

LEADING HOLISTICALLY

Leading Holistically explores systems thinking in educational leadership – a comprehensive framework that enables leaders to improve their practice by taking a holistic perspective, instead of relying on a one-size-fits-all solution to discrete aspects of their organization. Aiming to expand the existing literature on systems thinking in educational leadership and policy, renowned educational leadership scholars come together in this valuable book to examine systems thinking at the school, district, and state/national levels, providing strategies to guide educators toward success. This important book unpacks the complexity and nuances of systems thinking in educational leadership and policy, helping educators face the growing complexity, change, and diversity in education to realize the promise of improvement for all those connected to and involved in the important endeavor of education.

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LEADING HOLISTICALLY

How Schools, Districts, and
States Improve Systemically

*Edited by
Haim Shaked, Chen Schechter and
Alan J. Daly*

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CONTENTS

<i>Editors</i>	<i>vii</i>
<i>Contributors</i>	<i>viii</i>
<i>Foreword – Michael Fullan</i>	<i>xiv</i>
<i>Preface</i>	<i>xviii</i>

PART I	
Systems Thinking at the School Level	1
1 System Self-Regulation and Static Equilibria: How Socio-Cognitive Control Processes Regulate School Responses to External Reform <i>Ebony N. Bridwell-Mitchell</i>	3
2 Systems Thinking to Drive School Turnaround <i>Sharon F. Rallis & Rachael B. Lawrence</i>	23
3 Schools as Soft Systems: Addressing the Complexity of Ill-Defined Problems <i>Sharon D. Kruse</i>	39
4 Principals' Systems Thinking: The Meaning and Measure of a Leadership Construct <i>Haim Shaked, Pascale Benoliel, Nechama Nadav, & Chen Schechter</i>	54

PART II		
Systems Thinking at the District/Regional Level		75
5	Using Hierarchical Growth Modeling to Promote District Systematic Improvement in Ohio and Texas <i>Alex J. Bowers, Xinyu Ni, & Jennifer Esswein</i>	77
6	Whole District Transformation: Leading Systems Change for Sustainability <i>Cynthia L. Uline & Lisa A.W. Kensler</i>	101
7	“Holistic Engagement”: Framing Theory, Strategic Communication, and the Superintendency <i>James Coviello & David E. DeMatthews</i>	123
8	System Leadership for Continuous Improvement: The Role of District-Level Leaders in Creating the Conditions for System-Wide Improvement <i>Christina J. Dixon & David Eddy-Spicer</i>	141
PART III		
Systems Thinking at the State/National Level		159
9	The Impact of the “Social” in Social Media Space: A Systems Perspective on Educational Policy and Leadership <i>Alan J. Daly, Miguel del Fresno, & Jonathan A. Supovitz</i>	161
10	Using the Systems Thinking Approach in Educational Policy Setting: A Choice among Compromises <i>Adam Nir</i>	178
11	School Turnaround Reform: Optimizing Confluence of Influence and Dynamic Disequilibrium <i>Andrea Rorrer, Vicki Park, Cori Groth, & Janice Bradley</i>	196
12	Improving Schools in Victoria, Australia: System, Region, and School Perspectives <i>David Gurr & Laurie Drysdale</i>	217
	<i>Index</i>	236

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FOREWORD

Systems Theory: The Friend that Never Arrives

Michael Fullan

Systems theory had been formally around for almost three quarters of a century when Kenneth Boulding (1956) wrote *General Systems Theory*. It was supposed to help us understand the dynamics of complex systems, especially global societies and their interactions. Then decade after decade society got ever more complex. You would think that systems theory would thrive as societies offered up ever more dynamic realities. A few did respond. Peter Senge and his colleagues are devoting their entire careers to mapping out systems theory and its use. We do have some books on “understanding systems theory,” “system theory tool kits” and the like. And we do have a whole movement of scholars who continue to examine and analyze chaos theory, butterfly effects and other strange attractors.

Overall, however, I would argue that systems theory has not grown commensurate with the problem; and especially on the applied side it has had little growth and “sticking power.” It seems that the more complex things get, the more simple the solutions that politicians propose (and evidently the public like). Since society is rife with complexity, and since the problems and consequences are ever more threatening and incomprehensible, we need a movement that begins to tackle applied problems at all levels with complexity thinking and action.

It is for all these reasons that I welcome *Leading Holistically*. There is simply no other book like it. It is reasonably brief, but it covers “the whole system,” so to speak. There are three sections of the book and each one has four chapters. The three parts in total examine the entire education system: four chapters on systems thinking at the school level; four on systems thinking at the district/regional level, and four at the state or national level. All twelve chapters are steeped in applied issues, and systems thinking to help us understand what is happening and to advance the cause of systems understanding and improvement.

Right away in Chapter 1 the reader is confronted with the challenge of “why state reforms fail to take hold.” The answer, for starters, is that “subsystems can optimize local goals, while ‘carelessly’ undermining system goals.” We begin to see the solution, one that encompasses the need for subsystems to interact laterally – a conclusion essentially similar to our own work in fostering “deep learning” across large school systems (Fullan, Quinn, & McEachen, 2018). Of course, there is much more to what needs to be done, which you will find in the chapter. The strategy involves greater heterogeneity of interaction enabled by leaders who can help forge new patterns of learning that apply to larger understandings, and new solutions.

Chapter 2 applies systems theory to the turnaround school problem. Systems theory contains the distinction between single loop and double loop learning which always sounds mysterious. We can simplify it here. Single loop involves one variable, while double involves two. The full possible model is: theory > behavior > consequence. Most (non-systemic) strategies involve single factors such as: expecting new behavior, like practicing certain reading techniques, would result in improved reading. This is single loop learning (expecting one factor to make a difference). But let’s say we engage in double loop learning, where we add teacher beliefs, such as, does the teacher believe that the student is capable? It turns out that the teacher does not believe the student is capable, and when the behavior is not forthcoming they have an “I told you so” attitude. No improvement ensues and the teacher is proven right in the circumstance. Now systems theory comes into play. The teacher is helped to question her beliefs and is paired with another teacher who demonstrates that high expectations combined with behavior actually works. We don’t have to call it systems theory but that is what it is: behavior (single loop) doesn’t work, but if backed up by discussing and questioning beliefs (double loop) that turns out to make a difference. The conclusion, which the principal discusses, is that if teachers learn together, examine expectations, discuss their own beliefs, and test them out, then the group can make a difference even in difficult situations. What they do is take one more factor into account, namely, the teacher’s belief. This is systems theory at work.

