Radical Rules for Schools:

Adaptive Capacity

in Complex Systems

Note:

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--rholladay@hsdinstitute.org

by

Royce Holladay

Leslie Patterson

Glenda Eoyang

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Radical Rules for Schools

Adaptive Capacity in Complex Systems

An Introductory Note

Public school reform efforts in the U.S. continue to disappoint. Critics point to persistent achievement gaps and drop-out rates, especially among students of color. They tend to blame educators in general and teachers in particular. Many educators, however, blame the oppressive emphasis on high stakes testing and the unintended consequences of federal mandates. In addition, advocacy groups argue passionately for particular reforms. To be fair, school reform in the U.S. is a long-term proposition. The most recent wave of reform began in the mid-1980s and continues today. We have seen significant success at specific sites for relatively short periods of time, those successes have not spread, nor have they sustained. No one is happy.

The challenges are overwhelming. The systems are huge and highly diverse; the results are unpredictable and difficult to document; and political and interpersonal relationships inside and outside classrooms are massively entangled. People are beginning to recognize that school systems at all levels--classrooms, campuses, districts, and policy-arenas--are "complex adaptive systems." Large numbers of highly diverse, interdependent individuals, groups, and communities bring diverse agendas, histories, and cultures to try to establish patterns of teaching and learning. The challenge is to build structures that sustain adaptive capacity--teaching and learning--within this complexity--structures to help us navigate this turbulent and shifting landscape.

In such systems, it will never be enough to work on the most urgent challenges. Most of these issues, like the drop-out rate and teacher attrition, are merely symptoms of dysfunctional dynamics deep within the system. They emerge as a result of the complex dynamics of human thought and interaction, and to work on only those individual issues is to ignore the underlying conditions that trigger and exacerbate those symptoms. It's like treating arthritis with aspirin—it relieves some of the pain, but does not address the underlying disease—and the medicine can even trigger other problems and unintended consequences.

The more we can learn about the underlying dynamics of these complex systems, the better we can work from the inside to trigger significant transformation. In fact, it is our belief that transformation is only possible from the inside. Such transformation is not magic. Complexity scientists call it "self-organization." We believe it is possible to explain the dynamics of self-organization and use that understanding to inform decision making and action taking. Our purpose in writing this book is to explain those dynamics and to explore the implications for our work in schools.

Transformation, or self-organization, is about adapting to changing conditions within and outside our systems. The more adaptive capacity we have, individually and collectively, the more productive and joyful we can be in our work. This book is intended to help educators and other stakeholders build "adaptive capacity" by

helping them see, understand, and influence patterns of interaction and decision making that characterize our schools today.

In this book, we recommend that a short set of simple (yet radical) rules can build adaptive capacity. Many complexity scientists claim that a short set of simple rules of interaction among agents contributes to self-organization at a more complex scale across a complex system. Their premise is that when the agents in a complex system function according to a shared set of expectations and rules, emergent patterns are coherent and complementary. Simple rules set the system-wide conditions that support the emergence of patterns that move the system toward greater fit in its environment.

We build on this work in the physical and biological sciences, but our work is more directly grounded in Glenda Eoyang's work on human systems dynamics (HSD) and her extensive consulting with a wide range of organizations throughout the world. In addition, our work in schools over the last thirty plus years provides the context for applying human systems dynamics in education reform. We believe that a shared set of simple rules can shift the underlying dynamics that generate the challenges we face in public schooling. A shared set of simple rules can set the conditions to generate patterns of teaching and learning for all across a classroom, school, and school district—even extending into the greater community.

We began with the set of Simple Rules developed for Glenda Eoyang's Human Systems Dynamics Institute (http://www.hsdinstitute.org), and we adapted them for use in schools and other settings where teaching and learning are central. We propose that everyone in and around public schools take these rules to heart. We are convinced that if significant numbers of us consistently use these rules to shape our actions, the underlying dynamics of teaching and learning will shift, and the system will self-organize to become ever more sensitive, responsive, and robust. No one can predict the precise direction, speed, or nature of the changes, but there would be a movement toward flexible and adaptive coherence--which would be the goal. Interactions in schools would begin to reflect the adaptability and responsiveness inherent in these seven simple rules as individuals and groups gained skills to see, understand, and influence patterns of decision making and learning. That is what we mean by "adaptive capacity."

We recognize that this may sound simplistic, almost like magical thinking. How can a mere set of simple rules transform the massive educational bureaucracy that we call school? But self-organization in complex adaptive systems is a powerful force. (In fact, the unwieldy and unresponsive bureaucracy we see today has resulted from decades of self-organizing dynamics.) Our challenge is to see, understand, utilize, and influence the powerful self-organizing dynamics in the systems where we live and work.

Anyone familiar with recent research and practice related to school reform will notice similarities with other work on school leadership, instruction, and reform—Fullan, Hargreaves, Marshall, Darling-Hammond, Schlechty, Ravitch, Marzano, and many others. That work is critical to current school reform initiatives. These and other reformers have helped all of us attend to critical issues:

- the absolute focus on coherent instruction

- the essential contribution of excellent teachers
- the promise of strong but distributed leadership
- the need for shared agreements and shared goals
- the necessity of timely and relevant feedback (to students and staff)
- the careful use of data
- the urgency of collaborative inquiry and action
- the power of community partnerships
- the need for flexible structures and transparency

We celebrate the emphasis on these issues in the most recent reform initiatives, and we see our work as a unique contribution to this work in three foundational ways.

First, we offer explanations, rather than mere descriptions. Although many reformers offer vivid descriptions of promising and proven methods, we offer explanations of how systems work--explanations of complex phenomena in non-technical language accessible to students, teachers, campus and district leaders, policy-makers, and the general public.

