, second, educators could do a whole lot of things when they have a simple enough indicator to alert them. Being one of the researchers at the start of the work in Philadelphia in the early 2000s, Ruth Neild mentioned that these were the two things that often got "forgotten about or misunderstood with EWIs."

First, EWIs were a means of alerting teachers about how critical their work was, particularly those who work with students transitioning to ninth grade. It was less about specific ninth-graders and more about the larger efforts at helping improve this transition period at ninth-grade. Neild said,

> EWIs are, to some extent, a consciousness-raising device for staff and for teachers and for administrators. And I think it's with that awareness of the importance of the ninth-grade year and also that there's a way in which not succeeding in earning credits or not coming to school regularly or whatever… like, there's a way in which that is quite a good predictor of who is not going to complete high school. It tells you that it's not mysterious.

It was a shift from thinking about dropping out as a mysterious and intractable problem to one that can be addressed at a particular point in time.

Second, EWIs highlighted the importance of a parsimonious data that intuitively provided a sense of which students were more or less likely to graduate. In a period of big data and advanced algorithms, it was quite interesting that these EWIs relied still on very simple school data of attendance, behavior, and course performance. But such simplicity of EWIs may be more of a boon than a bane as Neild expressed an ode to simple data,

In a way, schools are overwhelmed with data. And so, the question was, "What are a couple

of things that we need to look at?" Like… I cannot look at 25 data points all the time and

know which ones are the most important. And so, what I think one of the values of early

warning indicators is [that] it's not really hard to understand and it's a couple of data points

that really bring a conversation about what could be different things going on.

These ideas express shifts in what is considered salient about EWIs. There was a shift from

demographic to behavioral indicators, from deficit language of warning and risks to asset-based

language of success and support, from specific ninth-graders to the entire ninth-grade year, as well

as from large numbers of indicators to parsimonious metrics that provide an intuitive sense of

whether students are on-track or off-track.

As the work of EWIs have spread throughout the United States, ideas about them have also

moved and shifted. Organizations like the American Institutes for Research have at times added,

reinforced, or expanded original conceptions about EWIs from the researchers and organizations

that initiated them in Chicago, Philadelphia, and New York City. In a way, the webs of meaning

about EWIs have widened because of the contribution of this and other organizations.

Evidence and Trust

A key theme that has emerged as people explained why EWIs have spread across different schools

and various school districts in the United States was the trust people had regarding the indicators.

In places where EWIs took root and took off, these indicators were trusted by different stakeholders,

whether these were district officials, philanthropists, or school staff. However, places that were

more resistant were particularly so because the sense of trust was inchoately cultivated. In this section, I highlight how evidence and trust were critical in the dynamic web of meanings that people had for EWIs. In particular, I rely on the accounts of respected experts who were familiar with the work of EWIs in the cities but were not necessarily part of them.

One key factor for the trust that a lot of individuals had on EWIs was due to the evidence base it employed to show the predictiveness of the indicators and the actionable efforts that can arise from such indicators. Robert Schwartz was a Professor Emeritus of Practice at the Harvard Graduate School of Education, and had been involved in many school improvement and charitable organizations focusing on public-private partnerships and the transition from school to work. His embeddedness in the school improvement industry provided him a larger vista to view school improvement efforts that have scaled. For him, EWIs were unique in that they produced such important results with evidence to back them. In our conversation, Schwartz mentioned,

> We have so few examples of interventions that have been well-documented and that produce results. Once you show people the data, and you say that this is a powerful predictor we have of high school graduation…, once you put it in front of people, it makes common sense. And it does say, "Here's a place if we really intervene, it seems to have longer-term effects, at least effects that sustain themselves through the completion of high school."

In a sense, the robust research and changes that were happening in Chicago, Philadelphia, and to an extent, New York City, were crucial in getting individuals to trust the potential of this activity.

Sarah Duncan from the Network for College Success also spoke about the importance of the evidence that helps these programs scale. She noted,

> Having Chicago as the "worst school district in America" be able to improve student performance, I think it attracted attention. If we had done this in a wealthy suburb, it would have been a lot less interesting. But we're in the third largest school district [in the United States], a huge disproportionate poverty rate, pretty low-achieving, and if we could do it, it's like, "Well, [others can do something too]…"

Similar narratives were used in explaining the dropout problem in Philadelphia and New York City, and the potential for a set of metrics to bring about important changes in something as consequential as preventing dropouts in high school.

But it was not just about trust in cold evidence. It was also about trust that specific stakeholders like district leaders and teachers have of the organizations they were partnering with. Robert Schwartz spoke about a thought experiment if the UChicago Consortium were not connected to the school system and were instead just "coming up with this finding, and then trying to convince a school system with whom they have not real relationship other than getting them to open doors for research." He explained that much of the positive consequences came from the Consortium being primarily "stakeholder-driven" and their engaging not so much with other researchers but those who are on the ground, working to improve the conditions of schools and students.

Relationships impact the meaning people give to programs and technologies like EWIs. Not only was this apparent for those in schools and school systems but also for those agencies that

funded them. The Gates Foundation was among the large organizations that funded this work, starting with the Freshman OnTrack Labs in Chicago and subsequently the efforts to spread this nationally. Dave Ferrero was a former senior program officer at the Gates Foundation, and detailed that their support for EWIs was both because of the compelling evidence of this effort as well as the personal credibility of the people who were undertaking the research. He said,

> There was enough compelling research that said, you know, the ninth-grade transition was tough – that you lost a lot of kids in that eighth and ninth grade transition point. And if you could figure out, which kids were most at risk in that ninth grade year, you could reduce dropout rates… So, let's face it, right? Melissa [Roderick] and John [Easton], and those other folks over at Chicago were not only very persuasive but they're very smart, right? And I know they gained credibility with me very quickly…. So, we made a grant to say, "Let's see if you guys can make it happen."

It was a belief in the evidence of the metrics and the trustworthiness of the people who initiated them. It was trust that was crucial in bringing about meaning regarding EWIs.

Trust, in this sense, did not just depend on how good the evidence was but also on how relational strategies were employed to engage people on the ground. Jennifer Bell-Ellwanger was a previous executive director of research at the New York City Department of Education who subsequently moved to Baltimore City where she was chief of achievement and accountability. In our conversation, she mentioned the story of how chronic absenteeism in the district was as high as 30 to 40 percent of students being chronically absent. Thus, the district started creating dashboards not too far off from the early warning indicators that have red, yellow, and green to

indicate the level of chronic absence. For all intents and purposes, its logic was similar to EWIs in Chicago or Philadelphia although this one was primarily focused on student absences. Despite the promising idea from a strong evidence base, Bell-Ellwanger lamented that it did not go as they had hoped it to, saying,

> It was not very well received by the principals because we didn't take the time to explain what chronic absence meant on longer-term outcomes and we also had a lot of pushback about the data itself: Was it correct? How was it being coded? We needed to really take a step back and help our school leaders correctly look at attendance like who are they recording absent, what was happening there, and were they taking daily attendance….

> You can see how if you roll it out too soon, you can get a lot of pushback because you have not brought your school leaders along with it, you've kind of dumped a problem on their hands, and they have questions about the quality of the data and they don't necessarily trust it because they have those questions. So, *you have to build the trust first in the data*, get them to ask the questions that they're seeing with it, tackle the implementation issues, and then you can start [seeing change].

In these different ways of making sense of data, a key theme was the importance of trust in changing the web of meaning people have for EWIs. In the following examples, trust was not just evidential but also relational. One did not just trust cold data; one needed in a way to trust warm people. It was for this reason that webs of meanings only come about with the webs of organizations and individuals that push forth ideas and narratives about EWIs.

Chapter 6

Webs of Improvement in Schools' Use of Early Warning Indicators

The theorizing for the *urban spread of school innovation* has so far depended on the efforts, actions, intentions, and perceptions of outside organizations. These research, philanthropic, and nonprofit organizations connected with central school districts have relied on a variety of strategies like macro-level change of meanings, meso-level networks of organizations, and micro-level attempts to change organizational routines. However, the initiative of these organizations is ultimately implemented by school teachers and leaders on the ground. If ninth grade early warning indicators (EWIs) were to have an impact on the developmental trajectories of youths—particularly racially minoritized, economically disadvantaged, urban school students—such innovations should be understood as well from the perspective of those on the ground.

This chapter assesses how the strategic work of outside organizations in spreading EWIs have been adopted and adapted by schools. On the one hand, the chapter provides a way of evaluating how the macro-, meso-, and micro-level strategies have successfully or unsuccessfully permeated the work inside schools. It aims to help assess the theory on *webs of improvement* (detailed from Chapters 2 to 4), particularly as they are experienced in schools. On the other hand, the chapter also provides a healthy balance to the perspective of researchers, coaches, district leaders, and philanthropists who are often not at the frontlines of the education enterprise. By creating a space for such voices, the perspectives in the previous chapters can be corroborated, challenged, or nuanced in light of the grounded experiences of those who ultimately implemented the policy and innovation.

This chapter draws on interviews with individuals who were tasked with implementing EWIs: principals, assistant principals, teachers, counselors, and social workers. These twenty-two interviews were done between 2015 and 2017, and they illustrated how EWIs were being implemented in six Chicago schools. I was able to obtain these through the original researchers from the University of Chicago Consortium on School Research who have not yet published research from these data. These historical interviews were important since they were during a time when EWIs were being institutionalized within school contexts. They provided a window to understand how schools were adapting and changing because of the introduction of these data systems and organizational processes. But even with these opportunities, I am also aware of the limitations with relying on interviews done by other researchers and done during a particular period of time. Nonetheless, given limitations to accessing schools due to the COVID-19 pandemic, these interviews are among the best alternatives.

The six schools were originally chosen for their demographic and geographic diversity. Three schools were in the south side of the city serving predominantly African American students, two were in the west side of the city serving predominantly Hispanic students, and one was in the north side of the city serving a racially diverse student body with 40 percent Hispanics and less than 30 percent each of African American and Whites. One similarity across all the schools was the relatively high on-track rates as many of the schools had Freshman OnTrack rates between 75 and 93 percent during the time they were interviewed. Despite this similarity, however, the various schools had instituted different ways of improving freshman experiences.

To make sense of the variety of strategies, practices, policies, and interventions, I apply and appropriate the three webs of improvement from the previous chapters. First, even if schools emphasized various aspects of EWIs, there were three key aspects that formed the base of the *web*

of meanings for making sense of EWIs: time, heterogeneity, and technology. Second, schools highlighted similar practices as outside organizations and they have adapted their own *web of routines* for using data, forming teacher teams, and implementing interventions. Third, the webs of organizational relationships were not simply limited to outside organizations being connected as schools had themselves become hubs for the *web of extra-organizational pressures and supports,* coming either from the central district or private providers of tutoring, mentorship, coaching, and school improvement. Finally, the last section highlights *adaptations and unintended practices* of EWIs as they were being implemented in schools.

Web of Meanings in EWIs' Thick Theory of Change

A recurring theme in the interviews was how schools constantly referred back to certain components of Freshman OnTrack: the importance of ninth grade (*time*), the variety of needed student supports (*heterogeneity*), and the uses for data (*technology*). One assistant principal credited the success of Freshman OnTrack to "having a clear theory of action." Partly, this was because of a research organization that consistently referred to and explained this initiative. Partly, this was because of the resonance this initiative had with educators.