The above-mentioned example is at the individual school level. We can seek more systems-level confirmation if we turn to an example from Part III of the book (no need to be linear) where turnaround schools are considered for a whole state – Victoria, Australia. Here systems theory takes us to consider a state-wide approach that involves learning and improvement cycles where schools within the system learn from each other. The third chapter at the school level focuses on equity, and shows that treating equity as a system (as distinct from a technical problem) can make a world of difference. The authors make the case that complex social problems require getting at the views of those who may not be at the table, and are the ones experiencing the problem.

The final chapter of Part I – still at the local level – focuses on how we might measure systems thinking in elementary school principals. This chapter not only identifies the components of school principals' systems thinking, but also shows its significant correlations with instructional leadership and organizational commitment.

Part II of the book contains four chapters at the middle level of the system (at the district or regional level). Chapter 5 compares system growth models in two states: Ohio and Texas. The chapter gets at critical differences between the two states, and more discussion on the causes or reasons for the differences could be a valid topic for future study.

Chapter 6 presents a wonderful analysis of how systems theory was used to cultivate changes from within, relative to establishing a culture of sustainability within a whole district. Diverse networks were combined with high levels of trust to establish and culture green-based sustainability. Eight critical incidents are identified that constitute an effective theory of action for district sustainability. We see a combination of front-end communication and focused relationship building that permeates the whole system.

Chapters 7 and 8 complete the cases at the district or regional levels. In Chapter 7 we see an aspect of district change that is often neglected, namely the relationship between the school board and the superintendency. As we see in our own recent work, sustainable change requires developing rapport between school trustees and superintendents (Campbell & Fullan, forthcoming). For systems change, district leaders must frame the discussion in interaction with wider evidence related not just to educators but also to community, business leaders, and related multiple stakeholders. In Chapter 8, "System Leadership for Continuous Improvement," we see a model that is explicitly focused on developing system solutions consisting of: system outcomes, variation, system perspectives, evidence-based processes and outcomes, and involving specific mental models, behaviors, and focuses. This chapter shows how system leaders think, and what actions they take to foster a culture of system improvement.

The final section of the book contains four chapters on systems thinking at the state and national levels. Chapter 9 examines the impact of social media on actions in complex systems. Chapter 10 shows the relationship between whole system action, and local action that reveals both their mutual autonomy and their interrelationships. Chapter 11 focuses on school turnaround across the whole system using system theory as both an analytic tool and a strategy of school improvement. Systemic thinking reveals a four-fold table of system interaction aimed at turnaround based on type of interaction: confluence, collision, pull, and push. The last chapter once again takes up the question of turnaround schools across a whole state (Victoria, Australia). This chapter reveals the importance of and need for combining system leadership and school leadership for whole system reform.

All in all, *Leading Holistically* is a one-of-a-kind book. It provides a set of examples of what leading systemically looks like across the three levels of systems. It gives us “applied system thinking in action.” It sets a new standard for systems theory. Above all it invites new applied scholarship using the power of systems thinking to understand and take actions that affect whole systems for the better. It presents a new and powerful friend into the neighborhood. It makes system thinking that much more accessible.

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PREFACE

The Systems Language

The rapid changes and increased complexity of today's world present us with a new and challenging phase for education systems worldwide, requiring fresh thinking and new approaches. Simply put, the traditional tools at the disposal of policymakers, district leaders, and school principals facing today's educational leadership complexities are insufficient. Educators sorely need comprehensive frameworks accompanied by complementary strategies to guide them toward success. We believe that systems thinking may be extremely beneficial for dealing with the educational challenges of the twenty-first century.

To explain systems thinking in general terms, we will begin with the opposite point of view, which is beautifully expressed in the famous parable about a group of blind men who wanted to explain an elephant, by feeling various parts of its body. When they conceptualized the elephant based on their incomplete experience, their descriptions were fundamentally different. A poem based on this Indian parable, written a hundred and fifty years ago by John Godfrey Saxe, concludes: "And so these men of Indostan / Disputed loud and long, / Each in his own opinion / Exceeding stiff and strong, / Though each was partly in the right, / And all were in the wrong" (Saxe, 1873, pp. 77–78).

In contrast to how these blind men chose to go about grasping the issue at hand, systems thinking is about seeing the whole picture. It advocates stepping back and focusing not only on the trees but also on the forest – with the trees symbolizing particular situations or limited domains, while the forest symbolizes the overall view. Instead of being overly focused on discrete details, systems thinking urges its practitioners to discern an overall pattern from a collection of details, aggregating and integrating this data into a holistic framework. Systems thinkers see a broad, general view of the system's components and environment, and direct their efforts accordingly. Therefore, systems thinkers are able

to understand the system both conceptually and functionally, even without understanding all its minutiae. They seek not only tactics, which are incremental steps and short timeframes along the way, but also a strategy, which is oriented toward achieving broader missions and long-term goals.

The ancient Greek philosopher Aristotle laid one of the foundations of systems thinking by positing that a whole is greater than the sum of its parts. From this perspective, the elephant is not only a combination of trunk, tusks, ears, legs, and tail; in fact, the elephant as a whole lends meaning to the trunk, tusks, ears, legs, and tail. Along the same lines, the only way to fully understand a system is to understand its parts in relation to the whole, because it is the whole that endows the parts with meaning. Moreover, the elephant's defining characteristics indeed comprise the characteristics of the elephant in its entirety. The defining characteristics of the whole system cannot be found in the isolated parts, because once the system is analyzed – i.e., taken apart – these defining characteristics lose at least some of their meanings.

The elephant is not the sum of its parts; it is a product of the parts' interactions. Systems thinking is a holistic perspective that focuses on how the parts function together in networks of interaction, not on breaking down systems into parts in order to understand them separately. The parts of a system operate in intimate interconnections, with the interactions among them creating the whole and shaping its defining features. Systems thinking provides a means of seeing the system as an integrated, complex composition of many interconnected components that need to work together for the whole to achieve success. Thus, to improve the whole, systems thinkers optimize the interactions among the system's parts. Interaction management may result in improved performance, reduced conflicts, expanded delegation of responsibility, and overcoming of resistance.