Second, we offer options for action, rather than lists of competencies or characteristics. The seven simple rules inform and enable actions that contribute to adaptive capacity. Teachers and administrators can use these as templates to generate specific rules that fit their jobs, their classrooms, their schools, and their communities.

Third, we show how individual adaptive capacity links to collective capacity throughout the system. Human systems dynamics asserts that the way to change systems is through local action by agents throughout the system—from bottom to top and from the inside out. When many people in the system begin acting according to shared understandings and agreements, new patterns will emerge, and the system's natural tendency to self-organize will move it toward greater productivity and sustainability.

Leaders can help by setting conditions that make it easier and more likely that people will follow the simple rules, but transformation happens one person at a time. That does not mean, however, that change has to be slow or incremental. It does mean that change is unpredictable. It means that, when each individual in the system makes conscious, informed decisions to move toward shared goals and coherent action, the whole system will begin to shift toward those goals. When enough people in the system follow these rules, the system can reach a tipping point. At this point, the whole system will transform quickly as members of the system use the simple rules to guide each decision and every interaction.

Each of these seven simple rules for generative learning and school transformation is important because all of them are interdependent and mutually reinforcing. If you want to shift the dynamics in a school

system, you can begin with any one of them--but they are all important to shaping the patterns you want. The more rules you address, the more broadly they are embraced and used, the greater chance for system-wide self-organization. And, of course, your conversations with students, colleagues, and parents about the rules and how to live them out in your school are at least as important as the rules themselves.

There is no one correct place to begin our story of discovery about the simple rules, but a book has to follow a linear path, and we have arranged the chapters in a way we think will make sense to readers who are working in and around schools. Here is our list of simple rules. Beside each rule is a brief explanation of how it contributes to our larger argument. In the following chapters, the rules are discussed in depth.

Teach and learn in every interaction.	To teach and learn, after all, is the focus of schools. It is our central business and passion; it is our paramount responsibility in our culture, and, therefore, a logical and powerful place to begin this discussion. In complex systems, teaching and learning for everyone across the system make a system adaptive. Adaptation generates appropriate options for the future and is, therefore, more likely to ensure sustainability. To distinguish this kind of complex adaptive teaching and learning from other approaches, we call it "generative."
Pay attention to patterns in the whole, part, and greater whole.	From a human systems dynamics perspective, teaching and learning are about emergent patterns throughout the system as individuals, teams, and communities are transformed. To understand how to work in these systems, we need to understand how patterns emerge across each scale in each system—in their parts and in the greater whole.
See, understand, and influence patterns.	Once we understand how patterns emerge, we can focus more specifically on action steps—how to use these insights about patterns to set conditions for more powerful teaching and learning. Once we more fully understand those dynamics, we can generate options for action.
Recognize and build on individual, social, and cultural assets of self and others.	No one works in isolation in a school system. Relationships are central, and that includes the assumptions we make as we approach one another, no matter where we work in the system. From a human systems dynamics perspective, it is critical to focus on strengths as we build adaptive capacity in ourselves, in others, and in groups throughout the system. Adaptive capacity opens the potential for each person in the system to take action, individually and collectively. This

potential supports system-wide self-organization toward powerful teaching and learning.

Seek the true and the useful. Historically, ideologies, structures, and practices in school systems in the U.S. have assumed a separation between thought and action (or theory and practice). From a human systems dynamics perspective, such a distinction is not possible. To set conditions for self-organizing, or generative learning, we must act on what we know to be both true and useful. The integration of theory and practice must be seamless—we learn by doing, and we teach by doing, in shared cycles of inquiry, meaning making, and action.

Act with courage. We certainly acknowledge (even in the title) that this approach to school transformation is radical. It is radical in two senses of that word. First, it addresses the "rad" or the underlying roots of teaching and learning in human organizations. Second, it sometimes requires extreme actions—actions that are not typical or expected in bureaucracies. Actions that may even, at times, seem counter-intuitive. Outcomes in any complex adaptive system are always uncertain. This radical approach for dealing with uncertainty and change requires curiosity and courage from everyone in the system.

Engage in joyful practice. Finally, we are human beings before we are students, teachers, administrators, counselors, office workers, custodians, parents, citizens, or policy makers. Schools, regardless of their bureaucratic trappings, are places where human beings come together to teach and learn. If we don't find joy in those relationships or in our work, we will disengage, and the system will lose its vitality and its relevancy. Just look around schools today. See how joy is inherent in vibrant and engaged learning. Without that kind of energy, the potential for self-organization will not emerge. For that reason, this simple rule is, perhaps, the foundation of the others.

Chapter 1 more fully explains the power of simple rules in complex adaptive systems. Chapters 2-8 provide a deep dive into each of the simple rules for generative teaching/learning, and Chapter 9 provides a further explanation of the paradigm that lies at the heart of our work. Each of you will come to this book with different objectives and expectations, and we urge you to think about your options as you read it.

If you are engaged in a face-to-face or online HSD learning experience, you will use this book as a supplement to that experience. The chapters provide background and clarification for concepts encountered in your sessions.

Whether or not you are in such an organized session, you may want to apply these concepts to sticky issues, or challenges, in your practice. For that reason, we have formatted the book with large margins and have provided occasional questions or challenges so that you can make notes or write reflections. Please feel free to have a conversation with us as you read.

If you are interested in action steps, you might read Chapter 1 carefully and then consult the Table of Contents and the Appendix for methods and models that best address your particular challenges.

If you are interested in what practitioners say about how these rules work for them, pay particular attention to the stories throughout the chapters. We have used italics for those passages so that you might find them easily.