Much of the early work on Freshman OnTrack was done by the University of Chicago Consortium on School Research, particularly with research showing that students' performance at ninth grade was an important predictor of subsequent graduation.[1] In interviews with these researchers, they highlighted how Chicago students move from Grade K-8 schools to Grade 9-12 high schools, a key transition where previously students did not feel wholly supported. John Easton, former director of the Consortium, also spoke about the importance of just-in-time data, with

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[1] Allensworth, "The Use of Ninth-Grade Early Warning Indicators to Improve Chicago Schools," January 2013; Allensworth and Easton, *The On-Track Indicator as a Predictor of High School Graduation*.

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"reports every five weeks on kids' attendance and grades." Elaine Allensworth, the director of the Consortium, said that on-track rates increased with the inclusion of these new data and school practices, but "it didn't improve [simply] with accountability."

What these ideas from researchers like John Easton and Elaine Allensworth highlight is the importance of what Jal Mehta called a *thick theory of change*.[2] In contrast to a thin theory of change like accountability, which assumes that mere information and incentives can lead to instructional changes, a thick theory of change incorporates organizational processes and supports in thinking about school transformations. In the case of EWIs, change did not happen when the district included Freshman OnTrack rates in the school accountability metric. Rather, researchers attributed change to school's attention to temporality, heterogeneity, and technology.

Time was a crucial aspect of Freshman OnTrack. On one hand, teachers shared about the importance of the ninth grade year as a time of educational and developmental transitions for students. On the other hand, they also spoke about the need for timeliness in catching students before they fall off-track. One social studies teacher mentioned that elementary school is so different from high school, saying,

> A lot of times, we forget that students were at one point in eighth grade lining up to go to the bathroom… Elementary schools were still pretty structured in terms of seeing very similar faces, a lot of times seeing the same teachers for two content areas at a time. I think the general responsibility is to just support the transition, especially… in terms of getting students acclimated to expectations of high school academically, behaviorally, and socially.

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[2] Jal Mehta, *The Allure of Order: High Hopes, Dashed Expectations, and the Troubled Quest to Remake American Schooling* (New York, NY: Oxford University Press, 2013).

Many others raised different reasons for the importance of ninth grade transition such as students coming in contact with multiple teachers, writing longer essays, being exposed to more homework, and just lacking organizational skills. What Freshman OnTrack did was to highlight the fact that the ninth grade was an important time for interventions and supports to happen.

Heterogeneity among students was another core facet of EWIs' theory of change. Students come with different experiences and need different forms of supports. For example, freshman teachers from Freeport High (a pseudonym) meet as a team to go over student lists to speak about students they can support. Some teachers highlighted that certain students were not good at taking tests, some explained that certain students were chronically absent, and while others said that a group of students did not have the requisite skills. A principal from another school mentioned that many of the students they focused on were those who aged out of elementary schools, saying, "out of 165 ninth graders, we had about 42 freshmen who came in and they were just overaged." Across different schools, teachers spoke not only about the importance of ninth grade but also about supporting those who could "fall through the cracks." Teachers and school staff had noted that Freshman OnTrack highlighted the variety of students' experiences and the need to attend to these differences in order to help bring about positive changes.

Technology through on-time data systems was the third core component aimed at addressing this variety more concretely. Teachers, counselors, and school coaches emphasized the importance of data not only for identifying students but also for identifying teacher practices. In terms of identifying students, a counselor from Merrick High spoke about the different reports they received to help them focus on students or groups of students. She said,

At the beginning of the year… some students are flagged that they're coming in with some low scores from eighth grade…. As the first part of the year progresses, I get information from teachers.

The same counselor also noted that such data systems were not only meant to identify students but also identify teachers. She highlighted how the teachers "try to look at the students that have two to three or more failures and see… if one of the teachers is having success." As this group of educators have identified a teacher, they ask him or her, "What are you doing that's working?" In this way, they can maximize the use of the just-in-time data.

Interviews across school actors illustrate similarities in meaning-making regarding ninth grade's *temporal* importance and the need to understand students' *variety* through information *technology*. What was emphasized was not set programs but shared beliefs that drew on a thick understanding of school change. What teachers and school leaders highlighted was less about specific practices that needed to be faithfully implemented but general principles that needed to resonate with the people implementing the changes. In this sense, the web of meanings found a home in the meaning-making of the individuals implementing EWIs.

Web of Routines: Data, Teacher Teams, and Interventions

Outside organizations have highlighted the importance of just-in-time data, teacher teams, and multi-tiered interventions. These school improvement organizations have also highlighted the resistance these components experienced as they were being introduced in the schools. In interviews with school staff, they emphasized themes regarding these routines and resistance to

them. However, what was also crucial was the *organizational adaptations* that happened in order to address initial resistance.

How Data Were Used. When EWIs were introduced in Chicago, it started out as an accountability metric to help schools focus on improving ninth grade experience. It then gradually incorporated just-in-time data tools that helped identify students and teachers. During early phases of EWIs' introduction, individuals were concerned that this form of accountability can lead to gaming numbers or outright cheating. Specifically, they feared that schools would unscrupulously pass students to improve their on-track rates and numbers. One biology teacher encapsulated this concern as, "When I started teaching, my big concern was 'Okay, well if we want the Freshman OnTrack rate to look good, I feel like this could be down a slippery slope to just passing all of these kids.'" This was concerning since teachers who may feel pressured to increase on-track rates could easily move a student from failing to passing by lowering their standards. While none of the schools interviewed had experienced or talked about these pressures to change grades just to improve on-track rates, the fear helped push for changes and adaptations in how early warning data could be used.

In 2008, Chicago Public Schools' central district office created data reports every five weeks that showed ninth graders' on-track status according to their current course grades. In the years following the introduction of just-in-time data, schools have instituted various processes with looking at the various sources of data. Some teachers referred to their individual Gradebook, some used the five-week Dashboard to see summaries, while others created their own lists of students who have Ds and Fs. One principal shared their process as,

We do the Gradebook every week; we do the Dashboard at least once a quarter and then sometimes more. And so, that's kind of the hard, quantitative Freshman OnTrack data, but like the other data that come in daily [are] emails from teachers about freshman students.

These student-focused data are often used to more accurately identify students in need of support. While the data confirmed students that were obviously in trouble, one of the more important uses of the data was identifying students who may be under the radar or who don't exhibit tell-tale signs of failure. A principal from a different school mentioned that back when they did not yet have these early warning data they tended to focus on "the kids that have four or five F's" to the detriment of "the ones that have one F or two F's [that] would fall through the cracks." Thus, the just-in-time data was leading schools to catch students they would not have been able to attend to because they did not exhibit obvious or identifiable challenges.

Adaptations had to be done, however, since there was the problem of incomplete data. If teachers were unable to input data on time, these data were often useless for identifying students. One social worker said, "I think that some teachers don't [enter grades on time], you know, 'cause I get a lot of complaints from the kids, and those who are interested in their grades will check their student portal almost daily." A social studies teacher confirmed this observation saying, "I don't enter grades in Gradebook every week, or whatever… When the big performance task comes about, that's when it gets entered in electronically in Gradebook." Thus, even if data might be useful, its efficacy could be reduced by the actions or inactions of teachers.

Because of this problem of incomplete or delayed data, some schools had to adapt by instituting policies of how many grades teachers are required to input into the student portal. In one school, the principal created a policy requiring teachers to input two grades every week, saying,

Our policy is two substantial grades per week. So, a substantial grade would mean like if you're working on comparing-and-contrasting information from two informational texts, you have one piece of classwork on that skill, and an accompanying end-of-the-week quiz on that skill, so [that's] two substantial grades per week as the minimum.

As one interviewer mentioned, other adaptations that had to be done included the district coordinating with the Chicago Teachers' Union to negotiate teachers inputting grades every five weeks in order for the five-week on-track data to at least be meaningful.

How Teacher Teams Functioned. Teams of ninth grade teachers started meeting together to understand the experiences of students and this was crucial for the success of EWIs. In interviews with schools, they mentioned how they would meet to discuss students and supports for them. One freshman English teacher said,

We are also really good with just keeping a core group of freshman anchor teachers… And so, when we have grade level meetings, where all those teachers come together, umm, and we just kinda talk about like routines and supports that we have in place for students… Just allowing that collaborative time, [it] just really, really helps, because everybody is on the same page about the needs of that particular class.

Across different schools, many had emphasized this shift from just speaking to teachers of the same subject to teachers of different subjects supporting the same cohort of students.

Although teachers saw the importance of these teacher team meetings, they were limited by concerns about not having enough time to meet with each other. For some, they did not have enough time given the very demands of teaching while for others, they did not have enough *common time* for people to speak with each other. Here again was a space for adaptation for schools to incorporate these team meetings in addition to the many others they were already doing.

While different schools had differing ways of allocating time for freshmen team meetings, at least one place had to have a union vote for it. The assistant principal in the school said the teachers "literally had a union vote to say that on these 'flex' days, where we're asking them to look at the on-track metrics, to come in early on these day." More importantly, the union vote to meet early for specific times of the month to discuss freshman students included a discussion of compensation for such service.

In other schools that did not require such a formal process, the principals had to creatively adapt when their freshman teams were scheduled to meet. For some, the work-around was having weekly meetings when most freshman teachers had a time blocked for this specific meeting. In one school where teachers were allocated preparation periods, the principal was able to use "three… preparation periods during the week" and some of these were intended either for department or grade level meetings. These examples show how much organizations had to adapt to accommodate these new practices like teacher team meetings.

How Interventions Were Used. The ability to identify students "at risk" had led to various interventions, many of them done outside the classroom. Thus, the interventions were not strictly instructional in the sense that they were not primarily focused on the pedagogical or curricular matter inside the classroom. Rather, the interventions were about *case management* for particular

mediations that can be done for specific students outside the classroom. For example, a number of schools would call the families of students who were chronically absent. This, however, was limited because teachers did not know who had already reached out to a specific student or parent. In order to facilitate these meetings better, one school had a system to track all the calls towards a student's parent. One math teacher said,

> So now, yes, teachers have been calling parents…. Meeting with parents is now documented in a way that we all can see what is happening…. To have one central location... having it all in one central place where I can see all the teacher's calls for this one kid, it is, it's very powerful.

While conflicts in terms of calling responsibility could have easily led to teachers giving up on the practice, the schools adapted the practice by having a unified log of calls.

Providing tutoring and make-up periods were also key ways for schools to incorporate EWI interventions. Some school had "Freshman Lunchbox program" where specific students worked with teachers during lunch to make sure they are able to make up for their homework. One freshman teacher described it as, "If you're failing your English class or your lit class, you would go to Freshman Lunchbox for 30 minutes to get any make-up assignments or sit there and receive tutoring. All the freshman English teachers… will generally be in the room or someone will be in the room that can help them with any assignments they're missing." Other schools mentioned that they had outside organizations help with tutoring and mentoring like City Year, Gear Up, and Saga Education. Such may then be considered adaptations as schools outsource these interventions to organizations outside of them.

Finally, some schools knowing that certain students needed more intensive supports had credit recovery in the form of night schools and summer schools. For students who failed classes or need specific credits to graduate, the Chicago Public Schools offer these credit recovery programs at specific schools. One school principal highlighted their school's participation in both night and summer credit recovery programs, saying,

> We have night school and we sign up those kids. It was just really great, because, you know, it's so hard for the kids to travel from here. And it's a long day! So, we have a credit recovery here and we're gonna have summer school here. And they would cover those credits as soon as possible…. In the past, we would have a kid who failed algebra and wouldn't be taking it until senior year. Now, we're right on 'em, you know, you failed algebra, you go to night school, you go to summer school, and you get credits.