The figurative elephant discussed in this book refers to education systems. This text's goal is to explore educational leadership and policy through the systems thinking lens, placing the study of wholes before that of parts. Research on systems thinking in the context of educational leadership and policy is scarce, although its potential contribution to various educational issues has received growing attention in recent years. Aiming to expand the existing literature on systems thinking in educational leadership and policy, this book deals with three concentric spheres: the individual school level, the district/regional level, and the state/national level.

Thus, this book is divided into three main parts: systems thinking at the individual school level, systems thinking at the district/regional level, and systems thinking at the state/national level. Most importantly, the major theme focuses on how these three concentric spheres can be woven into a coherent whole. Despite this analytic division, the chapters examine how the three different levels of systems thinking in educational leadership are interrelated and interconnected and in effect are the system.

The first part of this book focuses on systems thinking at the school building level. Therefore, it deals with systemic aspects of school leaders' practices in general, and within complex contexts of diversity, low-performing schools, and educational reform implementation in particular. Despite their focus on the individual school level, the chapters in this part broadly consider the school environment, carefully examining the school's interactions with the district and national levels.

In Chapter 1, Ebony N. Bridwell-Mitchell (Harvard University) conceptualizes school organizations as systems, exploring the implications of this perspective on understanding how schools respond to state-mandated reforms. An illustrative case shows that school responses are driven, at least to some extent, by socio-cognitive control processes, which under identified conditions maintain the status quo. These conditions stem from highly differentiated informal school subsystems, suggesting that an inability to coordinate competing subgoals across subsystems had contributed to the school's ultimate closure.

In Chapter 2, Sharon F. Rallis (University of Massachusetts Amherst) and Rachael B. Lawrence (University of Massachusetts Amherst) investigate a failing urban elementary school that has demonstrated a holistic change directed by systems thinking, describing how this approach applied by key actors in the school and district led to dramatic changes in the school's teaching and learning culture. To this end, the chapter focuses on systemic interactions, perspectives and boundaries, providing insights regarding the courage, risks, and actions that schools should apply to address the interconnectedness of human interaction to lead system change.

In Chapter 3, Sharon D. Kruse (Washington State University) demonstrates how school leaders can benefit from the soft systems thinking perspective, illustrating how it may be applied in addressing issues of equity within schools and school districts. Equity challenges do not exist independent of school leaders, teachers, or students and their families; they are deeply contextual and situational, and are also open to interpretation. Surfacing different views, including those related to problem-definition and potential explanations or decisions, is a hallmark of the soft systems approach, and can be utilized to cultivate equity leadership in schools.

In Chapter 4, Haim Shaked (Hemdat Hadarom College of Education), Pascale Benoiel (Bar Ilan University), Nechama Nadav (Bar Ilan University), and Chen Schechter (Bar Ilan University) present an instrument developed to measure systems thinking in elementary school principals. Their findings indicate that principals' systems thinking comprises the following factors: evaluating significance; openness to a variety of opinions; leading wholes; and adopting a multidimensional view. In addition, principals' systems thinking was found to correlate significantly with two relevant established constructs: instructional leadership and organizational commitment.

The second part of this book expands the horizons being viewed, discussing systems thinking at the district level. In this part, systems thinking is used

to explore topics such as cross-district results and whole-district transformations. Naturally, the superintendent's role receives special attention in this part, throughout which the district is viewed as having a reciprocal relationship with both the individual school level and the national/federal level.

In Chapter 5, Alex J. Bowers (Teachers College, Columbia University), Xinyu Ni (Teachers College, Columbia University), and Jennifer Esswein (Education Northwest) apply hierarchical linear growth modeling to district demographic and effectiveness data in order to identify districts that are significantly outperforming or underperforming their demographic and resource characteristics compared to the entire population of other districts. They found that multiple district demographic variables and financial expenditures have a significant connection to growth in the district level's academic achievements.

In Chapter 6, Cynthia L. Uline (San Diego State University) and Lisa A.W. Kensler (Auburn University) employ instrumental case-study methods to gain an in-depth understanding of a system-wide reform within a large California urban school district, aimed at "greening" the district from the inside out. Findings show how district and school level leaders applied systems thinking to invite creative solutions and adaptations, building a diverse network of support for sustainability-related building, management, and curricular and instructional practices throughout the district.

In Chapter 7, James Coviello (University of Texas at El Paso) and David E. DeMatthews (University of Texas at Austin) provide a framework for examining the functioning of superintendents who aspire to achieve equity-oriented leadership. Aiming to influence the process of sense-making and to inspire action, these superintendents effectively frame problems and propose solutions with messages that draw on the ideas and language that already exist in the broader community. This model of holistic engagement focuses on building broad coalitions and influencing various internal and external stakeholders.

In Chapter 8, Christina J. Dixon (Carnegie Foundation for the Advancement of Teaching) and David Eddy-Spicer (University of Virginia) examine the current research-based knowledge at the intersection of the fields of quality improvement, education, and leadership. Based on the existing literature, which highlights how successful leaders of continuous improvement think, what they do, and where they focus their efforts in order to address systemic challenges, the chapter presents an initial model depicting how educational leaders initiate and sustain systemic continuous improvement across their districts.

Encompassing the whole picture, the third part of this book engages in systems thinking at the national level. It thus engages in topics such as educational policy setting, state-wide programs, and the system of social media which swirls around and interacts with educators. Overall, systems leadership in education may be seen as funnel-shaped, starting with the national school system as a whole, going through the district, and ending at the specific destination of the individual school.

In Chapter 9, Alan J. Daly (University of California, San Diego), Miguel del Fresno (Universidad Nacional de Educacion a Distancia, Madrid, Spain), and Jonathan A. Supovitz (University of Pennsylvania) seek to understand the meaning-making that occurs within the growing social media system around educational policy and systems leadership. Relying on data from a recently completed longitudinal study of nearly 200,000 actors, they offer insights into the impact of transactions among “socially influential” actors over time in this new social media/educational policy space, expanding traditional concepts of the “system” in systems-level leadership.

In Chapter 10, Adam Nir (Hebrew University of Jerusalem) proposes systems thinking as a useful framework for policy-setting processes where policy makers face dynamic and complex circumstances which involve heterogeneity and contradictions. Based on the analysis of an Israeli policy program, the chapter offers a typology of the compromises made by policy makers, suggesting that determining reasonable boundaries for systems thinking processes performed in loosely coupled systems is essential if these processes are to assist policy makers rather than increase the complexities confronted by them.