If you are interested in how this approach compares or contrasts with various learning theories, refer to Chapter 9 and note the related resources listed at the end of each chapter.

For further conversation with others throughout the HSD global network, see

- Human Systems Dynamics Institute http://www.hsdinstitute.org,
- The HSD Institute website dedicated to Adaptive Action and building adaptive capacity http://AdaptiveAction.org
- Human Systems Dynamics Institute Resources http://wiki.hsdinstitute.org/
- HSD Group on the *Literacy in Learning Exchange* http://www.literacyinlearningexchange.org/group/human-systems-dynamics-institute

Whatever your perspective and whatever your goals, we invite you into a lively inquiry about how we can work together to set conditions for widespread transformation of teaching and learning at all levels of public schools in the U.S.

Royce Holladay
Leslie Patterson
Glenda Eoyang
Human Systems Dynamics Institute

Chapter 1:
Simple (Yet Radical) Rules for Schools

Saul Alinsky, the long-time labor and civil rights organizer, published *Rules for Radicals: A Pragmatic Primer for Realistic Radicals* in 1971**.** In that book, he issues a call to action, reminding would-be reformers that, although their goals should be idealistic, their work must be grounded in a clear and unsentimental view of reality. In that spirit, we have written this book as a call to action for change agents in 21st century schools. This book is grounded in human systems dynamics (HSD), a clear and simple way of seeing, understanding, and influencing the almost overwhelming challenges facing public schools in the U.S today.

This chapter serves to set the framework for an action-oriented approach to transforming teaching and learning in K-12 schools. In it we respond to these questions:

- What is HSD?
- What can HSD offer schools?
- What is a complex adaptive system?
- What are simple rules?
- So how do existing simple rules interfere with teaching and learning?
- Now what can we do to use simple rules to create radical change?

What Is HSD?

This book grew out of work led by Glenda Eoyang, one of the authors. In the early 1980s, as she was beginning to train and consult with corporate leaders, she saw challenges arising from complex economic realities, changing demographics, and shifting political ideologies. Her academic background in the philosophy of science allowed her to see and understand how researchers across multiple fields in both the physical and social sciences were beginning to study complex adaptive phenomena. Based on her investigation of complex systems in general, and complex human systems in particular, she developed an approach that is now recognized as the field of "human systems dynamics" (HSD) (http://www.hsdinstitute.org/ ; Eoyang, 2000). On the HSD Institute website, Eoyang defines HSD as "a collection of concepts and tools that help make sense of the patterns that emerge from chaos when people work and play together in groups, families, organizations, and communities."

Since founding the Institute in 2003, Glenda has trained over 350 HSD Associates in ten-day classes of intensive instruction related to HSD theory and practice. She and this growing network of colleagues have developed a robust framework and a set of flexible methods/models—graphic representations of how HSD helps us "see and explain" reality, even as they inform action for influencing that reality.

Associates live and work in at least 15 countries around the world, including HSD centers in Minneapolis, Minnesota; London; and Tel Aviv. They use HSD across multiple disciplines: medicine, mathematics, computer programming, peace studies and conflict resolution, sustainable agriculture, electoral politics, public policy, organization development, program evaluation, human resources, and linguistics.

You might say that Royce and Leslie--the other two authors of this book--were early adopters of HSD. The three of us are colleagues who are also sisters and, at family reunions over the years, we have enjoyed ongoing conversations about our work, about complex systems, and about Glenda's development of HSD. Each of us has used HSD in our work, sharing our insights and experiences, formulating shared questions, and challenging each others' views. More recently we have found ways to bring our work together and have been collaborating in our applications of HSD in education settings.

In past lives, Royce has been a teacher, counselor, special education administrator, school district administrator, and strategic planner. In the mid-1990s, she and Glenda began applying complexity principles in her work as a district leader in large school districts North Carolina and then Washington state. When Glenda founded the Human Systems Dynamics Institute, Royce began working more closely with her and the Institute. She now serves as the Director of the Network and Training at the Institute. She also consults with a range of organizations and develops materials and publications that contribute to HSD concepts and principles.

Leslie has worked as a teacher, researcher, and teacher educator in middle and high schools. For about 20 years, her conversations with Glenda and Royce have also richly informed this work. Recently, she has been more deliberate and explicit about using HSD methods and models in her research and practice related to literacy instruction, to action research, and to educational policy development. She also uses these principles to set conditions for learning in her university classes and in professional development communities.

Glenda has led our evolving understandings and practice as she has continued her deep and wide inquiry into complex adaptive systems and her work with clients. She and Royce have included their learning and insights in **Adaptive Action: Leveraging Uncertainty in Your Organization**.

In 2011-12, we had the opportunity to collaborate with colleagues from The Ball Foundation (http://www.ballfoundation.org/ei/index.html) and the staff of New Haven Unified School District in California. Our shared goal was to help administrators and teachers across the system think more coherently about their work—with the ultimate goal of improving student learning. The theory and practice reflected in this work emerged through this collaboration. Kari McVeigh, the superintendent, and Wendy Gudalewicz, the Chief Academic Officer, had come to the district two years prior to this project, and they were introducing structures, processes, and instructional approaches that would support a system-wide focus on student learning,

with a priority on literacy teaching and learning. While we had formulated the grounding for this book prior to our work with them, the time we spent with the staff in NHUSD helped to clarify and uphold what we believe about teaching and learning in a complex adaptive system.

We are deeply thankful for the opportunity to learn alongside them.