These credit recovery programs were available for various subjects including English, science, mathematics, social studies, world languages, and fine arts. The creation of these credit recovery classes hints at the adaptations that were created in order to help more students stay on-track to graduate. It was not as if all instruction was much better and that relationships magically improved; it was the fact that schools adapted practices to bring about more students to be on track.

A core theme in what was happening inside schools with the introduction of EWIs was that schools had to adapt and contextualize the practices initiated by outside organizations. While research and school support organizations provided principles in the use of data, teacher teams, and tiered interventions, how these actually happened on the ground depended on the needs of these communities, the different forms of resistance they had, and their organizational adaptations.

Webs of Extra-Organizational Pressures and Supports

Chicago's school report cards did not depend on one single number since it included metrics like on-track rate, graduation rate, and standardized test scores. In fact, the Freshman OnTrack metric constituted only 10 percent of the high school's accountability system.[3] As more measures were included in the school's "report card," the Freshman OnTrack metric was considered to be in a sweet spot of accountability. It was enough accountability to get people to focus on it but not too much to make people cheat. One social studies teacher noted how this balance was crucial, saying,

> I think if you jammed [Freshman OnTrack] down teachers' throats, that "You have to pass these kids," you are going to like, you render yourself almost ineffective as a principal…. At my old school, there was a ton of resentment around it because it was so jammed down our throats, people breathe down our neck: if we didn't follow the intervention trick, we got in trouble. It was way too much and not enough like, we got your back, but we have certain metrics we wanna hit too.

One can interpret this as the adaptation of accountability systems, which had then previously relied on single numbers like passing rates or standardized test scores. By having a more expansive definition of accountability and by incorporating different criteria, the school district had created a system that was arguably less prone to gaming (see Figure 6.1).

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[3] Chicago Public Schools Department of School Quality Measurement and Research, *School Quality Rating Policy (SQRP) Handbook: Guide to the Policy, Indicators, and Ratings* (Chicago, IL: Author, 2019), https://www.cps.edu/globalassets/cps-pages/about-cps/district-data/metrics/school-quality-rating-policy-sqrp/sqrp-handbook.pdf.

High School Performance Indicators

High School Performance Indicator	5 points	4 points	3 points	2 points	1 point
11th Grade SAT 3-Year Cohort Growth	90th percentile or higher	Between 70th and 89th percentile	Between 40th and 69th percentile	Between 10th and 39th percentile	Below 10th percentile
Priority Group 11th Grade SAT Growth (evaluated separately for African-American students, Hispanic students, English Learners (ELs), and Diverse Learners)*	70th percentile or higher	Between 50th and 69th percentile	Between 30th and 49th percentile	Between 10th and 29th percentile	Less than 10th percentile
11th Grade SAT Annual Growth	90th percentile or higher	Between 70th and 89th percentile	Between 40th and 69th percentile	Between 10th and 39th percentile	Below 10th percentile
10th Grade PSAT Annual Growth	90th percentile or higher	Between 70th and 89th percentile	Between 40th and 69th percentile	Between 10th and 39th percentile	Below 10th percentile
9th Grade PSAT 1-Year Cohort Growth	90th percentile or higher	Between 70th and 89th percentile	Between 40th and 69th percentile	Between 10th and 39th percentile	Below 10th percentile
Percent of Students Meeting College Readiness Benchmarks on PSAT/SAT	80% or higher	Between 60% and 79.9%	Between 40% and 59.9%	Between 20% and 39.9%	Less than 20%
Average Daily Attendance Rate (Grades 9-12)	95% or higher	Between 90% and 94.9%	Between 85% and 89.9%	Between 80% and 84.9%	Less than 80%
Freshman On-Track Rate	90% or higher	Between 80% and 89.9%	Between 70% and 79.9%	Between 60% and 69.9%	Less than 60%
1-Year Dropout Rate	2% or below	Between 2.1% and 4%	Between 4.1% and 6%	Between 6.1% and 8%	More than 8%
4-year Cohort Graduation Rate	85% or higher	Between 75% and 84.9%	Between 65% and 74.9%	Between 55% and 64.9%	Less than 55%
Percent of Graduates Earning a 3+ on an AP Exam, a 4+ on an IB Exam, an Approved Early College Credit and/or an Approved Career Credential	40% or higher	Between 30% and 39.9%	Between 20% and 29.9%	Between 10% and 19.9%	Less than 10%
College Enrollment Rate	75% or higher	Between 65% and 74.9%	Between 55% and 64.9%	Between 45% and 54.9%	Less than 45%
College Persistence Rate	85% or higher	Between 75% and 84.9%	Between 65% and 74.9%	Between 55% and 64.9%	Less than 55%
My Voice, My School 5 Essentials Survey	Well Organized	Organized	Moderately Organized	Partially Organized	Not Yet Organized
Data Quality Index Score	99% or higher	Between 95% and 98.9%	Between 90% and 94.9%	Between 85% and 89.9%	Less than 85%

Figure 6.1: Chicago Public Schools High School Accountability System
Source: School Quality Rating Policy (SQRP) Handbook: Guide to the Policy, Indicators, and Ratings (Department of School Quality Measurement and Research, 2019)

Another crucial factor that supported Freshman OnTrack was the presence of various organizations outside schools. In interviews with schoolteachers and principals, they emphasized the work of organizations like *City Year* that provided mentors to help students stay on-track, *Saga Education* and *GEAR UP* that provided in-school tutoring, and the *Network for College Success*

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that provided school coaches and data analytic expertise to help school leaders and teachers focus on improving on-track systems. One assistant principal mentioned the role of organizations, saying,

> The good thing about having GEAR UP is they just help in so many ways, but one of the great things is, they are here to tutor students inside classrooms or in pullout situations, during lunch… And because the GEAR UP staff is sort of college aged, they're a nice sort of step between the age of the teachers and the age of the students, so they really feel opened up to work with them.

A principal in another school said that the organization would "send tutors to Saturday School, they allow freshmen who are struggling in class… So as an organization, GEAR UP has been very, very influential. They know our off-track kids very well." The additional resources and supports provided by these organizations have not only helped schools but have ensured that EWIs were sustained amidst skepticism and resistance.

At times though, the supports of these organizations were directed not so much to students but to teachers and school staff. Describing one of the organizations their school worked with, one principal said the "Network for College Success at University of Chicago really supported post-secondary team, really supported instructional leadership team. [It] has done a lot of work to support literacy here, more so in terms of developing the capacity of adults, not on the ground as much." Others recounted how they were assisted with their teacher teams and data management because of this organization, which had figured prominently in the story of EWIs in Chicago.

Thus, the webs of organizations and supports were crucial aspects, not just for the spread of innovations across schools but also within schools. The presence of these organizations had

ensured that EWIs was something the school felt it was able to incorporate into their daily routines and something teachers felt supported with doing—either through outside organizations to whom interventions can be outsourced or organizations that can support their professional capacity and development to use EWIs themselves.

Adaptations and Unintended Practices

In schools, the teachers, counselors, and principals were also creating webs of meanings, routines, and interorganizational connections. But these webs were adapted and at times were far from the idealized images that policymakers want or outside organizations envision. In particular, schools encountered opposition to *accountability regimes*, problems with *incomplete data*, creation of *performative data rituals*, and *resistance* to changing school practices.

Some schools and teachers had reservations and resisted this focus on accountability because it may be taken to a narrowly conceived extreme. Since on-track rates were computed by the number of students who had no more than one semester of a failed subject, some feared that accountability would lead to students being unscrupulously passed. A social studies teacher recalled how in their previous school, there was "huge resistance, huge resentment from faculty… anytime it was getting close to the semester, like *teachers would be pissed* (emphasis in the original)." Similarly, an assistant principal from another high school shared that, "it's definitely the teachers' fear that… they're gonna be pressured to… pass students so that you get the metric." Like other systems of quantification and accountability, pressures can corrupt the social behavior being measured when the metric becomes the goal.[4]

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[4] Campbell, "Assessing the Impact of Planned Social Change"; Hanley Chiang, "How Accountability Pressure on Failing Schools Affects Student Achievement," *Journal of Public Economics* 93, no. 9 (October 1, 2009): 1045–57, https://doi.org/10.1016/j.jpubeco.2009.06.002.

While data were thought to be a crucial aspect of EWIs, schools were often limited by the data inputted by teachers. In some schools, the effectiveness of Freshman OnTrack was limited by the data teachers entered or did not enter. One social worker said, "I think that some teachers don't [enter grades on time], you know, 'cause I get a lot of complaints from the kids, and those who are interested in their grades will check their student portal almost daily." Another social studies teacher coming from a different school confirmed that they did not necessarily enter grades every week. In this way, the effectiveness of the data was limited by the actions and inactions of teachers—leading to merely ceremonial use of data.

Another way that data took on a more performative role was not necessarily when data weren't used but when data were still used even if all were apparent and in order. An arts teacher detailed how their school had continued with these data-focused processes even when it seemed no longer necessary, saying,

> One thing that is like a little bit frustrating now is we've gotten so good at Freshman OnTrack that I feel like now, when we're in these meetings, it's kind of like beating our heads against the wall, like we feel we already have a lot of strategies that work.

Yes, the teachers used the data. But they used the data the same way they did when on-track rates were low. The arts teachers said that their Freshman OnTrack rate was already 97 percent, and that sweating over the remaining three percent felt like "beating our heads against the wall." Data-focused practices then became so institutionalized that they took on a performative function even if they started out with having a practical function.

Finally, teachers were resistant to particular concessions or changes in practice because of EWIs. One school's counselor shared that teachers resist by saying that "This is how I do it, and you know, I'm an honors teacher." The counselor added that, "I get resistance [when I say] that before you can teach them anything, you have to handle the social-emotional status." Creating different tiers of supports and instruction can be difficult in the context of so many students struggling—making teachers feel unable to address these issues or resistant to these changes. But the school's counselor shared that through time, many teachers initially resistant now "come on board and… change teaching practices" to be more responsive to students.

Despite various forms of resistance and unintended practices, through time the schools have adopted EWIs in their practices, incorporating teacher team meetings that use data, referring individuals to tutoring and credit recovery, and slowly changing instructional practices to be more responsive to the needs of students transitioning into new high schools. What this suggests is that innovations can have the power to change schools if given time and resources to flourish. In the case of EWIs, outside organizations were actors that steadied the course for these initiatives and created resources for various forms of instructional improvements.

Conclusion

Outside Organizations in the Spread of School Innovation

How do school innovations spread in the absence of a centralizing authority and grassroots social movement? This research shows how in the case of ninth grade early warning indicators (EWIs), "outside" school improvement organizations—an exoskeletal network of research, nonprofit, and philanthropic organizations—have taken on a significant role in spreading this practice within schools, across schools, and across school districts in the United States. While part of the reason for its spread was the technology and innovation itself, I argue that the macro-, meso-, and micro-level webs of improvement were core aspects that helped spread such innovation. The previous chapters accounted for the variety of strategies these organizations employed, moving across levels of change. At the macro-level of cultural-cognitive meanings, research organizations were crucial in initiating logics to understand and promote the use of these EWIs. At the meso-level of interorganizational relationships, the connections among *outside* entrepreneurial organizations helped bring about a division of labor in engaging various stakeholders *inside* the public education system. At the micro-level of interactions in schools, school improvement organizations have facilitated organizational routines to sustain EWI practices amidst teachers' resistance. While many of these EWIs started in specific urban school districts like Chicago, Philadelphia, and New York City, the organizations that worked there have also taken on a role of spreading EWIs beyond these places.