In Chapter 11, Andrea Rorrer (University of Utah), Vicki Park (San Jose State University), Cori Groth (University of Utah), and Janice Bradley (University of Utah) apply a systems theory approach – the Confluence of Influence theory – to examine the evolution of a state-wide leadership support program for turnaround leadership. They discuss how this policy and its funding context have created the “space” and intentionality for the program to develop, and how the various actors within the systems played various roles in negotiating and developing the program.

In Chapter 12, David Gurr (University of Melbourne) and Lawrie Drysdale (University of Melbourne) integrate a variety of research sources on system leadership in the state of Victoria, Australia at the system, regional, and individual school levels. Based on these pieces of interrelated research, they claim that whilst system leadership can be helpful at the individual school level, the work of the principal, other school leaders and critical friends was more important to the school’s improvement journey. Without effective school leadership, system leadership’s impact is likely to be limited.

Moving beyond the typical focus on discrete units, this book may usher in a new epoch of systems-level leadership and focus. Too often, school leaders and policy makers are peddled simplistic solutions to complex situations. As so many leaders have discovered, these panaceas unfortunately rarely work, because they are not sufficiently holistic. By focusing on parts rather than on the whole, and by assuming that there is one best solution that fits all circumstances, educational leaders miss the opportunity to adequately consider the complex interactions that occur among various parts of the system. Hence, without systems thinking, educational leaders may find it nearly impossible to face contemporary growing complexity, change, and diversity. The current book suggests a systems-thinking

approach that integrates both theory and practice for educational leadership at the state, district, and school levels. It reframes the idea of educational change within a broader idea, i.e., the systemic one. This idea has significant implications on how we conceptualize the “elephant” of educational change and the actions to be taken in order to realize the promise of improvement for all those connected to and involved in the important endeavor of education.

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PART I

**Systems Thinking at
the School Level**

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SYSTEMS THINKING TO DRIVE SCHOOL TURNAROUND

Sharon F. Rallis and Rachael B. Lawrence

Many U.S. public schools in high-needs urban areas operate in and with failing systems. Success in teaching and learning in such schools is challenging and often impossible (Anderson & Stillman, 2013). In recent decades, considerable U.S. federal dollars have been directed toward reforming these schools. Few have been successful in either the short or long term (Dragoset et al., 2017). We suggest that too many reform efforts lack attention to systems and the systemic thinking required to bring about sustainable, enduring change. Riverton, an urban elementary school located in Portland, ME that in 2009 was designated as a *persistently failing school* by the U.S. Department of Education but demonstrated a genuine *turnaround* by 2013, illustrates a case of holistic change guided by systems thinking (Lawrence, 2016). We hope presenting our experience studying this school can provide insights regarding the courage, risks, and actions that schools must take to address the interconnectedness of human interaction to enact system change.

School turnaround literature indicates that the right leader is essential to improvement (Dodman, 2014; Duke, 2015; May & Sanders, 2013; Reyes & Garcia, 2014). A single-loop thinking theory of action might lead to the conclusion that strengthening the leader may be the best approach to school improvement. However, double-loop thinking suggests that to change the school a cadre or league of leaders engaging together in inquiry and action is needed to create and nurture the change (Militello, Rallis, & Goldring, 2009; Rallis & Militello, 2010). In our case example, the Chief Academic Officer (CAO), the principal, the literacy coach, union leaders, and teachers worked together to question and change teaching practice in their schools.

An operating theory of action in Riverton was: “if teachers learn, students will learn.” Originally this theory functioned with single-loop thinking that

encourages individual teacher professional development to improve instruction (Rallis, Churchill, Lawrence, & Darling, 2011). As systemic thinking took hold, double-loop learning dominated with recognition that teachers need to learn together around common instructional themes. Using the Riverton case, we describe how systems thinking by key actors in the school and district led to dramatic changes that facilitated a holistic culture of teaching and learning in a U.S. elementary school populated by many high-needs learners.

We define systems as consisting of elements – the parts that make up the whole – that are linked together by processes and interrelationships; these parts are bounded, limiting what falls inside the system (Williams & Hummelbrunner, 2011). *Systems thinking* is a way to understand systems holistically, focusing on how the parts work together over time to function successfully (Shaked & Schechter, 2017). We draw on institutional theory that describes an organization's processes and relationships as regulatory, normative, or cultural-cognitive (Scott, 2005, 2008). As well, our analysis is informed by the classic systems thinking work by Argyris (1976), who posits that focus on a single variable in problem solving or learning leads to flawed assumptions and double-loop learning asks us to question our assumptions from a systemic point of view. In this chapter, we tell the story of the change at Riverton, first describing the context of the school and our research, our conceptual framework for systemic change, and our analysis of what happened.

Context: The Story of the School and our Studies

We are researchers from the University of Massachusetts Amherst who first came to Portland Public Schools (PPS) in 2011 to examine the effects of a knowledge and skills based salary schedule proposed by the union, approved by the school board, and implemented in 2009. Portland's Professional Learning Based Salary Schedule (PLBSS) was grounded in the theory of action that teacher involvement in targeted quality professional learning could positively affect student learning: put simply, *if teachers learn, students learn*. The program argued that traditional professional development (PD) failed to produce authentic teacher learning because teachers had little opportunity to choose PD that was directly related to their classroom instruction. PLBSS gave teachers great control over their PD options and rewarded them for these choices. Under this system, teachers could participate in book groups, study sessions, or take courses on what they perceived as being their most urgent instructional needs, and they would advance on the salary schedule for their participation in instructionally relevant PD. Moreover, the union and school board anticipated that this salary system would improve both recruitment and retention of quality teachers. Our original study revealed that district hopes were met: salaries increased; teachers stayed in the district; and any vacancies within the district were readily filled with strong candidates. Surveys and interviews indicated that teachers were selecting PD

according to what they perceived were their students' needs. Records revealed high rates of participation and variation in the kinds of PD experiences offered and chosen. Often groups of teachers chose or designed a course together. Both leadership and teachers reported that participation in the PD improved instruction and provided compelling anecdotal evidence for improved student learning. We chose not to look at achievement scores since we could not, with validity, attribute any increases or decreases to the PLBSS (Rallis et al., 2011). Intrigued by what we heard, we returned to explore if we could make connections between participation in PLBSS and student achievement.