Although public schools are facing enormous challenges, we are basically optimistic about the potential for using HSD concepts to transform teaching and learning in classrooms, and also at the campus, the district, and in the policy arena. We acknowledge the strong ideological and profit motives at work in schools, but we assume that most educators and community stakeholders want what is best for students. We also believe that, together, we can learn to make schools more coherent, compassionate, and effective learning spaces for children and adults. In this book, we explain how to use HSD to view schools as complex adaptive systems, to notice patterns that emerge from life in schools, to understand whether and how those patterns can sustain adaptive learning, and to decide what action steps we might take to change those patterns.

We believe that it is our moral imperative to engage in this work, and we have seen an abundance of evidence that HSD can offer critical support to anyone who wants to improve schools. In the chapters that follow, we offer explanations, methods, and models to help set conditions in schools and communities for powerful learning for everyone involved.

What Can HSD Offer Schools?

After almost three decades of unrelenting headlines about the disastrous condition of public schools in the U.S., we might wonder how these schools are still in business. How could any institution in so much trouble actually survive? Perhaps, as some argue, this is a "manufactured crisis" (Berliner & Biddle, 1995)--a politically inspired blame game designed to put particular individuals in office and to create a profit for others. This blame game goes something like this: Blame schools (and teachers) for students' poor achievement, and promise that a new politician, policy, or profit-making scheme will save the day. When that reform falls short of its promise, blame schools (and teachers) for failing to implement it successfully. Propose yet another politician (or policy or profit-making scheme) as the next salvation. And so on.

That blame game is clearly in play, but it is not the whole story. The current state of public schools is, in fact, disappointing. Student engagement, attention to students' home cultures, response to diverse learning needs, the efficient use of resources, and teacher professionalism are just a few of the areas where reformers continue to be frustrated. Although astounding success stories and "pockets of excellence" have come from reform initiatives, no one is arguing that reform movements have been an unqualified success. In fact, there is an emerging critique of the recent standards movement and the high stakes testing regime, both of which are ubiquitous in the current system and seem to have yielded disappointing results.

Some of the problems and challenges facing educators can be traced to poor administrative or instructional decisions, but some emerge from larger societal issues and have been exacerbated by policies and regulations that mandate particular solutions. For example, unsustainable market forces (the profit motive,

consumerism, competition, neoliberalism, labor/management conflicts) permeate public discourse and policy at all levels. In addition, globalization has had far-reaching cultural and political implications, in addition to its economic impacts. Rapidly changing information technologies introduce additional pressures and possibilities. Shifting employment patterns and the recent financial crisis mean that too many children live in poverty in the U.S. Finally, the so-called cultural wars emerging from our increasing ethnic, linguistic, and cultural diversities and our polarizing, ideological discourse contribute to the challenges. All these economic, environmental, political, cultural, and ethical challenges resist ~~s~~implistic solutions.

The recent wave of school reform, beginning with the Reagan-era publication of *Nation at Risk*, has attempted to address these issues. Reform initiatives included state and national standards, tests, high stakes accountability schemes, standardized curricula, and incentives for teacher quality. Although the public discourse focused on our commitment to high standards for all students, it is clear that political ambition and the profit motive have also been significant drivers of these reform efforts. The influence on public schools has been dramatic. Not only has this standards-based movement somehow trumped the long-standing tradition of local school control in the U.S., it has also been accompanied by a dramatic surge in privatization, home-schooling, and charter schools. In addition, the recent global financial crisis has decimated state and local school budgets. It is not an overstatement to say that many U.S. schools are, in fact, in crisis.

Through media campaigns like the one surrounding the 2010 documentary *Waiting for Superman*, the public has been led to think that the problem with the nation's schools is educators in general and teachers in particular. President Obama's "Blueprint" for the reauthorization of the Elementary and Secondary Education Act replaced former President Bush's "No Child Left Behind." Though emphasizing slightly different initiatives, both were based on the implementation of standards, high stakes accountability, and the evaluation of schools and teachers using standardized tests scores. Although high-profile critics of this approach, like Diane Ravitch, are beginning to exert some influence, this absolute faith in external mandates is still pervasive. The problems and challenges persist. This list of policy moves based on this approach gives a sense of the status quo:

- Standards for student performance
- High stakes tests
- Incentives for innovations to raise test scores
- "Evidence-based" programs that standardize instructional decisions
- Accountability schemes that make test scores public
- Public funds for charter schools
- Alternative routes for teacher certification
- Pay-for-performance plans.

Not only are these policies not solving the problems, they seem to trigger unpredicted consequences as problematic as the issues that initially prompted the reforms!

We argue that these reform initiatives, no matter how well intended or faithfully implemented, simply offer the wrong tools for the task. They respond to descriptions of what is "wrong," but cannot address underlying reasons or dynamics that prevent or limit learning. What they do is identify a broad list of issues that are not working and attempt to "fix" them with short-sighted and sometimes complicated interventions. We believe that these approaches to reform emerge from ineffective and inappropriate beliefs and understandings about complex systems. We agree with the growing numbers of reformers who recommend systems approaches: "Much that happens in schools can be understood only by understanding how the social systems that comprise schools operate. This is why systems thinking is so important to educational leaders" (Schlechty, 2009, p. 25).

The most recent reform initiatives grounded in high stakes accountability are not grounded in systems thinking and, in fact, they recommend the wrong rules for guiding our collective learning and decision making. In this book we offer an alternative way to think and work in schools—and an alternative set of "simple rules" that can support student learning and help schools thrive.

Human systems dynamics is grounded in the study of self-organizing systems. Researchers have observed that agents within complex systems operate according to a short set of simple rules, rules which emerge from the system and subsequently influence the system's future path (Reynolds, 1987). The content of the rules may vary, depending on the goals and constraints in the system. An HSD approach to system transformation acknowledges that these simple rules influence the system. We use models and to reinforce old rules that seem to be productive, or we can generate new rules that are more in line with shared goals. In other words, HSD methods and models are designed to strengthen the rules that hold the potential for establishing more generative and sustainable patterns in the system.