But this is not just a story about EWIs. I argue that many innovations—in education in particular and public policy more generally—in a decentralized system like the United States have

spread because of this web of organizations working to promote such innovations. Practices and programs like alternative teacher preparation programs, networked improvement communities, unified enrollment systems, charter schools, and teacher value-added measures had spread because of interventions and interests of philanthropic, nonprofit, research, and advocacy organizations.[1] Many of these did not rely on central mandates from the federal Department of Education nor did they rely on social movements of teachers and school leaders. Rather, they were initiated and pushed by organizations that were often outside the education bureaucracy.

Of course, this private involvement in public institutions have consequent opportunities and risks, which is beyond this research's ability to adjudicate. Rather than take a normative stance of whether these organizations' involvement in public education is beneficial, I take a pragmatic stance of understanding *how* these organizations have come to possess such power of spreading school and policy innovations. To understand such dynamics, I used the case of these dropout prediction systems called early warning indicators—showing how strategies done across various organizational levels were important in bringing about and sustaining changes. I argue that a number of the practices and strategies done in these organizations were also operative in the spread of other innovations. In particular, the concepts of macro-, meso-, and micro-level "webs of

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[1] Trujillo, Scott, and Rivera, "Follow the Yellow Brick Road"; Kerry Kretchmar, Beth Sondel, and Joseph J. Ferrare, "The Power of the Network: Teach For America's Impact on the Deregulation of Teacher Education," *Educational Policy* 32, no. 3 (May 1, 2018): 423–53, https://doi.org/10.1177/0895904816637687; Bryk, Gomez, and Grunow, "Getting Ideas into Action"; Kevin Hesla, "Unified Enrollment: Lessons Learned from across the Country" (Washington, DC: National Alliance for Public Charter Schools, September 2018), https://eric.ed.gov/?id=ED595153; Renzulli, "Organizational Environments and the Emergence of Charter Schools in the United States"; Scott, "The Politics of Venture Philanthropy in Charter School Policy and Advocacy"; Brayden G King, Elisabeth S. Clemens, and Melissa Fry, "Identity Realization and Organizational Forms: Differentiation and Consolidation of Identities Among Arizona's Charter Schools," *Organization Science* 22, no. 3 (June 1, 2011): 554–72, https://doi.org/10.1287/orsc.1100.0548; Joseph J. Ferrare and R. Renee Setari, "Converging on Choice: The Interstate Flow of Foundation Dollars to Charter School Organizations," *Educational Researcher* 47, no. 1 (January 1, 2018): 34–45, https://doi.org/10.3102/0013189X17736524; Griffen and Panofsky, "Ambivalent Economizations"; Jodi Wood Jewell, "From Inspection, Supervision, and Observation to Value-Added Evaluation: A Brief History of U.S. Teacher Performance Evaluations," *Drake Law Review* 65 (2017): 363–419.

improvement" as well as the trans-urban process of innovation spread are core analytic tools to understand other school innovations.

Applying the Theory to Other School Innovations

This research attends to the source, scale, and space of innovation. It argues that "outside" school improvement organizations—often working locally with each other in particular urban areas—initiate, implement, and institutionalize school innovations through strategies attending to macro-level meanings, meso-level organizational relationships, and micro-level routines. The spread of the innovation within a particular local school district becomes a catalyst for its wider spread to other areas because of the local system being being proof of concept, because organizations are being connected to other school districts, or because the national government agencies support these local ideas. To see if this theorization goes beyond the case of ninth-grade early warning indicators, I apply this framework to the spread of other innovations like charter schools, teacher value-added measures, and alternative teacher preparation programs.

Charter schools are "publicly funded but run under a charter by parents, educators, community groups, universities, or private organizations to encourage school autonomy and innovation."[2] Across the United States, charter schools have expanded to encompass more than 7,000 schools—an indicator of the idea's spread even in the midst of criticism and resistance.[3] Studies of the emergence of charter schools have shown how the local educational organizational environment is core to increasing the charter schools in an area. At the macro-level, these charter

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[2] Berends, "Sociology and School Choice," 160.

[3] Diane Ravitch, *The Death and Life of the Great American School System: How Testing and Choice Are Undermining Education* (New York, NY: Basic Books, 2016); Scott, "The Politics of Venture Philanthropy in Charter School Policy and Advocacy"; Zachary W. Oberfield, *Are Charters Different?: Public Education, Teachers, and the Charter School Debate* (Cambridge, MA: Harvard Education Press, 2017).

schools had to create their organizational identity to make them legible and legitimate to various actors. Similar to EWIs, this new organizational form had to draw on a web of meanings, or "use a combination of elements to create identities."[4] These webs of meanings are not just a bricolage of identities but are identities employed for specific audiences. The same dynamics have been observed in charter schools as specific identities are leveraged depending on the racial and socio-economic composition of different places.[5] At the meso-level, charter schools have been argued to spread because of the networks of philanthropies, charter management organizations (CMOs), and research/ advocacy groups that have interests in bringing about this change. For example, much more philanthropic funding is being driven to CMOs that often span different school districts.[6] At the micro-level, similar to EWIs, these charter schools have created webs of routines, or what some have referred to as "scripts" that become shared practices among charter schools with similar identities.[7] These charter schools and charter management organizations did not just sprout equally across the United States, rather they emerged because of local environments—an argument that ties closely with my theorizing of the urban spread of school innovation.[8]

Another innovation that has spread and emerged during the early 2000s was teacher *value-added modeling* (VAM) that have been employed to assess teachers' effectiveness using students' test scores. At the macro-level, VAM cannot be understood apart from the process of quantification and the "trust in numbers" that was happening in public policy in general and education policy in

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[4] King, Clemens, and Fry, "Identity Realization and Organizational Forms," 555.

[5] Jaren R. Haber, "Sorting Schools: A Computational Analysis of Charter School Identities and Stratification," *Sociology of Education* 94, no. 1 (January 1, 2021): 43–64, https://doi.org/10.1177/0038040720953218.

[6] Ferrare and Setari, "Converging on Choice"; Trujillo, Scott, and Rivera, "Follow the Yellow Brick Road"; Scott, "The Politics of Venture Philanthropy in Charter School Policy and Advocacy."

[7] Joanne W. Golann, *Scripting the Moves: Culture and Control in a "No-Excuses" Charter School* (Princeton, NJ: Princeton University Press, 2021); Joanne W. Golann, "The Paradox of Success at a No-Excuses School," *Sociology of Education* 88, no. 2 (April 1, 2015): 103–19, https://doi.org/10.1177/0038040714567866.

[8] Renzulli, "Organizational Environments and the Emergence of Charter Schools in the United States."

particular.[9] These "institutional logics" that trust market, neoliberal, and quantitative solutions to policy problems have contributed to the ascendance of these technologies. But it was not just the cultural meanings of VAM since different organizations were also interested in pushing these at the meso-level. One article documented this rise as,

> [Economist Eric] Hanushek, now with an appointment at the conservative Hoover Institution, as well as other economists located at think tanks like RAND and the American Institutes for Research sought to legitimize the use of VAM for Department of Education officials by using NCLB funding to research the statistical properties of the method…. By the early 2010s VAM reached its public high point…. Within a few years, over thirty states had devised ways to incorporate VAM into new evaluation systems, not just to track aggregate performance, but to distinguish among the performance of individual educators.[10]

While the use of VAM has had mixed results, particularly with the misclassification of teachers and concerns about their unintended consequences, the process of this technology's diffusion shows the role of organizational networks—spanning academics, research institutions, for-profit corporations, philanthropies like the Gates Foundation, and government bureaucrats. Moreover, it shows how such process can be used by the national government as the federal state through *Race to the Top* funded these new evaluation systems. However, another prominent set of actors were teachers and teachers' unions that have filed lawsuits against VAM-based evaluations, an indicator

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[9] Theodore M. Porter, *Trust in Numbers: The Pursuit of Objectivity in Science and Public Life* (Princeton, NJ: Princeton University Press, 1996); Elizabeth Popp Berman, *Thinking like an Economist: How Efficiency Replaced Equality in U.S. Public Policy* (Princeton, NJ: Princeton University Press, 2022).

[10] Griffen and Panofsky, "Ambivalent Economizations," 527–28.

of the capacity for resistance and pushback on new technologies introduced in schools.[11] While the question remains whether VAM will be sustained, the process of its diffusion has core similarities to the initiation of EWIs and the strategies organizations employed.

Alternative teacher preparation organizations like Teach for America and TNTP (The New Teacher Project) have also become commonplace in US public education. In 2022, Teach for America (TFA) had more than 5,000 corps members across 52 regions in the United States including the Bay Area, Dallas-Fort Worth, Kansas City, New Jersey, and Miami-Dade. TNTP had also been in many urban districts like Baltimore, Indianapolis, and New Orleans. The presence of these organizations in predominantly urban and metropolitan areas is often driven by the macro-level meaning-making of these organizations being on "a mission to rescue and reform schools in America's urban education centers from what was deemed sub-par teaching and teacher training as a result of a national teacher shortage."[12] Its spread happened not so much across various schools but across urban district ecosystems, often fueled by meso-level interpersonal and interorganizational networks, both within regions and across them. TFA, for example, has created an alumni network of more than 58,000, where alumni in their placement areas and across them become embedded actors in influencing public education.[13] At the micro-level, these alternative pathways have received criticism about the lack of supports for teachers, the difficulty of retaining them, the modest impacts of their intervention, and the managerial logics employed to reform school systems.[14] However, these organizations continue to be present in these districts because of

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[11] Griffen and Panofsky, 529.

[12] La Londe, Brewer, and Lubienski, "Teach for America and Teach for All," 3.

[13] Kretchmar, Sondel, and Ferrare, "The Power of the Network"; Kretchmar, Sondel, and Ferrare, "Mapping the Terrain"; Trujillo, Scott, and Rivera, "Follow the Yellow Brick Road."

[14] Mehta, *The Allure of Order*; Jal Mehta and Scott Davies, eds., *Education in a New Society: Renewing the Sociology of Education* (Chicago and London: University of Chicago Press, 2018); Glazerman, Mayer, and Decker, "Alternative Routes to Teaching"; Trujillo, Scott, and Rivera, "Follow the Yellow Brick Road."

how these alternative pathways have become legitimate, taken-for-granted, and annual routines for school districts in need of teachers.

The spread of charter schools, value-added modeling, and alternative teacher preparation programs map closely to the dynamics of what I argue in this research. On one end, many of these did not rely on top-down policy mandates or bottom-up teacher social movements, but on the ecosystem of outside organizations that have employed strategic webs of improvement at the macro-, meso-, and micro-levels. On the other end, these organizations have often started in particular local (urban) ecosystems and have been transposed, transported, and adapted to other ecosystems because of interorganizational connections across public and private organizations. The movement is less about bringing an idea from one school to another, but bringing the idea and the actors from one ecosystem to another. I argue that other school innovations may also be understood to be taking on this process of strategic webs and trans-urban spread.