To design the second study, we worked with district and union leaders to select four elementary schools in which we carefully examined the teachers' professional development participation records to compare with student testing outcomes. We coded the PD database for teachers at the four sites, and then looked at the rate of test score change at each school. In doing so, we came across what we thought was an anomaly. One of the four schools had almost zero participation in PD recorded in the past three years. And yet, this school's test scores appeared to be rising more rapidly than the others in a statistically significant way (Rallis, Keller, Lawrence, & Soto, unpublished study). Other schools in the study had robust participation in this record system, and yet their scores were not remarkable. We thought perhaps something was amiss – so we asked why Riverton seemed to have no participation in the PLBSS system.

“Go in and see it!” was the response from union leaders. “They have been working so hard, and there's a reason you can't see it in our database. We're working on it for them, though” (interview, 2013).

Something different than we expected, given the demographics, the location of the school, and the activity recorded in the professional learning database was happening, and we had to go see what it was. As a seasoned professor and researcher of education reform and a former teacher who worked in high-needs schools, what we found at Riverton was truly unexpected. We witnessed a case of people thinking and working together systemically to enact whole school positive change.

The Case

Riverton School is located in Maine's largest city. In 2013, 73.2 percent of students qualified for free and reduced lunch; 37.6 percent of the students were English Language Learners; 49 percent of the students spoke another language at home (Maine Department of Education Data Warehouse, 2017). All told, more than 23 separate languages and dialects were spoken in the homes of Riverton students. In recent years, Portland has become home to many refugees – families fleeing conflict zones and political oppression. As a result, students and their families came from places like Russia, Somalia, Vietnam, Afghanistan, and other nations (interviews, 2013).

Even before the recent wave of immigration to Portland changing the student population to high ELL needs, Riverton had long been considered a less-than-adequate school. Looking back on the school, one leader remarked, “For a decade before, you could have run any 400 kids through that school, and the results would have been the same . . . the adults [would have said] ‘those kids can’t learn’” (interview, 2013). Teachers reported that, in the past, they had blamed parents for not sending their kids to school ready to learn (interviews, 2013). And, the building was old, poorly maintained. “Riverton is dark, like in a deep hole,” recalled a district leader (interview, 2013). Teachers reported that they felt isolated in the building (interviews, 2013; 2014). Neighborhood parents also felt something was wrong. They made this clear in their actions by complaining on the district polls (interview, 2014) or by sending their kids to parochial options when they could afford to do so (parent conversation, 2014). This school had desperately needed to change the way things were done.

The state of Maine recognized that problems existed and identified Riverton as a *persistently failing school* in 2009. With that label, Riverton became eligible for a federally funded School Improvement Grant (SIG), part of the American Reinvestment and Recovery Act passed earlier that year. Portland Public School District applied for the SIG and were awarded a substantial grant (\$3,386,154.00) to support change in the school. Professionals across the district pulled together to plan the change project; central office administrators collaborated with school officials, the union, and teachers to develop a plan.

Entering the school for the first time in 2013, we never saw the “persistently failing” Riverton in a “dark hole.” We never saw the discouraged teachers, the students with unmet needs, or the run-down school. In fact, the only evidence we have of Riverton’s past is the testimony of those who had lived the change. The meteoric rise in test scores also demonstrated that something different was happening in Riverton than in the past. The school we entered was bright, organized, cheerful, welcoming. As we walked in the front door we were greeted by a sign with the word *welcome* translated into the 23 languages spoken. People smiled as we met them. Student work was proudly displayed in the halls, and as we walked around, we could see that these selections were purposeful and interconnected. When we interviewed teachers, we heard:

I know how to teach my kids.

The kids love coming to school now.

My students are getting to a deeper level of understanding.

(interviews, 2013; 2014)

Teachers expressed improved efficacy, demonstrating confidence in their ability to teach to reading and writing. Students seemed happy and content, even proud of their work. The students’ standardized test scores increased across all

tested areas. The most dramatic change was in reading and writing, but students also improved performance in mathematics. The culture of teaching and learning at Riverton had entirely transformed from that described by school officials as they looked back at the time before the turnaround efforts (Lawrence, 2016).

Riverton is a Turnaround School that actually turned-around. What happened?

Conceptual Framework: Systemic Thinking about Change

We argue that the change in Riverton School resulted from people questioning their assumptions and learning to work together in new ways. Their thinking became systemic, combining inquiry with action (see Militello et al., 2009). Any system consists of linked elements interacting within the whole. Multiple systems were involved in the turnaround since Riverton was itself nested within other systems: district, state, and federal education. While many of the elements in the larger systems remained the same, people directly involved with Riverton engaged in inquiry that led to rethinking their practices: they *observed*; they *identified* and *focused* on problems; they consciously *examined* and *re-conceptualized* these problems; and they *experimented* and *took action* (Schön, 1983). They moved from seeing only the individual teachers, students, classrooms, families toward making sense of how these parts interacted with each other and were related to the central element (represented by the union and Chief Academic Officer). This recognition that every action (or inaction) by one part affected other parts, which then affected others and the whole, shaped their operating perspectives. Their systemic thinking altered roles and the ways people interacted – they were willing to take risks to act in new ways.

We, the research team, found the best way to understand what happened at Riverton was to use systemic thinking ourselves; thus our research methods were reflective, collaborative, assuming evolution, iterative. Our ethnographic approach was itself holistic, balancing between the elements and the whole. “Systemic thinking is about making sense of the world rather than merely describing it. It is fundamentally a process that organizes the messiness of the real world into concepts and components that allow us to understand things a bit better” (Williams & Hummelbrunner, 2011). To start organizing the messiness of the change, we asked: What relevant elements were operating? How were these elements connected to each other and to a center? Thus, our first organizing concept is *boundary* (see Williams & Hummelbrunner, 2011, for expanded discussion of these concepts). Because we acknowledge that any system is a mental construct, we wanted ours to be manageable. We considered how we would determine which elements would fall inside our system of focus – and which would not. We also considered whose voices were important to define where boundaries would fall, so we sought input from leaders across the systems. The CAO, the union professional development coordinator, and the union president also wanted to understand the change, so

they agreed to work closely with us. Together we decided to draw boundary around the school itself. While acknowledging that the school was embedded in multiple external interrelationships, we felt that the place to start was with what happened within the perimeters of the school property. Thus, we attended only to elements within the school; decisions and actions of teachers, students, administrators, CAO, union officials, and parents were only considered when they were either present inside or directed to the school.