These generative patterns can lead to whole system reform, as Fullan calls this kind of self-organizing change. As he says in *All System Go* (2010), "When it works, and I am talking practically, amazing things get accomplished with less effort; or more accurately, wasted effort gives way to energizing action" (p. 3).

In this book, we recommend seven particular simple rules and argue that these rules have led to sustainable learning systems in the K-12 schools where we have worked. These rules respond to the need for setting conditions for collective capacity (Fullan, 2010) and sustainability in schools. They are grounded both in our understanding of complex adaptive systems and in our experiences watching educators use these them as guidelines for teaching and learning.

Before we discuss those particular rules, it is important to understand more about how complex adaptive systems, or self-organizing systems, work.

What Is a Complex Adaptive System?

We sometimes hear teachers say that a class of students has "taken on a life of its own." This happens because students, classes, and schools (like families, organizations, communities, and cultures) are complex, adaptive, and self-organizing systems. Dooley defines “complex adaptive system” as a “collection of agents (people, groups, ideas) that interact so that system-wide patterns emerge, and those patterns subsequently act on and influence the interactions among the agents” (Dooley, 1996). (See Figure 1.1.) That certainly fits the school systems we know. Students in a classroom interact in such a way that a classroom culture (system-wide patterns) develops. Over time, the norms and expectations (patterns) of that culture begin to influence the behaviors of the students in the class, by reinforcing those behaviors that match the culture or by punishing or ignoring the behaviors that don’t match the culture.

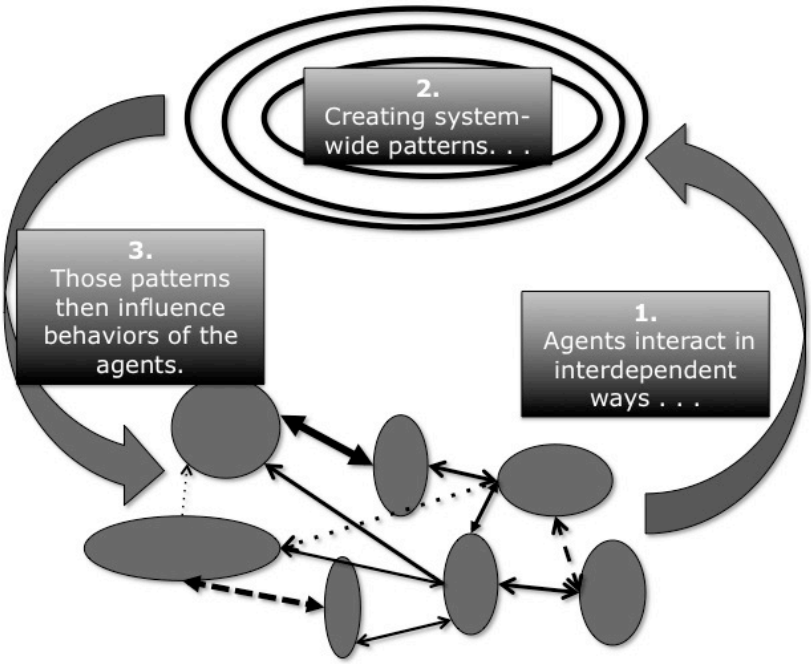

Figure 1.1. Emergent patterns in a complex adaptive system (CAS). Agents interact, which creates system-wide patterns that subsequently influence the agents’ interactions.

Here is a how one teacher describes the complex adaptive systems in which she works:

> *I see several complex adaptive systems in my work: my classroom, the science department, the eighth grade team, the District Education Improvement Committee of which I am a member, and even my cheerleading squad. Each class period has its own personality, and, as a result, I adapt each period and each day. There are different stakeholders to which the students and I report, including the principal, the assistant principals, the counselors, the parents, and even other teachers. The science department is a complex adaptive system because there are multiple layers of organization: the department head, the district science coordinator, the grade-level leader,*

the principal and vice principal, the state education agency, the curriculum director, and the superintendent. We are constantly having to adapt to changes. If a lesson or lab isn't working, we have to learn and adapt and attempt to go about it another way. Often we do not have adequate funding for lab supplies, and we will have to improvise as we go along and share information and ideas that work or do not work. Our science coordinator sometimes does not provide correct district assessments or deliver needed items on time. Again, we are forced to improvise and adapt as a team.

--Middle school science teacher

As a complex adaptive system (CAS), a school has more in common with an ecosystem than with the most complicated machine you can imagine. Zoom in on a single student, and you can focus on the complexity within any human being. In fact, learning is itself a complex adaptive process (many different experiences in motion, interacting and coming together in patterns of meaning). Zoom out to consider the whole district, and you can see the same amazing complexity (many interdependent parts/agents always in motion). Schools and the larger community are comprised of many interdependent, overlapping, and nested systems, all of which continually adapt to changes within their boundaries and in the environment that holds them.

Time Out for Reflection

Think about the complex adaptive systems where you live and work. Focus on one of them. Who are the agents? How do they interact? What patterns emerge in those interactions? How do those patterns influence subsequent interactions?

We are not alone in pointing out these interdependent relationships among various systems and subsystems that influence schools. Schlechty, for example, says, "the link between the quality of schools and the quality of community life is so deep and profound that it makes no sense to work to improve the schools outside the context of improving communities as well" (p. 2009, p. xi). When we see all these as complex adaptive systems, we assume that, as students, parents, teachers, administrators, librarians, counselors, custodians, bus drivers, school board members, merchants, community volunteers, and policy makers interact, patterns of attitudes, behavior, and communication emerge. Sometimes those patterns emerge in ways that support powerful learning for all students; sometimes they don't.