Contribution to Sociological and Human Development Theories

This research aimed to push the boundaries for the study of education policy, interorganizational networks, and human development. By being attentive to different *sources, scales, strategies,* and *spaces* for the spread of school innovation and by using the case of ninth-grade early warning indicators, I was able to initiate building a theory on the scaling of innovations intended for human development. I argue that this research has important contributions to the sociology of education, the study of public policy and politics, the literature on institutional theory, and the ecological approach to human development.

Many sociologists of education focus on the dynamics and inequalities happening within schools or because of what happens in schools.[15] The present research shows the equal concern that must be accorded to the ecosystem of "outside" research, philanthropic, and nonprofit organizations that have taken on a more influential role in public education. A sociological analysis of these organizations can focus on dynamic social processes like the reproduction or alleviation of inequalities, the spread of distinct practices, the promotion of social order, or the competition for resources. In this research, I was concerned about the role of these organizations in the spread of new school practices in a decentralized and disjointed system like US public education. As I have hinted in parts of this research, sociological research may problematize the reality of private tinkering of public institutions or the racialized and socioeconomic dynamics attached with such elite individuals and organizations working with or against public education systems. This research is but a first step into uncovering spaces for new sociological theorizing in this realm of outside school improvement organizations.

Studies of public policies have often concentrated on the causal effects of programs and less on their implementation—and more importantly, the networks that supported this process of initiation, implementation, and institutionalization.[16] However, this research suggests the important role of "strategy" in spreading and scaling up school innovations. Many good and promising innovations remain minor and local changes not because they lacked the evidence for creating change but because they were unable to engage all the other factors that are necessary to

[15] Jeffrey Guhin and Joseph Klett, "School beyond Stratification: Internal Goods, Alienation, and an Expanded Sociology of Education," *Theory and Society*, January 24, 2022, https://doi.org/10.1007/s11186-022-09472-6; Mehta and Davies, *Education in a New Society*.

[16] Michael J. Weiss, Howard S. Bloom, and Thomas Brock, "A Conceptual Framework for Studying the Sources of Variation in Program Effects," *Journal of Policy Analysis and Management* 33, no. 3 (2014): 778–808, https://doi.org/10.1002/pam.21760; Michael J. Weiss et al., "How Much Do the Effects of Education and Training Programs Vary Across Sites? Evidence From Past Multisite Randomized Trials," *Journal of Research on Educational Effectiveness* 10, no. 4 (October 2, 2017): 843–76, https://doi.org/10.1080/19345747.2017.1300719.

create lasting changes. Such innovations need more than just good evidence; they need a compelling crisis to resolve, a network of individuals with political and economic power, an ability to be embedded in practices already on the ground, and a way of addressing resistance from users. These are the things I tried to document in this research, and I hope that the multi-level analysis of strategies can become an important framework to inspire thinking about the factors necessary to spread innovations more effectively.

This study makes two important contributions to institutional theory. First, I integrate disperse literatures on institutional logics, institutional entrepreneurship, and organizational routines into a framework that looks at the multiple levels at which institutional change happens. Here I show that institutional theorists need to attend to the webs of macro-level logics, meso-level entrepreneurs, and micro-level routines in order to see how these different factors bring about changes. Second, I theorize that there is also an important spatial dynamic happening as ideas and innovations spread not just from one organization to another, but from one local ecosystem to another. Thus, our analytic framework should make space not only for the trans-organizational adaptation of innovations but the trans-urban process of institutionalization.[17]

Ecological theories of human development emphasize the role of the macro-system and meso-system in the growth of human beings in different developmental stages.[18] These theories also emphasize the role of agency interacting with the constraints and opportunities afforded by the lived environment. In this research, I show that certain aspects shaping students' educational and human development are often the result as well of collaboration and competition among

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[17] Brandtner and Powell, "Capturing the Civic Lives of Cities."
[18] Urie Bronfenbrenner, "Ecological Systems Theory," in *Six Theories of Child Development: Revised Formulations and Current Issues* (London, England: Jessica Kingsley Publishers, 1992), 187–249; Margaret Beale Spencer, Davido Dupree, and Tracey Hartmann, "A Phenomenological Variant of Ecological Systems Theory (PVEST): A Self-Organization Perspective in Context," *Development and Psychopathology* 9, no. 4 (December 1997): 817–33, https://doi.org/10.1017/S0954579497001454.

organizations that have their own interests to further or protect. I argue that such political, economic, and organizational dimensions must be squarely included in our theories of human development.

Application to Practice and Policy

A number of studies in sociology, political science, and education rightfully note the risks that come along with the greater influence "outside" organizations have had in public education. In particular, they raise questions about the accountability of these organizations to the general public, the creation of institutional challengers that may further disadvantaged public education, and the use of neoliberal and competitive logics in an institution so badly resourced.[19] Underlying these studies is a normative question of the "proper" role research, philanthropic, and nonprofit organizations should have in relation to public education. Political scientist Rob Reich suggests that civil society organizations can take on the role of providing for niche reforms that the state is not always able to provide (e.g., arts sponsorship) and of initiating innovative experiments that the state can subsequently scale if proven efficacious (e.g., interventions).[20] But what about the spreading of innovation? Should this be a function of civil society or state?

In this research, I took an intentionally pragmatist view rather than a normative view—conscious of all its attendant limitations and open to criticism. In this space reserved for applying the insights from my research to practice and policy, I still preclude myself from judging whether organizations *should* or *should not* spread innovation. As I have shown, reality is more complex

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[19] Wayne Au and Joseph J. Ferrare, *Mapping Corporate Education Reform: Power and Policy Networks in the Neoliberal State* (New York, NY: Routledge, 2015); Scott, "The Politics of Venture Philanthropy in Charter School Policy and Advocacy"; Saltman, *The Gift of Education*.

[20] Rob Reich, *Just Giving: Why Philanthropy Is Failing Democracy and How It Can Do Better* (Princeton, NJ: Princeton University Press, 2018).

than simply adjudicating between seemingly competing sides of "private" and "public." I have shown tradeoffs, power struggles, competing interests, converging interests, positive effects and specific resistances in the work of EWIs. But what I hope to show though is that this *less-than-visible infrastructure* of "outside" organizations spreading new school innovations is a structure that came about and had taken on a specific function, likely because of the absence of a state or governmental structure that could have brought it about. As a pragmatist, I argue that rather than dismantle this structure, the task now is to improve and make accountable such structure of outside organizations. A number of implications and applications come from this pragmatist view.

First, since outside organizations have the power to spread innovation, they must be reflective and reflexive about the types of innovations they try to spread. A number of questions this ecology of organizations can ask may be: Who do the innovations try to benefit, and who actually benefit? How can organizations address resistance, fear, and skepticism of innovations? What are the unintended negative consequences and how can they be reduced? How does one promote school buy-in, respect of teachers' professional discretion, and collaboration across various stakeholders?

Second, these organizations can take on the insights regarding the strategies and structures documented here to inform how they wish to spread new innovative education practices. This research has highlighted the different strategies organizations used to create meaning, collaborate with each other, and institute routines on the ground. While this research does not discount the importance of the "innovation," "technology," "intervention," or "practice" itself, it does highlight that relying only on an effective innovation is not enough to lead to its spread. Organizations need an intentional infrastructure to bring about the process of spreading these ideas and new ways of proceeding. While not all aspects of this research will be applicable to all forms of innovative

school practices, they do provide starting points to think about and think through the strategies that one can employ in spreading innovations.

Third, this research is also important for public education institutions and the many people who comprise them: district officials, principals, teachers, parents, and students. This research highlights a set of actors that often remain hidden in the study of education. However, their presence has important consequences for the types of policies that are enacted and how these policies are implemented. For schools and districts, I hope that this research can help them assess the types of connections they have with outside organizations and who these connections are ultimately benefitting. Inasmuch as this research is a reflective tool for organizations, I intend it to also push the thinking of public education institutions themselves. Questions that they might ask include: What do we want outside organizations to help us with? What are the limits to the help we can receive from these outside organizations? What should happen when there are conflicts of interests, or whose interests should prevail? These are questions that each school or school district will have to answer uniquely given their context, and this research provides an impetus to start these conversations.

Finally, I hope this research opens up new avenues for the study of education policy and politics as well as school improvement, innovation, and implementation. I hope that the research motivates individuals to look into the lessons that can be gleaned from policies, practices, and innovations that "worked" in order to understand how to take inspiration from them. Studies on education can be full of disheartening accounts of failed interventions, unintended consequences, and reproduced inequities that studies realistically showing both benefits and risks can provide necessary hope to help advance.

Limitations and Potential for Further Studies

Despite the theoretical and practical contributions of this research theorizing the role of networks of outside organizations in the urban spread of innovation, there remain a number of limitations that need to be mentioned. I intend that these limitations may be addressed in future projects that takes inspiration from the case of EWIs. On one end, a limitation of this research is the focus on the single case of ninth-grade early warning indicators. A comparative study with another case that did not succeed in spreading innovation may have been a good alternative research design but the constraints of space and doctoral study have prevented this from happening. On the other end, the study is limited by not going deep enough on a single organization as many organizational ethnographies often do. The study's research design did not concentrate on an organization but rather on the networks, webs, and interstices across them. While this has prevented an in-depth discussion of any single organization, it has provided a larger multi-level view within particular urban areas. In both these cases, I hope that many other researchers can fill the continuum with studies spanning comparative and in-depth research designs.

One potential for further study is focusing on the quantitative analysis of the spread of early warning indicators. The present study has focused on the early genesis and the strategies used by outside organizations. A larger study may create a dataset of different districts' or states' year of adoption of early warning indicators, and see how these have consequences for district, school, and student outcomes. In relation to this, because of constraints brought by the COVID-19 pandemic and the lack of access to schools, the study has relied on 22 historical interviews from six schools in Chicago to understand how early warning indicators were being used. A future research can interrogate the variety of ways these EWIs were being used in different contexts, with

particular attention to differences in terms of how school type, race-ethnicity, income status, and gendered processes are at play.

Finally, I hope that this nascent *theory of the urban spread of innovation* can be tested and refined in other education reform efforts as well as other organizational contexts. I believe that bringing together urban, organizational, and education sociology can bring about generative new research projects and ideas for the study of institutions and human development. Future studies can test whether other innovations spread not merely from one organization to another but from one local ecosystem to another. Moreover, various levels of this spread can also be theorized as the macro-level of institutional logics, meso-level of entrepreneurial networks, and micro-level of organizational routines can manifest differently depending on the context.

<div align="center">…</div>

This research is about the agency of individuals who were able to build a less visible infrastructure, an *exoskeleton* as some had referred, to help address the seemingly intractable problem of dropping out. Yet their agency was constrained by the local districts they were, the politics they had to adapt to, the resistance they had to address, and the challenges that came along with initiating and implementing new things. I tried to paint a realistic and holistic picture, not of heroes and villains, but of the complexity of instituting change and spreading innovation. In a context with little top-down mandates and bottom-up social movements, these outsiders try to fill a void in bringing about the spread of innovations. What I have done in this research is to document, analyze, and make sense of the various aspects of such task.