Defining or framing our system with the limit of the school is not a neutral act. Although we recognized that external relationships did influence the situation, we were establishing a particular perspective, assigning importance and value to internal events, actions, roles, and relationships. How did our boundary align with boundaries others have drawn? Would our analyses and syntheses be acceptable to inform practice and to serve the systems in which Riverton is embedded? Was our boundary fair? That is, were we marginalizing, silencing, or excluding some while privileging others? (Rossman & Rallis, 2010). What unintended consequences might our framing have? Would it shape our expectations and, as a result, our findings? Designing the study closely with the leaders addressed these questions. We all agreed at the outset to make our reasoning and decisions transparent and to remain open to alternate views or interpretations.

The next organizing concept that logically follows boundaries is *perspectives*. Perspective or orientation shapes or frames *how* we see or interpret a situation. Perspectives are deeply rooted in sets of assumptions held about reality (does reality exist independent of my perceptions? How have my experiences shaped my perceptions of reality?) and how reality is discovered (what do I accept as evidence? How do I learn?) (see Rallis & Rossman, 2012; Rossman & Rallis, 2017). To think systemically, individuals have to be aware that any situation can be seen from more than one perspective – and that different people use different lenses to determine how their research develops: what data to collect, what is considered legitimate evidence, how to make interpretations.

Perspectives importantly draw the focus away from the system or situation as it supposedly exists in “real life” and allow us to consider alternatives: what it might be like, could be like, or even should be like . . . The similarities and differences between perceptions of *what is*, *what people think it is*, and *what people think it could be* create puzzles and contradictions that achieve deeper learning.

(Williams & Hummelbrunner, 2011, p. 21)

Our research team had both a qualitative expert and a quantitative expert, so internally we represented more than one perspective. We also brought varied experiences regarding schooling (teacher, principal, school board member, testing expert). Similarly, the people at Riverton brought various worldviews that may have differed from those of the district leaders. Our dialogues helped

us make sense more holistically. For example, union and central office leaders were driven at the outset by socio-political forces that demanded proof of effectiveness. They wanted evidence that would link specific decisions (e.g., embedding an instructional coach; school driven PD) with the increased scores. Our researcher lens fought back, questioning the legitimacy of attributing any cause-effect linkages. As we talked together, we asked how we could document actions and interactions and then make sense of them. We also sought ways to better inform the attribution questions. What perspectives did the participants themselves hold? How did they see the changes in Riverton? What influenced these perspectives? We planned the research together and regularly shared and discussed our findings.

Identifying perspectives provides insight into another organizing concept: *interrelationships*. System elements are linked; processes and relationships hold them together within an accepted boundary defined by a central concept (*student learning* in the Riverton case). How are the elements connected? Where are connections strong or weak? Multiple theorists suggest that simple, complicated, and complex decision-making domains exist within systems theory (see Gell-Mann, 1995; Kurtz & Snowden, 2003; Patton, 2011; Rogers, 2008). We propose, drawing on common descriptions of chemical bonds and electronic network systems, that these categories can describe interrelationships. The connections could be *simple* with weak links between elements but strong linkages to the center; they could be *complicated* by strong links between both other elements and the center; or, they could be *complex*, strongly connected to each other but with no center. Interrelationships that exist within a system depend on context and the needs of the elements in that context. Interrelationships change as the system changes. One type is not inherently better than another; rather, different contexts call for different interrelationships.

Various processes guide the interrelationships and connect the elements. Are they regulatory, normative, or cultural-cognitive (taken-for-granted) (Scott, 2005, 2008)? What patterns can we see? For example, are they dynamic, linear, or nonlinear? What feedback loops exist? How sensitive to the context are the relationships? What consequences do the connections have? Argyris (1993) posits that learning occurs when a mismatch exists between a goal, intent or value and the consequences of action. What he calls single-loop learning results in modifying only the action; whereas double-loop learning calls for a re-examination of the underlying assumptions that drive the actions, what Argyris labels governing variables.

Exploring these questions and making sense of the *interrelationships* in terms of the changes at Riverton is an interpretive act; it requires that we look at the human actions with regard to specific situations: what do we think people are doing and why? What happens around the actions and how do we think these are related? We believe that human actions are constructions; people act in response to how they have defined others' actions, assuming the other's intent.

People interpret each other's actions as the means of determining how to act toward one another (see Blumer, 1969). Sometimes participants in a situation share interpretations of actions; often they do not. Meanings become attached to certain actions, which can become symbolic, serving regulatory, normative, and cultural functions.

In summary, we use boundary, perspective, and interrelationship to guide our analysis and interpretations and to understand how a league of leaders engaging in double-loop learning, through an inquiry-action cycle, helped turn Riverton around. As researchers, our making sense of a situation is actually recursive interpretation: making sense of the participants making sense of each other. Our data come from record reviews, test score analyses, and two years of visits to Riverton for ethnographic interviews and observations. We divide the change process into three phases. Elements presented throughout the process included the following: teachers, principal, literacy coach, union coordinator and president, and deputy superintendent.

Riverton Turns Around: Making Sense of What Happened

Phase I: A Simple System

When Portland Public Schools received the School Improvement Grant, federal policy dictated that schools should use one of four models to produce change as a condition of the grant: Turnaround, Transformation, Restart, or School Closure. In the first year of funding, the school elected to use the Transformation Model, which required schools to work towards *improving teacher and leader effectiveness, extending the school day, fostering community orientation, and providing operational flexibility* (Terry, 2010). To improve effectiveness, the Chief Academic Officer (CAO) and the school's full-time literacy coach, Tracey, made the decision to adopt a common curriculum. They selected a well-known reading and writing program, *Units of Study*, commonly called the *Writers and Readers Workshop*. Further, the CAO and the Portland Education Association (PEA – the union) supported several actions: increasing the part-time literacy coach to full time to facilitate curriculum implementation and engaging faculty in expert level professional development at Teachers College in New York City. The school day was extended. To foster community engagement, resources were directed to create the School and Community Center in the building. Operational flexibility was minimally addressed by embedding the reading coach and by adjusting bus schedule to allow the extended day. As well, the district directed resources to repaint the school, changing its appearance to a bright, open space, very different from the dark walls that were an artifact of the original 1970s building. The repainting, the PD experience at Teachers College, and the School and Community Center became visible, even tangible symbols that change was occurring.