The focus of this book is to help us all watch for these patterns, make sense of them, and then work together to reinforce (or generate) the patterns that support learning.

What Are Simple Rules?

System-wide patterns can be so strong they influence our actions for better or worse. These patterns are shaped by the agents' agreement—sometimes overt, but often tacit—to live according to a shared set of "simple rules." To understand and use simple rules, we need to understand more about how patterns emerge in our complex adaptive systems. While there are researchers and practitioners who question the validity and usefulness of simple rules, we have found it to be a helpful way of thinking about emergent patterns in CAS.

Think of the patterns in a beautiful Persian rug. We notice similarities--shapes and colors that are repeated across the rug. But we also notice differences. The contrasts in the colors and shapes are what make the design recognizable and (usually) pleasing to the eye. What makes the design beautiful (or not) is how the artist connects these similarities and differences in unique ways. The beauty of the rug and our individual perceptions of the rug emerge from the connections (interactions) among these similarities and differences in the colors, shapes, and textures. We are surrounded by patterns--similarities, differences, and connections. We perceive these patterns as art, music, wisdom, friendship, ambition, joy—just to name a few of the patterns in human experience. All of these patterns emerge from similarities, differences, and connections that have meaning across space and time. That is how we define "pattern" in HSD (Eoyang, 2010).

Now, let's think about patterns in schools. We can notice similarities in the ways people in schools act, but there are also differences grounded in their unique histories, their challenges, their capacities, and their identities. There are connections within, between, and among them. Patterns are generated by these similarities, differences and connections. We might refer to patterns on a campus as the "campus culture." When we talk about "building community," we are talking about encouraging certain patterns and discouraging others. We might look for patterns of "student engagement" or patterns of "trust" that encourage patterns of "risk-taking." One way to think about school transformation is to think about how we can strengthen the patterns that support generative teaching and learning and how to extinguish non-generative patterns.

Patterns bring coherence to the system. As patterns form, some become more pronounced. Simple rules emerge from a system as people begin building shared perspectives and shared repertoires of practices. As the simple rules emerge, they influence the changes across the whole system, as well as influencing how individual agents function. Subsequently, other patterns may emerge as these simple rules further influence the dynamics of the system.

> *I work in the central office of an urban district. One of our positive patterns is collaboration. This is definitely a positive pattern of behavior that supports conversations with colleagues across divisions in an effort to provide support for all students. We also collaborate with parents--especially parents whose first language is not English. . .our district makes a tremendous effort to collaborate with parents. As a result, our parents are very willing to participate in meetings, volunteer and attend special functions for their children.*
>
> *Within my own team, however, there is a deep pattern based on peer relationships. Several of my colleagues have worked together for many years*

and socialize outside the job. I've noticed that their friendship sometimes takes priority over student outcomes. The ideas and opinions of those of us outside this friendship circle are often dismissed. I find this disheartening. This pattern of considering adult relationships over students' needs does cause considerable mistrust and interferes with the larger pattern of collaboration that I see in our work with colleagues with parents.

--District office instructional coordinator

The simple rules tend to set conditions for self-organization, and they also reinforce those conditions as time goes on (Holladay, 2006). Whether the rules are implicit and unspoken or explicit and widely known, they help individuals function together to live out the foundational beliefs and values of the organization. Simple rules are like the DNA in living organisms, carrying the code that governs how organs and cells are built and how they work in the human body. As the code is generated and copied, it leads to differentiation and development. In much the same way, simple rules can be thought of as carrying the codes that make up relationships and work expectations as they are iterated through organizational and individual decisions.

It certainly makes common sense to talk about rules emerging from human systems. For example, conventional ways to use grammar in a particular language emerge over many years as people use that language. We can see that happening now as people develop particular ways of formulating text messages. We can also see that cultural "norms" are simple rules that emerge from the ways people relate to one another in particular settings over time. Customs and rituals also involve "simple rules" about how to behave alone and together. All of these patterns come from the dynamics created by human action within the system; they are not generated by committees, nor are they imposed from the outside.

Time Out for Reflection

Think of a particular system in your work. What are the most noticeable patterns in your work together? What simple rules might be at work to generate those patterns?

When simple rules are explicit and generative, they encourage and sustain learning. Everyone in a classroom, across a campus, or throughout a school district agrees to follow such a set of simple rules, in hopes of generating patterns of generative teaching and learning. When that is the case, everyone benefits. An explicit set of appropriate simple rules can support schools in several ways:

- Teachers, students, administrators, and staff are better able to anticipate what others will do, so they experience more trust, coherence, and consistency.

- Because of this coherence, there is less need to codify all decisions and contingencies, so there is less need for layers of bureaucracy.
- Organizational structures and procedures will ultimately be aligned with the simple rules, so everyone can focus on student learning more efficiently and effectively.
- Because simple rules continue across time, they assure continuity through the hard times, for example, when a charismatic leader moves on or when resources are scarce.
- As individuals interact according to simple rules, patterns of behavior emerge, forming the culture of the organization. By searching for the simple rules at work, leaders can understand the foundational elements of the culture as it exists. By leading the group to build a list of simple rules to guide their work, leaders can communicate organizational values in ways that are actionable.
- Simple rules establish organizational expectations for performance and behavior and are "portable," meaning they can be shared throughout the organization and across differences.