Methodological Appendix

This research did not concentrate on one specific intervention, one school, one organization, or even just one city. By design and by necessity, this research had involved variations of early warning indicators in at least three cities—initiated, implemented, funded, evaluated, and sustained by scores of organizations outside the formal school bureaucracy. Similar to the substantive argument I make in this research, the methodological approach is likewise a "web" of various interviews, analytic strategies, and cases. Although many qualitative studies' methods section usually employ a single approach of theorizing by performing organizational ethnography or interviewing a number of individuals, this present research had been designed to look less at particular organizations and particular individuals, and to look more at specific interorganizational connections and interpersonal interactions. Part of the spirit here is a conviction that organizational life and structures are facilitated by these webbed connections.

Aside from *interconnections*, there were two other key elements for this research: *time* and *scale*. Organizations are neither fixed nor static. My main concern in this research is explaining change over time, and such temporal dynamic was both challenging and opportune. On the one hand, individuals within organizations change: They have different positions at different times; they move from one organization to another; they move from one city to another; and they bring with them their connections from one move to another. Formal organizations themselves change: They set up one goal during a particular period and create a new one some years after. They have a particular strategy for funding one year and a completely new one the next. They are formally connected to the district during a particular period and disconnected when leadership changes.

These were among the challenges that came with the temporal changes that belie the commonly pictured organizational stasis. Yet on the other hand, such transformations through time of individuals and organizations—and their interactions with each other—carried opportunities for understanding processes of innovation spread, institutionalization, and strategic action. Although it is not as easily distinguishable to attribute change to specific interventions, such temporal aspect is core to theorizing the process of change.

Another aspect of this research program was the question of scale. Things were happening at different levels. There was, of course, the level of schools that were ultimately the one receiving or resisting their early warning indicators. Then, there was the level of the school district and how it interacted with these outside school improvement organizations—many of which were "local" to Chicago, Philadelphia, and New York City. Then, there was another level of organizations that spanned these different cities, such as the funding organizations that had their headquarters elsewhere but that funded initiatives in these cities, or the organizations that were purposefully set up to cross urban boundaries in order to spread this initiative. Thus, the analytic process for this research had to incorporate such scalar dimension of multiple organizations operating at different levels of scale.

The epistemological starting point of this research is one that attends to the elements of interactions, time, and scale—which becomes challenging when templates of organizational research concentrate on specific actions, individuals, or organizations in a particular point in time, often inattentive to the question of space and scale. But such as well can be the methodological contribution of this research in addition to its substantive ideas regarding interorganizational webs. Here, I present detailed processes for collecting and analyzing data, the challenges that came with them, the work-arounds and work-throughs, the expert advice I received, and the potential lessons

one can glean from them. I aim for such discussion not so much to serve as template for future research but to serve as a space for stimulation and creativity for others' research projects.

The Case of Early Warning Indicators and the Cases in Three Urban Centers

This research did not start with the clarity that I wanted to study early warning indicators (EWIs) in three American cities. While I was studying at the University of Chicago—which figured prominently in the initiation and spread of these EWIs—I knew only random facts about the University's Consortium on School Research and even less about these data indicators. But what was clear for me was the fascination I had with the enlarged presence of data, metrics, and algorithms in everyday life, particularly in schools. During this period, I had been reading about data-driven decision-making in schools, university rankings, unfavorable racialized consequences of algorithms, the proliferation of quantitative tools from policing to urban mapping, and the whole sociological field of quantification.[1] In a way, my research wanted to interrogate how schools organized data and how data organized schools.

In summer of 2021, I was selected to be a Fellow of the Mansueto Institute for Urban Innovation for a research project that I was already wrapping up. It was a project comparing the

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[1] Paul Goren, "Data, Data, and More Data—What's an Educator to Do?," *American Journal of Education* 118, no. 2 (February 2012): 233–37, https://doi.org/10.1086/663273; Cynthia E. Coburn and Erica O. Turner, "Research on Data Use: A Framework and Analysis," *Measurement: Interdisciplinary Research & Perspective* 9, no. 4 (October 2011): 173–206, https://doi.org/10.1080/15366367.2011.626729; Wendy Nelson Espeland and Michael Sauder, "Rankings and Reactivity: How Public Measures Recreate Social Worlds," *American Journal of Sociology* 113, no. 1 (July 2007): 1–40, https://doi.org/10.1086/517897; Wendy Nelson Espeland and Michael Sauder, *Engines of Anxiety: Academic Rankings, Reputation, and Accountability* (New York, NY: Russell Sage Foundation, 2016); Chun and Sauder, "The Logic of Quantification"; Wendy Nelson Espeland and Mitchell L. Stevens, "A Sociology of Quantification," *European Journal of Sociology* 49, no. 3 (2008): 401–36; Andrea Mennicken and Wendy Nelson Espeland, "What's New with Numbers? Sociological Approaches to the Study of Quantification," *Annual Review of Sociology* 45, no. 1 (2019): 223–45, https://doi.org/10.1146/annurev-soc-073117-041343; Benjamin, *Race After Technology*; Brayne, "Big Data Surveillance: The Case of Policing"; Safransky, "Geographies of Algorithmic Violence"; Jenna Burrell and Marion Fourcade, "The Society of Algorithms," *Annual Review of Sociology* 47, no. 1 (July 31, 2021): 213–37, https://doi.org/10.1146/annurev-soc-090820-020800; Safiya Umoja Noble, *Algorithms of Oppression: How Search Engines Reinforce Racism* (New York, NY: NYU Press, 2018).

educational outcomes between urban and rural public schools in the United States. While I could have easily sent the drafts of my paper to receive feedback during the meetings for this Fellowship, I thought that I could use the space and feedback for a new project that I still had to develop. Thus, during the summer before the autumn term began, I had to develop a project that had some "urban" element in it. Being aware of my fascination for data, my interest in education, and the pressure to research something urban, it was perfect timing to be acquainted with the early warning indicator work in Chicago since our university's Committee on Education—of which I was a student coordinator for the weekly lecture series—thought about inviting some researchers from the UChicago Consortium to talk about the on-track indicators, their version of EWIs. Given this spark of idea and inspiration, I thought about the possibility of studying these EWIs, with a focus not so much on the predictiveness of these indicators but on how they were being used in schools and with what consequences.

The next few weeks were then spent reading as much as I can about these early warning and on-track indicators, noting what were already known and what were still unknown about them. Across studies, it was evident that there was the focus on the predictiveness these "foot in the door" indicators and interventions for ninth graders at risk of dropping out.[2] Other studies focused on the most predictive indicators such as the ABCs of attendance, behavior, and course performance,[3] the normative processes and guidelines to support the implementation of EWIs,[4] and some experimental and quasi-experimental results that showed the potential of these indicators and

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[2] Bailey et al., "Persistence and Fadeout in the Impacts of Child and Adolescent Interventions"; Balfanz, Herzog, and Mac Iver, "Preventing Student Disengagement and Keeping Students on the Graduation Path in Urban Middle-Grades Schools"; Wentworth and Nagaoka, "Early Warning Indicators in Education: Innovations, Uses, and Optimal Conditions for Effectiveness."

[3] Mac Iver and Messel, "The ABCs of Keeping On Track to Graduation."

[4] Faria et al., *Getting Students on Track for Graduation: Impacts of the Early Warning Intervention and Monitoring System after One Year*; Allensworth, "The Use of Ninth-Grade Early Warning Indicators to Improve Chicago Schools," January 2013; Stuit et al., *Identifying Early Warning Indicators in Three Ohio School Districts. REL 2016-118.*

interventions to improve attendance and graduation, with more mixed effects in terms of course performance.[5] Moreover, there was an excellent book, Emily Krone Phillips' *The Make-Or-Break Year: Solving the Dropout Crisis One Ninth Grader At A Time*, which provided an in-depth look at the key actors in Chicago and the impact of EWIs on a particular high school in Chicago's south side.[6] There was thus an excellent documentation on EWIs from an educational standpoint but little from a sociological standpoint.

Despite the many interesting studies about these EWIs, there were a number of equally interesting questions that were left unexplored. For instance, what might have been the unintended negative consequences of such form of quantification? How did these data systems and practices become used in the everyday work of instruction in schools—more than what researchers say it should be used? How did such a program start and become sustained when many initiatives are actively resisted or passively fall by the wayside? And what was unique about this form of quantification when compared to other data systems in education like school accountability metrics, university rankings, and performance reviews? I saw these questions as potent places to start this research, and an indication of the theoretical fecundity of the case of early warning indicators. Thus, I bit the bullet, as it were, to focus on this research.

Now that I had the *conceptual case* that I wanted to study, I had to narrow down to the *empirical cases* that would shed light to the important factors for the outcomes of EWIs. Given the challenge of scale and the importance of interorganizational connections, both of which I noted earlier, I first concentrated on the urban school districts that I had EWIs. I had initially intended to study and make comparisons across New York City, Los Angeles, and Chicago, the three largest

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[5] Mac Iver et al., "An Efficacy Study of a Ninth-Grade Early Warning Indicator Intervention"; Corrin et al., *Addressing Early Warning Indicators: Interim Impact Findings from the Investing in Innovation (I3) Evaluation of Diplomas Now*; Hansen, "Information as Intervention: Effects of an Early Warning System."

[6] Phillips, *The Make-or-Break Year*.

school districts in the United States. Aside from the size, I had also initially intended to use these cities because of their serving diverse student populations, the presence of various school improvement organizations in these cities, and the use of early warning indicators in their schools. However, when I reached out to one of the organizations in Los Angeles, they respectfully declined joining the study because their agreement with LA Unified had precluded them from discussing their on-going projects. Thus, I needed to find a third city in addition to Chicago and New York. Reading more and being acquainted to different individuals working in this space, I saw the potential of including Philadelphia as another case because it had been among the first cities to create and adopt EWIs because of an organization from Johns Hopkins University. More recently too, a group from Chicago had been instrumental in the spread of EWIs in the city's high schools. Thus, I had opted to include the windy city, the city of brotherly love, and the city that never slept as key sites of investigation because of their being large urban areas that had similarly high percentages of dropouts in the late 1990s and a group of nonprofit and research organizations that were helping solve such problem. Once I had settled on these three cities, I reached out to organizations that had been known to influence the work of EWIs.

One of the core hurdles for organizational research is gaining access and permission from organizational leaders and gatekeepers. Thus, before even beginning interviews, I reached out to leaders of key organizations that worked on EWIs in the three cities. This correspondence was an initial introduction to my research project, my credentials, and my ask from their organizations. In Chicago, I contacted the University of Chicago's Consortium on School Research's director Elaine Allensworth, and previous director John Easton; Network for College Success' executive director Sarah Duncan; and the To&Through Project's director Alexander Seeskin. In Philadelphia, I contacted Robert Balfanz who was the principal investigator at the Everyone Graduates Center,

the organization responsible for the early warning work in the city in the early 2000s. In New York City, I contacted the director of the Research Alliance on New York City Schools, James Kemple, and the chief-of-staff of New Visions for Public Schools, Nikki Giunta. Both organizations had figured prominently in the use of EWIs in the City of New York. Such connections would lead to conversations and email exchanges in the coming months and years as I had established rapport and asked for help in reaching out to other individuals that were influential in their initiatives.

With the conceptual case, the empirical cases, and the organizational sites now clarified, I had to focus on the key questions my research would ask. Initially, my research had two aims. First, I wanted to know how EWIs had influenced school processes, relationships, and discourses. It was supposed to be a qualitative investigation into the inner working and logics of these means of quantification. It was also one of the reasons that I took on this project in the first place because of my interest in the dynamics of data and quantification. The second question was concentrated on explaining why and how these "outside" school improvement organizations started and sustained these EWI initiatives. It was a question about the role of these organizations and the potential benefits and risks that come with their participation in public education. It was not why I had originally found this research interesting but it was nonetheless a core part of the investigation. Through the course of time and the vicissitudes of research, particularly the unavailability of data, I had to focus on the second question and forego the first one. It was, in a way, a lesson at being nimble and flexible—letting initial questions morph into new and hopefully more generative ones.