During this phase, many elements inside Riverton had not changed; teachers and the principal were those already in place. At the same time, the boundary extended outside the school building to include the PD sessions at Teachers College, which were reported as critical to teachers' learning to instruct Riverton's students. The teachers reported it was "inspirational" to go into schools in New York City that had implemented the curriculum successfully and see what they'd learned in action (interviews, 2013). The boundary also included union leadership and CAO, who became the central elements, driving the change. We classified the system as simple; links between the individuals, teacher groupings, the principal, coach, and others in the building were weak. These elements appeared to be more strongly connected to the central elements (union and CAO). Interrelationships appeared to be defined primarily by regulatory processes, that is, adhering to the guidelines or rules of the organization or leadership. Teachers were seen as resistant to getting help to change their practice. For example, they complained to the CAO that the professional development provider (a recognized expert in the selected curriculum from out-of-state) was "condescending" and "out of touch" with the needs of Riverton (interview, 2013). While the Riverton faculty enjoyed escaping the boundary of their school for a while, they did not seem to appreciate an outside "expert" entering their boundary in the same way.

We consider that a simple interrelationship system, with the focus on hierarchical elements and implementation of centrally decided strategies, fit the existing school context and thus was likely what was needed to initiate the change process. In this initial phase, actors within the school had not yet had the opportunity to really engage in inquiry-action processes, and the league of leaders within the school had not yet formed. Thus, at the end of the first year, the CAO felt the potential transformation through this model was yet unrealized. "Transformation of this school wasn't going to happen. We had to turn it around" (interview, 2013). He chose to have Riverton adopt the Turnaround Model.

Phase II: A Complicated System

The Turnaround Model required change in leadership and faculty in addition to the elements described in the Transformation Model. As part of the Turnaround plan, a new principal, Jeannie, was hired. Jeannie brought extensive experience in leading literacy and language acquisition in a large, metropolitan school district. Having grown up in the district, she knew Portland Public Schools well. Jeannie expressed that part of her role in the school was as "a cheerleader" (interview, 2013). She brought a new style of leadership to Riverton. She recognized the needs of her faculty to feel supported in the change, bringing food and drink to professional development meetings. She participated in PD alongside her faculty, recognizing the presence of other leadership forces in

the school. As principal, she seeded the inquiry process in the school by encouraging teachers to observe and consider what they were seeing in their own and others' practice.

The new model also meant that half of the teaching force needed to be replaced. Working with the union, many teachers who had worked in Riverton moved to positions elsewhere in the district; many had been "counseled out" to find positions more in line with their philosophies and skills. New teachers arrived to fill their positions. The teachers who remained expressed their willingness to take necessary risks to learn new processes. The CAO addressed the faculty resistance to the external expert professional development provider by hiring a local curriculum expert, Kelli, to work directly with the coach (Tracey) and teachers in the school.

The school embraced an embedded professional development system. In this setting, embedded meant a holistic approach with groups of teachers engaged in professional learning largely during the school day and in the school. What was learned in professional development was then further supported by Tracey who regularly scheduled opportunities for observations and feedback in the classrooms with the teachers. Sometimes the faculty workshopped teaching scenarios outside of the classroom, role-playing as students. The professional development specialist, Kelli, came into the school on a regular basis to observe and instruct, leading small-group professional learning sessions during the school day. This style of professional learning allowed teachers to observe, to identify and focus on an area of practice that needed to be reconceptualized, and to experiment with changing their instruction. Working together, they could troubleshoot and adjust practice, supporting a holistic inquiry-action cycle in the school.

Some structural changes were made to support the embedded PD. The principal changed the master schedule to ensure all teachers at each grade level had consistent common planning time during which they used their inquiry cycle. To further support teacher collaborative learning and engagement, three full-time floating substitute teachers (subs) were hired. The subs were trained in the curriculum and were familiar to all of the students in the school, due to their full-time status. To this end, they were able to provide consistency in curriculum delivery and supported teacher interactions and their developing interrelationships.

Prior to the turnaround, teachers and leaders noted that no shared strategies or curriculum for teaching writing existed at Riverton. With the implementation of the common curriculum, teachers developed sets of collective practices as well as a shared language of instruction. This provided students with consistency in reading and writing instruction that had not been available in the school before the turnaround. Also, the common language and strategies enabled the teachers to communicate with each other more effectively – revealing stronger bonds between grade level teachers. Getting comfortable with the observations and feedback of others in the classroom setting allowed teachers to question and

revise assumptions underlying their practices, thus incorporating double-loop learning. The most obvious example is the revised assumptions about what it takes to teach the Riverton students. Additionally, the principal implemented a cross grade-level literacy team. This team had regular meetings with the literacy coach (Tracey), the PD provider (Kelli) and principal (Jeannie), serving as a new leadership structure in the school, acknowledging the developing league of leaders in Riverton. These structural adjustments supported holistic change.

Another key difference in the new model requires some financial incentive to be provided to faculty who remain through the turnaround. At first, how Riverton teachers could receive salary incentive for persistence in the turnaround was unclear because the contract did not allow PD credits (PLBSS) to be applied to “in school” training. The leaders recognized that the embedded PD happening at Riverton was above and beyond typical “in school” PD – and sometimes called for long hours before and after the school day as well. The union and district recognized that this PD deserved credit, so they worked together to modify the contract so that the Riverton turnaround teachers could receive a salary lane-change worth of credit for persisting through the three-year turnaround. This adaptation of the contract is evidence of systemic thinking; central elements were willing to waive control to support needed holistic interconnections between the teachers.

The collective inquiry, the common curriculum and shared language, the embedded PD that involved groups learning together – all these normative processes strengthened links between elements in the building (teachers, Jeannie, Kelli, and Tracey) while maintaining the relationship with the center (CAO and union leadership). All three levels of leadership (district, union, school) remarked on their shared perspectives, investment, and interests. The CAO said: “When we need to work something out with the union – Sue is right here!” For example, when the central office feared that through PLBSS, teachers would not choose courses that would address core needs of the district, these leaders agreed to suggest amending the contract to require that selections fit five core areas; this modification was adopted and implemented. Such a *complicated* system operates with the strong interrelationships required for the safe environment that allowed double-loop learning to bring about the internal holistic changes occurring in Riverton.

Phase III: A Complex System

The third phase of the Riverton’s Turnaround happened after the grant period expired and the money was fully expended. We first entered the school in 2013, at the very end of the SIG-funded period. We continued to visit the school in the first year post-funding. We were curious: would the changes that occurred during the Turnaround be sustainable once the funding was gone? According to the CAO, the Turnaround had worked because, “[The teachers] worked

through the culture of being blamed towards a culture of *showing the world*. [The district office] took away perceived obstacles to teacher learning. And then, the teachers had a quick win with student learning” (interview, 2013, italics added to reflect change in tone).