Some people express concern that this is "just one more list of rules" in bureaucratic organizations that are already overrun with regulations and procedures. If the word "rule" has distracting connotations for a group, they can certainly be called something else. Some suggestions for alternative names for simple rules have included "norms," "expectations," "beliefs," or "values." The difficulty with those words is that, just as with "rules," each has its own connotations. Norms may seem to be too informal or too much like short-term expectations created for a meeting. "Expectations" may work, but they are often more specific to one situation than the simple rules, which should generalize to any situations. "Beliefs" or "values" are different in kind. They name concepts—"Here is what I believe or value," —while simple rules indicate behavior—"Here is what I do to live according to a particular belief." Simple rules begin with action verbs to say that they are about doing, rather than passively believing. Names carry weight, and it is important that simple rules retain their power to inform and influence behavior, regardless of what they are called. Ultimately, one group we worked with decided to call them "seed behaviors" because they felt they were planting the seeds from which their new culture could grow.

To begin a conversation about developing simple rules, questions are key. "How do we want to operate with each other around here?" "What is really important to us as a team?" "How do we want to treat our coworkers and our community or customers?" These questions will lead to those few critical behaviors that can become the simple rules. Here are a few "rules" to remember about developing simple rules (Eoyang, 1997).

- The rules should be designed to amplify and reward what is desired behavior across the organization.
- The rules should be kept to "Minimum Specifications." The statements should be brief and powerful.
- They should also be transferable across the organization. If a rule applies only in one or two places in the organization, then it is an instruction, not a rule. To identify the rule underneath that instruction,

people should ask why that is important. What is the ultimate goal of such an instruction? The rule that underlies that instruction will become explicit.

- The list should be short. There should be five (plus or minus two) rules as a maximum, and the fewer that can be named and still capture the intent of the group, the better they are. A short list is important for a couple of reasons. Humans cannot remember more than about seven items in a list, and if it is to guide individual behaviors, then it has to be easily remembered and shared. Additionally reducing the list to such a small number forces groups to clarify what are "instructions" and what are the real "simple rules."
- Simple rules should address three important areas of relationship within the organization. First, at least one rule should address how people come together and who they are as a group—the container that bounds them. Second there should be at least one rule to address the differences that exist in the group. Then at least one rule should focus on how those in the organization exchange information and other resources. (We will discuss these three issues in more detail in Chapter 4.)
- Each rule should begin with an action verb. Most values statements are passive descriptions of what is important, leaving a gap between them and the action of the organization. As the focus shifts from values, however, if there are action-oriented statements about how to live those values, then people in the organization are clearer about what is expected.

Finally, simply stating the list of simple rules (and posting them on the website or on the classroom wall) is not enough to create the desired patterns of interaction across the organization. It is critical that the rules be discussed and implemented in myriad ways over time, by every person in the system. Following are some examples of ways to do this.

- Invite people to talk about what a particular simple rule means to them in their own job responsibilities.
- Develop explicit descriptions of what people expect to see and experience as a result of using each simple rule in different aspects of their work.
- Use one or more simple rule to evaluate outcomes of meetings or other events.
- Post the simple rules at the bottom of the agendas of meetings to ensure easy access and recall for decision making throughout the dialogue.

So How Do Existing Simple Rules Interfere with Teaching and Learning?

We would argue that certain simple rules have emerged in schools over the years and have generated patterns that have very strong influence over what happens in schools. We further argue that the influence of these patterns is so strong that it is difficult NOT to go along with them. We tend to perpetuate particular

practices, even when it becomes clear that these behaviors are no longer functional for the system or supportive of student learning.

In the middle of the twentieth century, schools began the practice of using test results to assign students to particular programs or instructional treatments. The unspoken simple rule that shaped that pattern probably went something like this, "Serve students according to need." Federal mandates and funding schemes reinforced this rule; teacher educators generated certifications for these programs; and publishers rushed to provide materials for this emerging market. The field of "Special Education" emerged. For years educators administered tests and placed students according to that simple rule, never questioning its implications. Although we saw many beneficial results, eventually we realized that this simple rule also led to unintended consequences that were potentially hurtful and or damaging to students. Perhaps because of the deficit perspective inherent in focusing primarily on "need," students were sometimes inappropriately labeled, teachers were overwhelmed with paperwork; students' strengths were not taken into account. Some who questioned the use of that rule were quashed by the system, and their voices were marginalized. We continue to struggle with modifying or adjusting that simple rule so that all students--regardless of their strengths and needs--can engage in powerful learning experiences.

As we pointed out above, the conversations about the simple rules (existing or desired) are as important as the rules themselves. This story about a group of teachers and administrators illustrates how their conversations helped them recognize some dysfunctional simple rules at work in their system:

> *In working with staff in a mid-sized district where people were experiencing some frustration in their restructuring process, we introduced simple rules as a tool for analyzing how school staff members were working toward their goals. For several meetings, across several days, the conversations seemed to be "stuck." People told stories about their frustrations, they referred to the official list of district priorities, and they tried to identify the underlying issues. But we continued to struggle. At some point, one of them asked, "What ARE our simple rules?"*
>
> *Everyone was silent. Finally, another person spoke up, "We'll have to be honest."*
>
> *Another silence. A different person spoke, "Let's just do it. Let's just level with each other about what our students need and what we are willing to do about it."*
>
> *At that point the tension broke; everyone leaned forward, began talking, and within 10 minutes we had generated a list of simple rules that fit our experiences and that suggested some options for action.*
>
> *Two of the long-standing and somewhat dysfunctional simple rules we identified were, "Take care of your own," and "Make nice." The first rule meant that many actions we saw across the district could be attributed to people focusing on their individual campus needs. This clearly worked against district-wide coherence and trust, regardless of how often and how loudly the administrators talked about a unified, collaborative approach. The second rule meant that no one felt comfortable with public disagreement or confrontation. This rule discouraged difficult conversations about significant issues that colleagues really needed to sort out.*

This conversation about the simple rules was a breakthrough. It made it possible for us to think about the patterns we wanted to see in our work across the district and about what alternative simple rules might set the conditions for patterns we wanted to see.