Interviewing Elites and Experts: Challenges and Opportunities

To collect data for this research, I primarily conducted 73 interviews with organizational actors that I supplemented and triangulated with archival materials from company documents, research

and annual reports, news articles, websites, journal publications, and other forms of media. These interviews were collectively referred to as expert and elite interviews in the sense that they were with individuals who were particularly knowledgeable about early warning indicators or who were key decision-makers in bringing them about. Some may be considered more as experts such as the researchers and school improvement coaches who were using their skills for the study and adoption of EWIs while others were more rightly considered elites such as the superintendents and philanthropic manager who had specific resources to bring about the spread of EWIs.[7] Others like leaders of research organizations could be considered at the intersection of expert and elite statuses. (I was also able to access 22 historical interviews of teachers, counselors, and principals, conducted from 2015 to 2017, which I used to understand and confirm what these elites and experts have shared during our interview.)

The sample of 73 individuals was a purposive sample that included key persons who were connected to the initiation and institutionalization of EWIs; it included individuals who were still in the organizations I studied and individuals who have since left but who have historically had an important role played in their previous organizations. There were also a number of informants who were in one organizations involved in EWIs and moved to another organization that was still involved in EWIs, albeit in a different urban context. These individuals included nonprofit organizational leaders, executive officers in school district central offices, coaches, researchers, philanthropic managers, and professors of practice—some of them having multiple functions during different points of their lives. Some of these individuals were frequently mentioned in

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[7] Alexander Bogner, Beate Littig, and Wolfgang Menz, "Introduction: Expert Interviews — An Introduction to a New Methodological Debate," in *Interviewing Experts*, ed. Alexander Bogner, Beate Littig, and Wolfgang Menz, Research Methods Series (London: Palgrave Macmillan UK, 2009), 1–13, https://doi.org/10.1057/9780230244276_1; William S Harvey, "Strategies for Conducting Elite Interviews," *Qualitative Research* 11, no. 4 (August 1, 2011): 431–41, https://doi.org/10.1177/1468794111404329.

papers that talked about EWIs while others were referred by previous informants. I had endeavored to be as extensive and catholic as possible in obtaining a sample of individuals who would help provide insight into the spread of EWIs. Of course, there were individuals that I had contacted but declined or did not respond to the invitation (even after following up). While this presents a limitation in terms of their perspective being unaccounted, they were few in number, and when possible, I would refer to documentary evidence to understand their role in the work.

Before moving on to detail the challenges and opportunities this type of data collection procedure provided me, I wanted to be forthcoming about my positionality in this research study. During this time, I was completing my doctoral degree in Sociology and Comparative Human Development at the University of Chicago. From the individuals I interviewed at the University of Chicago, it was only Elaine Allensworth who I had known prior to starting this research. All the rest had become familiar to me through this research. My position and training at the University of Chicago provided me with particular credentials, and I had, at this point, published in a number of peer-reviewed journals—hopefully adding to my informants' trust and confidence in me and my research. I'm a cisgender man, an international student from the Philippines, who had previously worked as research and training staff at a nonprofit called Teach for the Philippines. Such history of working in a professional environment had been considerably helpful in presenting myself appropriately to my informants.

Even as my position had equipped me with key advantages, I was also aware of my own positional deficiencies. Prior to graduate school, I had not done any studies in the United States— making me an outsider to the system. I was neither a student nor a teacher in a US K-12 institution but I did make up for this by taking courses, reading journals, and perusing books on the American educational system. I was also well aware of the precarious position of a graduate student who was

only then building up credentials. While none of my informants ever made me feel less or insecure, my own personal and inner critic made me question how effective or legitimate I am in this work. It was at once a coming together of this precarious position as a lowly graduate student and this personal disposition to be self-critical. Furthermore, there was an interesting power differential between me and my informant. They were experts and elites who knew so much more than I did. The individuals I spoke with had their doctorates, professional titles, and positions of leadership, and I would be dishonest if I did not acknowledge the trepidation I had with this imbalance in power. But in a way, too, I had some "power" in relation to my informants. I was at this position to write and know the bigger picture of EWIs in order to tell the larger story that animated the spread of this innovation. It was a power that I hope to have used responsibly to present an accurate and fair illustration that illuminates larger social and organizational questions.

During the course of strategizing for the interviews, three challenges emerged that all needed creative solutions. The first challenge was about individual and organizational anonymity. Most qualitative research in the social sciences usually did not reveal their participants' names and did not even name organizations. Many explain this as a means of protecting their research respondents from judgment of others or from the negative consequences that can come from sharing unpopular or incriminating ideas.[8] But anonymizing the organizations in this study will create difficulties in terms of narrative and ease of reading. It would also be almost unthinkable to create 15 pseudonyms for organizations that could just as easily be identified if one knew more about Chicago, Philadelphia, and New York City. Moreover, it did not make sense to anonymize individuals—particularly leaders—if the organizations were going to be named. If I had "anonymously" referred to a director of a research organization in Chicago, one would easily know

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[8] Tompkins-Stange, *Policy Patrons*; Alice Goffman, *On the Run: Fugitive Life in an American City* (Chicago and London: The University of Chicago Press, 2014).

who it was. Thus, it was both practical and preferred to name all organizations and most individuals in this research. My research ethics application thus mentioned this aspect that individuals and organizations will be named.

There was, to be sure, a deeper reason for this decision to name individuals and organizations. In *Privilege: The Making of an Adolescent Elite at St. Paul's School,* sociologist Shamus Khan identified the school for a number of reasons. One that stuck with me was when he wrote, "Initially I intended to obscure the name of the school… As I wrote the book I began to increasingly support Mitchell Duneier's assertion that anonymity is often a way to protect the researcher rather than the research subjects." In a way, the stakes are higher for myself and my informants once we had the names and the organizations identified. For me, it was a way to keep all details fact-checked and to create as realistic a picture as possible. After deciding that by default informants will be identified (and putting that in my ethics application), I had the subsequent challenge of asking this of my informants. To address this, I told my informants at the start of the interview that (1) I would ask them at the end of the interview if they wanted anything taken off the record, (2) I would let them choose if they were willing to be named in the documents, and (3) that they would read anything attributed to them before anyone is even able to review the papers that come from this research. Such candor, I thought, would help them feel at ease in our interview and would encourage their trust in my commitment for an accurate story.

After all interviews, I asked if they wanted anything taken out, and except for two individuals that had more private recollections that they wanted off the record, most had consented to keeping the whole interview. Moreover, there were only two individuals that requested anonymity. One was a philanthropic manager who requested anonymity for her and her foundation because of a religious principle of not letting one's right hand know what the left hand was doing.

The other was a school principal in New York City since this would have been the only school that would be identified in the research. The decision to anonymize him and the school was something I broached and something he ascended to. Finally, I had kept in touch with all participants, sending them drafts of papers with highlighted quotes and stories attributed to them. Many had sent back suggestions with minor edits on style or grammar, or minor clarification in terms of facts. A number had also generously mentioned that the narrative had captured the idea that they wanted to convey. Such remarks are among the most heartfelt ones in the process of doing this research.

A second challenge connected to this first one about the decision to reveal names of individuals and organization was the fear that these informants may paint a rosy picture of EWIs that swept under the rug any unflattering depiction of these efforts. I was fully cognizant of the dangers of relying solely on these elites and experts, who may have ulterior reasons in painting a positive picture of their efforts. To address this, I had intentionally asked these informants about instances when their efforts were not as productive, or when EWIs did not work, or when they experienced conflicts and resistance. The informants, in turn, were more than frank about their frustrations and mistakes—something that caught me by surprise. I did not need to be critical about them because they themselves were healthily critical about the work they do. They were detailed in their depiction of mistakes and things that did not work, and humble in the risk of relying solely in their improvement work. Moreover, I took copious notes on how the interview responses were consistent or inconsistent with the documents I had on hand.

A third challenge—potentially the most difficult one for me—was the fact that I cannot interview teachers and public school officials during the wake of the COVID-19 pandemic. In Chicago, for example, the district's central office research review board was not approving research proposals to do interviews if the research was not high priority. In its website, it said,

"Due to the COVID-19 health crisis, the district will only review new and ongoing research projects that have been explicitly flagged as high-priority by school and district leaders…. For projects that have not been explicitly flagged as a priority, you are asked to cease all data collection involving our school students, staff, and/or communities for the time being."[9] This made it difficult to answer my research question about how EWIs were being used in schools because the informant I can use or collect will be very scant. I had tried to course this through teachers' unions but the efforts were futile. Thus, I had concentrated on the question about the start and spread of EWIs—making me concentrate my data collection efforts among the organizations that I already had access to. By being limited by such exigencies, I thought that the research became more focused and thus more pointed in its argument. I had concentrated on the strengths of what I had. It was me revising and refocusing my research question so that I can answer it with the data I actually have rather than the data I wish I had.

Because of the pandemic and the flexibility that it required, interviews were done online, mainly through Zoom or through phone interviews. Before each interview, I read research papers, web profiles, journal articles, and short biographies of the person I was interviewing. After reading these materials, I adapted the questions I had prepared for all informants so as not to answer questions that had been answered elsewhere and so as to go deeper in certain topics. Each interview was divided into four sections: (1) questions on one's position and work at the organization, (2) questions about EWI initiation and implementation, particular the individual's involvement in them, (3) questions about collaborative and competitive networks that were important for EWIs, and (4) questions about the role outside organizations played in the spread of this innovation. Of course, these semi-structured interviews included questions that did not fit any of the four general

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[9] See: https://www.cps.edu/about/district-data/conduct-primary-research/

types of questions that were asked and questions that were follow up questions to the information that were shared. Another aspect that was key in the interviews was my prodding for narratives of how things happened. Because many ideas about the effectiveness of EWIs have already been documented in past papers—some written by the very people I interviewed—I had asked questions that brought out the narrative element of what had happened. Thus, when someone said that EWIs were effective because of the strategies that got created, I would follow it up by asking, "Can you share a story of when this happened?" These stories, narratives, and insights formed the core of this research and were supplemented by more than 2,800 pages of documents related to EWIs.

History, Networks, and Abductive Theorizing

The analysis of these data proceeded with four distinct and iterative steps. After compiling the documents chronologically, and after doing more than half of the 73 interviews, I outlined the history of early warning indicators in each of the three urban areas. Subsequently, I mapped out networked connections between individuals and organizations, using qualitative interviews and documents, similar to the approach done by other scholars.[10] Similar to other qualitative research, three research assistants and I coded all interviews and I explain later the process for creating and inputting the codes. Finally, after rounds of refining histories, network maps and codes, the drafts have been shared with informants for their feedback and fact-checking. While these things proceeded sequentially, the process was more iterative with ideas being shifted and focus being improved because of new information from coding or from new interviews. In this methodological reflection, I highlight how I ended up having this integration of different analytical approaches.

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[10] Coburn and Russell, "District Policy and Teachers' Social Networks"; Scott et al., "Urban Regimes, Intermediary Organization Networks, and Research Use"; Ball, "New Philanthropy, New Networks and New Governance in Education."