During our visits, we saw clear evidence that the *collaborative inquiry-learning-action* culture that took root during the Turnaround period flourished in the year after. “Teaching is a public activity at Riverton,” reflected two administrators (interviews 2013, 2014). Rather than closing doors and teaching on their own, the doors remained open to visitors. These visitors included other teachers, the literacy coach, the principal, and students from local universities coming in to observe. We observed teachers asking each other questions in the hall, tracking down the coach to ask for feedback on an issue or idea, and reaching out to the principal with questions.

Embedded professional development sessions continued after the SIG expired, but the relationship with the professional development provider changed. During the Turnaround, most sessions had been directed by Kelli (PD provider) and Tracey (coach). They jointly determined the direction needed for each group of teachers. However, in the year after, Kelli expressed that she was so confident in the teachers’ abilities to collaborate effectively that she was now “turning the control over to them. I come in and ask, ‘how do you want to use this time?’ And – it’s often right in line with what I would hope they want to work on” (conversation during PD session, 2014). Teachers, in taking agency for their own inquiry processes, joined the league of leadership.

Perspectives had shifted. In the years before the turnaround, people working within and around the school expressed the idea that the teachers at Riverton were “good teachers,” but the students were not sent to school prepared to learn. Following the turnaround, Riverton teachers and leaders recognized that while the teachers might have been knowledgeable, that they needed to learn different skills in order to meet the needs of the students. One leader said, “They did not believe those kids could learn. And by the end, everybody had seen their kids’ writing – more than ever before, and coming to school wanting to write” (interview, 2013). He continued, “Changing the adult viewpoint – until teachers experienced that their PD learnings could make a difference for kids, they didn’t truly understand that the kids could learn.” The teachers learned what students in Riverton needed, and they learned how to meet these needs – and they could rely on each other as resources for helping to meet the needs.

Links between in-school elements continued to be strong as the connections to the central elements of the union and CAO were weakening, indicating a more *complex* system. The collaborative inquiry-based interactions in Riverton became *cognitive-cultural*, that is, “the way we do things around here” (Deal & Kennedy, 1982, p. 4). People learned from and with each other; actions resulted from multiple minds leading with shared focus and goals. We suggest that positive changes in such complex systems with strong internal linkages

are potentially more sustainable because work is owned by the internal elements working together, supporting each other as needed in a complex whole. Reliance on the external elements is reduced.

Conclusion

What we saw at Riverton was a school where *systems thinking* was the taken-for-granted way of operating across multiple elements. That is, people involved with the school focused on making the many and various parts work together over time (Shaked & Schechter, 2017); collaborative inquiry and action became ongoing standard processes. Groups questioned assumptions about relationships and perspectives to inform decisions that guided actions, thus allowing change to occur naturally and holistically. People recognized connections between problems and solutions; events were not seen as isolated.

If a child struggled with a particular learning, the issue was addressed systematically. Teachers came together with the principal, the coach, and the PD coordinator as needed, creating safe zones to identify, frame, and accept responsibility for problems. A problem belonged to all of them – not just to the child or an individual teacher. As well, the solution lay among all – no longer did teachers look to experts or specialists or the principal to fix a situation. They gathered data, made plans, took action, and evaluated the effects. Together, they reflected, revisited underlying assumptions, and reconceptualized their problems of practice. Their double loop learning meant that they chose not to do more of the same; instead they took risks grounded in their inquiry to fundamentally change their practices. In short, systemic thinking worked in Riverton because leadership was exercised through all the elements, at all levels. A *league of leaders* engaged together in inquiry and action taking risks to question assumptions with the double-loop learning needed to create and nurture positive and sustainable change (Rallis & Militello, 2010).

This turnaround did not happen overnight; indeed, we see the turnaround as the outcome of Riverton's journey through different systems configurations. When the change effort began, Riverton operated, as do many schools, with a simple system: teachers within or across grade levels seldom interacted professionally; teacher learning occurred individually, usually through university courses; rules, regulations, and decisions came from the central office. As the changes took hold, the system became complicated: teachers sought to align their work across and even between grades; teacher learning was embedded and collective; central office administrators and union officials supported teachers' efforts to do things differently, and teachers relied on this support. Eventually, Riverton operated as the complex system we have described; support and decision-making resided internally with little reliance on central leadership. For Riverton, this systems progression worked to facilitate and sustain change.

Lest we leave the impression that teaching and learning at Riverton remained nearly idyllic forever, we return to our systemic thinking as researchers and offer several concluding points and raise challenging questions:

- “Schools are almost always aboil with some kind of ‘change’” (Elmore, 2000). Riverton’s journey will continue. Its many elements will evolve and more will be added; needs and resources will increase and decrease; external factors and forces will vary. Thus, relationships, perspectives, and boundaries will shift. Will Riverton’s improvement process continue to be deliberate with clear and shared instructional goals? In what ways will the system alter? Will a league of leaders continue? And how will these leaders make sense of the changes? Will their systemic thinking endure?
- Riverton School is, of course, still part of other and larger systems. Over time, how do various external systems affect and shape Riverton? How will boundaries be redrawn or permeated? Can Riverton remain buffered from external forces? Can their way of doing things withstand the pressures from external institutionalized expectations of what makes a school legitimate (Meyer & Rowan, 1977) – especially if standardized achievement scores do not continue to rise?
- Similarly Riverton’s turnaround and systems thinking has potential to affect other systems. In what ways has the Portland Public School system – and the Maine Department of Education – learned from and used the improvements in Riverton? What policies can support in other schools the kind of systems thinking and systems change that Riverton experienced?

Still, Riverton Elementary School illustrates a successful systems thinking approach to change. Their theory of action in practice became: *If all adults in Riverton learn together, we can teach our students, and they will learn.* Yet, we wonder – was the move to their holistic understanding of their work intentional and purposeful? Or was the systems thinking generated by the unique evolving context – the particular way elements came together, boundaries formed and re-formed, and perspectives meshed? We suspect a *chicken–egg* situation occurred: a variety of forces created a safe space for systems thinking to flourish and thus to recognize and act on potential interrelationships between elements and perspectives. Riverton’s example may not tell us exactly *how* to turn every school around, but it does show us how systems thinking can support decisions for change that *can* turn a school around.

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