--District Director of Curriculum and Instruction

Schools contain multiple massively entangled human systems—individuals, peer groups, grade levels, classes, faculties, committees, neighbors, extracurricular teams, parent organizations—all of which have histories and agendas for the future. In these systems, we see evidence of deep-rooted expectations, norms, rituals, roles, biases, goals, understandings, perceptions—all of which enforce particular ways of behaving over time, or simple rules. Earlier, we said that school reform initiatives, no matter how well-intended, have simply not been sufficient. Perhaps we should examine the simple rules that generate persistent patterns to think about how they might be interfering with teaching and learning.

Here are some simple rules that we have seen at work in schools—simple rules that are seldom spoken and may be operating below a conscious level. We believe these rules cannot support adaptive learning and, therefore, systems of school reform built on these rules can be neither effective nor sustained.

- Change the system gradually--one piece at a time.
- Fix the people first.
- Consult the experts.
- Implement with fidelity.
- Don't ask questions.
- Don't challenge authority.
- Don't rock the boat.
- Focus on what works, not why it works.
- Find and fix root causes.
- Color inside the lines.
- This is serious work.
- Do the right thing.

While each rule emerged because it was perceived to be helpful at some level at some point in history, these rules do not broaden and deepen systemic adaptation to cultural and social realities. They do not help us understand the systems where we live and work. They do not help us identify what is important and take steps toward that. They do not help us set the conditions for productive and emergent patterns of interaction and performance. What they do is stifle individual and group creativity and expression. They ignore the

interconnectedness and interdependencies that characterize the human systems involved in education and schooling. They focus on blame rather than on finding solutions. They are not generative.

The real crisis in U.S. public schools is not reflected in sound bytes on cable news channels. It is not just about test scores or achievement gaps or student safety. It's not just about holding teachers, principals, and students accountable for working harder or smarter to produce higher test scores. Both the problems and the solutions are more complex than that. The real crisis in U.S. public schools is that policy-makers tend to operate according to simple rules that impose short-sighted strategies for short-term gains—whether annual gains in test scores or political advantage in the next election cycle. Current simple rules in schools shape strategies that tend not to catalyze the strengths and energy inherent in the system. They do not invite or support the kind of transformative learning that both builds on and sustains the complex, self-organizing dynamics of learning or the environments that encourage learning.

Time Out for Reflection

Think about one of your most persistent challenges. What dysfunctional simple rules might be at work in your system? Which of the dysfunctional rules listed above might be relevant? What patterns emerge as a result and what might you do to make a difference?

So What?

Use Simple Rules to Create Radical Change.

We don't pretend to know what structures, programs, approaches, routines, procedures, or regulations will best support teaching and learning in schools five or ten or fifty years from now. The best we can do is agree on a set of simple rules that make it possible for the system (and the people in the system) to continually adapt and transform as the challenges continue to evolve. We agree with Schlechty (2009):

> If the performance of America's schools is to improve, it is essential that the schools have the capacity to innovate on a continuous basis and in a disciplined way. Bureaucracies lack this capacity. Continuous innovation is the lifeblood of learning organizations. . . (p. 223-224).

In Chapters 2-8, we suggest seven simple rules that hold the potential for continuous adaptation and transformation. Each chapter focuses on one of these simple rules—providing an explanation, illustrations, methods, models, and resources for further inquiry. We recommend these seven simple rules, which we defined in the Introductory Note:

- Teach and learn in every interaction.
- See, understand, and influence patterns.
- Pay attention to patterns in the whole, the part, and the greater whole.
- Recognize and build on individual, social, and cultural assets.
- Search for the true and the useful.
- Embrace uncertainty; be curious; act with courage.
- Engage in joyful practice.

Each rule contributes to the dynamics of a sustainable teaching/learning system in unique and important ways. These rules are interdependent, and no one rule is more important than any other. Individually each unfolds in unique ways in different schools, across disparate classrooms, in specific learning experiences. Together, these simple rules suggest options for action that take individual teachers and learners beyond a dependence on fidelity. The simple rules inform action in ways that help us work together to transform teaching and learning.

Now What? Where Do I Learn More?

Alinsky, S. (1972). Rules for radicals: A pragmatic primer for realistic radicals. New York, Random House.

Conway, J. Game of Life. http://www.bitstorm.org/gameoflife/ and http://www.math.com/students/wonders/life/life.html

Josić, K. (2012). Complexity and Emergence. No. 2553. From *Engines of our Ingenuity*. http://www.uh.edu/engines/epi2553.htm

Holladay, R. (2005). Simple rules: Organizational DNA. *ODPractitioner, 37, 4, pp.29-34*

Holland, J. (1999). *Emergence: From chaos to order.* NY: Basic Books.

Nova. (2007). Emergence: Q&A with John Holland. http://www.pbs.org/wgbh/nova/nature/holland-emergence.html

Resnick, M. and Silverman, B. Exploring Emergence. http://www.playfulinvention.com/emergence/contents.html

Serendip. http://serendip.brynmawr.edu/complexity/

Simple Rules Foundation. http://simplerulesfoundation.org/

Tytel, M. & Holladay, R. (2011). *Simple Rules: A Radical Inquiry into Self: Going Beyond Self-Help, Discover Your Ability to Change the World and Generate Self-Hope.* Gold Canyon Press.

Tytel, M. & Holladay, R. (2011). *Radical Inquiry Journal: A Companion Tool for Simple Rules, A Radical Inquiry into Self.* Gold Canyon Press