Figure A1. Timeline of EWI Development for Chicago, Philadelphia, and New York City

During the planning for this research, I had consulted with various scholars in and out of my dissertation committee, and in and out of the university (in part thanks to Zoom office hours). Many had pointed out the important historical and relational dynamics that I might uncover. Thus, my organizational research should itself be cognizant of changes through time, particularly as organizations "learned" more things in the process of research, trials, resistance, and spread of this innovation. To address this key temporal aspect, I created a timeline of significant developments for EWIs in Chicago, Philadelphia, and New York City. Figure A1 is a stylized version of what I had made to track the most significant changes for EWIs, which included new organizations that were formed, new interorganizational connections that were made, new initiatives that were started, new data tools that became available, and new research that were crucial for their legitimation. In addition to things related to EWIs, I had also added larger district changes like changes in

superintendents and leaders, and the larger societal changes like the 2008 recession, the 2009 Obama education administration, and the 2020 COVID-19 pandemic. By noting these changes in the three cities, and also beyond them, I was able to get a larger picture than merely relying on quotes that seem disembedded from the historical context of my informants.

Another aspect that had been emphasized was the relational aspect of these organizations with the school district and with each other. Early in my research, I received feedback from Nicole Marwell of the Crown Family School of Social Work, Practice, and Policy at the University of Chicago, who mentioned the facility of using networks in this research. She recommended Sarah Reckhow's *Follow the Money: How Foundation Dollars Change Public School Politics* as a prototype for doing network analysis.[11] Given that there were not as many organizations that would be connected, I had instead looked at the work of other scholars who did qualitative social network analysis; most closely aligned to this project was Cynthia Coburn and Jennifer Lin Russell's paper on "District Policy and Teachers' Social Networks."[12] Other sources of inspiration for a networked approach to understanding the connections between different organizations were papers by Janelle T. Scott, Elizabeth DeBray, Huriya Jabbar, Chris Lubienski, Stephen J. Ball, Wayne Au, and Joseph Ferrare. [13] Core to this work was defining what constituted ties between particular organizations. For this research, organizations had ties if they had a relationship of funding, mutual collaboration, resource sharing, or formal agreement. Such relationships may come in the form of a philanthropist funding a nonprofit or a district having a data sharing agreement with an

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[11] Reckhow, *Follow the Money*.

[12] Coburn and Russell, "District Policy and Teachers' Social Networks."

[13] Scott and Jabbar, "The Hub and the Spokes"; Scott et al., "Urban Regimes, Intermediary Organization Networks, and Research Use"; DeBray et al., "Money and Influence"; Ball, "New Philanthropy, New Networks and New Governance in Education"; Au and Ferrare, *Mapping Corporate Education Reform*; Joseph J. Ferrare and Katherine Reynolds, "Has the Elite Foundation Agenda Spread Beyond the Gates? An Organizational Network Analysis of Nonmajor Philanthropic Giving in K–12 Education," *American Journal of Education* 123, no. 1 (November 2016): 137–69, https://doi.org/10.1086/688165; Kretchmar, Sondel, and Ferrare, "The Power of the Network."

organization. One thing that also emerged was not only the importance of formal ties among organizations but also the informal ties among individuals. Thus, I had also mapped in some cases—particularly in Chicago—the connections among individuals who have worked with each other, consulted each other, and were friends with each other. It emphasized the importance of webs of individuals whose ability to spread this initiative was made easier through interpersonal connections.

Such networked connections of individuals and organizations also emphasized the question of scale since these relational webs were happening at different levels—moving from individuals to organizations to even across the urban centers. Such networks also changed through time as individuals came in and out of organizations, moved from one city to another, or took on a position at one organization or another. While the network maps in this research presents a particular point in time, I argue that we must read these maps as dynamically being shifted and at times contested by various actors who aim to be part or to be absent of the network.

After attending to the historical and relational dynamics among organizations, I then concentrated on the substance of what my informants shared during our interview. To do this, I employed abductive analysis, which Steffan Timmermans and Iddo Tavory describe as, "the process of coming up with a new hypothesis based on surprising research findings."[14] It was about starting with particular theories (often from the extant literature) that potentially answer one's research question, but with an attention to new and surprising ideas that come from one's data. For the purposes of this research, I had set up my codes to use various elements of new institutional theories—isomorphism, institutional logics, organizational routines, and institutional entrepreneurs—to understand the data I have. However, I also wanted to surface new and

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[14] Stefan Timmermans and Iddo Tavory, *Data Analysis in Qualitative Research: Theorizing with Abductive Analysis* (Chicago and London: University of Chicago Press, 2022), 3.

surprising findings that may go against how past theories would answer the question of why EWIs had spread the way it did.

To be more specific, I assembled a codebook—actually, I did two codebooks. The first codebook had codes for ideas under the themes of context, philanthropy, research, quantitative technologies, changes, interorganizational strategies, and reform actors. Such codebook was created when I still had the two research questions I detailed earlier. Under each of these themes, I would have a set of five to fifteen codes, each with their own descriptions and with examples from the three cities. However, when my research question focused on just the spread of this school innovation, I had to do another codebook that reflected this shift. In the second codebook, I had codes that were collectively grouped into networks, logics, and institutional actors/ challengers. This highlights how I use institutional theories as a place to start my understanding of this question. In addition to these, I had also included codes for context, the EWI tool, resistance on the ground, and various shifts that happened. Similar as before, within each of these themes lay a number of codes with their descriptions. Once I had these codes set, I trained three undergraduate research assistants code the data using an online tool called Taguette. Each research assistant had to code a set number of interviews, add codes and descriptions if necessary, check another individual's coding, and bring up any disagreements in meetings. I too had coded a number of interviews, and checked the work of the research assistants. Given the use of an online tool, we could all work on the documents at the same time and we could "call" on a code and see all the quotes associated with it. I would then use these quotes to weave the narrative and the substantive elements of this research. Such systematic way of investigation then led to an art of integrating story with insight.

Once drafts of the research had been created, I sent these to my informants for their feedback and suggestion for improvement. Many individuals I had sent the drafts to have noted

how the draft successfully captured their experience. There were some who requested minor corrections in their quote, either because of the verbatim inclusion of informal words such as "like," "totally," etc. or because certain quotes sounded more flippant than what they were intended. Others also corrected certain sections regarding errors of fact, inaccuracy of data, or the potential misinterpretation of readers. For example, one informant mentioned that the words "some officers" may be open to different interpretations and that I should just use "three officers" to be more exact. I appreciate the opportunity to be corrected. It must be mentioned, however, that none of my informants ever suggested any edits that made a substantive change in the arguments presented in this research. Moreover, I had had opportunities to present these data to some of my informants and their organizations, and have received warm reception of the ideas I presented. While I had done this aspect of the work to make sure that my research was as accurate and fair as possible, this process also had the latent benefit of fostering trust and good will between me and my informants. Such is important, particularly in organizational research since one hopes that the relations with these organizations can potentially lead to long-term collaborations.

Core Lessons and Reflections

Part of being extensive and elaborate in detail about the process of research and analysis is to deepen the connection between this research's substantive and methodological aspects. Part of it too is to emphasize the generativity of integrating various approaches even in the midst of data and analytic limitations. But perhaps most importantly, the reason I had been thorough with the process I went through is to offer this as a pedagogical tool to others who may be interested in pursuing organizational and interorganizational research, or in pursuing education research that attends to factors outside the school system. While I had peppered my narrative with some thoughts

I had about the process, I write here some personal lessons when I take a step back from the experience I had gone through. I couch these lessons in contrast to the prevailing way advice when doing research.

While many may assume the importance of being open to a topic, sometimes it is good to have parameters to work by. In my case, if I had not been pressured to come up with a project that had something "urban," I would likely not have thought about the present project. In fact, I was not really doing a lot of urban sociology before this project, aside from taking Neil Brenner's fantastic course on Urban Sociology at the University of Chicago. But when I got the Fellowship at the Mansueto Institute, I forced myself to look for a project that had this dimension. For other individuals, they may also look for instances that help them limit and put parameters to their work. While it may be risky to "limit" oneself, I believe there are opportunities that come with such limitations. More philosophically, I have come to appreciate how the limitations of research can be one's friend, particularly the interview subjects that don't become available, the sites that close to a person, and the analytic tools that are put to the side. Such experiences can force the researcher to be creative and to think a little outside the box.

A second lesson was that while many take anonymity of research participants for granted, I show that one should actively decide on whether participants or groups remain anonymous or not. This is particularly salient in organizational research, where anonymity may obscure clarity. In my experience, I have come to appreciate this decision to reveal my participants because I knew I had a "skin in the game." By writing research with people's names in it, I had to go through painstaking lengths to make sure that all details align and are consistent. I had to check with multiple people the facts and the interpretation of those facts. Moreover, I had to gain trust and good will among these informants. I made it a point that my relationship with my informants

continue even after our interview. I continued to write them letters updating them of this work and sending them drafts of the research. It was more than just fact-checking; it was a way of keeping a human connection. I've sometimes felt that research can be rather instrumental at times. For example, I could just have easily interviewed a group of people, written my paper, and get things done with. No follow-ups and no sustained relationship. But for me, that felt rather exploitative as if I treated my informants as only a means to an end, rather than an end in itself. I remember this as a lesson in senior year of undergraduate as we were discussing Immanuel Kant, and it just stuck to me as I do my research. It was to always humanize my subjects, to respect their stories, and to treat them as ends in themselves. Of course, at times, such respect for humanity will entail the anonymity of these subjects but what I show here is that such decision to hide or reveal should come after reflection—not as something to just fulfill a research ethics application.

A third lesson for me was to be fair rather than to be flashy. When I started writing this research, a lot of good and well-meaning individuals asked me if I was trying to discover that EWIs were actually not as good as it purports to be. After all, so much of the literature on quantification and intermediary organizations hints at the negative and unintended consequences of efforts to use these technologies. I think it is a disciplinary predisposition as well in sociology and education to be critical about the policies and practices that purport to support individuals and organizations. However, in the process of research, I saw that the story was not about particular heroes and villains, nor was it about clearly judging whether the program was effective or not. The story was rather one of different strategies and interactions that had some success in certain areas, resistance in others, and transformations in another. There was no one headline of "EWIs are great!" or "EWIs are a sham!" Of course, I am fully aware that such nuanced picture can be off-putting for some but ultimately my decision to write this way is to address an audience that appreciates

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the complexity of individuals and the organizations they work in. It was a decision to not fall into the trap of creating caricatures, but to surfacing the competing demands and contexts that people faced—and the efforts that have at times succeeded and at other times failed to come.

Finally, the research had to be avant-garde in its research design and analytic approach. Some of these were clear when I started the project (e.g., interviewing elites and experts) but many more only revealed themselves through the process of research (e.g., creating network maps, comparing urban histories). While I could have done this research doing traditional qualitative thematic analysis, I think the coming together of interviews, networks, and urban case studies had been definitely rewarding. Moreover, the intellectual excitement and curiosity I had was fueled by the opportunity to learn new ideas and methods to support the answer to my research question. Of course, there are individuals who go deep into a method and I have only the greatest of admirations for them. However, my approach to research is being question-driven rather than methods-driven. Thus, I posed the question I had and I used whatever methodological tools were available to answer it. I would caution, however, that such methodological diversity should still cohere with each other, and I wish to have done that in this research.

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