USING COMPLEXITY THINKING TO BUILD ADAPTIVE CAPACITY IN SCHOOLS:
AN ANALYSIS OF ORGANIZATIONAL CHANGE IN CALIFORNIA

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In response to reductionist neoliberal approaches to organizational change that have been prevalent in American education since the 1980s, some educators have begun to employ a whole-systems approach to improving student learning. These approaches, based in complexity sciences, recognize the nonlinear, unpredictable nature of learning and the interconnected relationships among myriad factors that influence the teaching/learning that occurs in schools. In the summer preceding the 2011-2012 school year, a cohort of educators from California Unified School District participated in a 10-day training regarding human systems dynamics (HSD) and complexity thinking. Their goal was to build adaptive capacity throughout the district in the pursuit of improving student learning. Through analysis of the interviews from seven target participants from this training, this study investigates what target participants report regarding their use of HSD methods and models in their work in schools across the 2011-2012 school year. Findings indicate that target participants displayed distinct arcs of use of HSD methods/models. In addition, findings suggest that target participants’ need for support in learning and implementing HSD methods/models, the influence of systemic and individual history, and the role of agency affected their “arcs of use.” This study illuminates the ways in which HSD methods/models support both organizational change efforts and the ways in which teaching/learning occur in the classroom, including the applicability of HSD methods/models in building collaborative
cultures and in helping students develop the kinds of thinking required in the use of 21st-century literacies.
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TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIST OF TABLES</td>
<td>vi</td>
</tr>
<tr>
<td>LIST OF FIGURES</td>
<td>vii</td>
</tr>
<tr>
<td>CHAPTER 1 STATEMENT OF PROBLEM</td>
<td>1</td>
</tr>
<tr>
<td>Purpose of the Study</td>
<td>4</td>
</tr>
<tr>
<td>Research Question</td>
<td>5</td>
</tr>
<tr>
<td>Significance of the Study</td>
<td>5</td>
</tr>
<tr>
<td>Overview of the Methodology</td>
<td>5</td>
</tr>
<tr>
<td>Assumptions</td>
<td>6</td>
</tr>
<tr>
<td>Contextual Constraints of the Study</td>
<td>7</td>
</tr>
<tr>
<td>Definition of Terms</td>
<td>7</td>
</tr>
<tr>
<td>Summary</td>
<td>9</td>
</tr>
<tr>
<td>CHAPTER 2 REVIEW OF THE LITERATURE</td>
<td>11</td>
</tr>
<tr>
<td>The Goal: Teaching To Encourage 21st-Century Literacy Practices—Deep Thinking/Learning</td>
<td>12</td>
</tr>
<tr>
<td>Capacity-Building and Systemic Change</td>
<td>21</td>
</tr>
<tr>
<td>Capacity-Building Initiatives</td>
<td>26</td>
</tr>
<tr>
<td>Complexity Theories and Systemic Change in Schools</td>
<td>35</td>
</tr>
<tr>
<td>Complexity Theory and Practice: Human Systems Dynamics (HSD)</td>
<td>41</td>
</tr>
<tr>
<td>Key Methods/Models from HSD</td>
<td>45</td>
</tr>
<tr>
<td>Summary</td>
<td>51</td>
</tr>
</tbody>
</table>
CHAPTER 3  DESIGN AND METHODOLOGY ............................................................. 52
  Research Design and Rationale ........................................................................ 52
  Forms of Secondary Analysis of Qualitative Data ............................................ 53
  General Methodological Challenges .............................................................. 54
  Addressing Methodological Challenges in This Study .................................. 57
  Research Setting and Context ....................................................................... 58
  Data Collection ............................................................................................. 66
  Data Analysis ............................................................................................... 69
  Trustworthiness ........................................................................................... 82
  Summary ....................................................................................................... 83

CHAPTER 4  FINDINGS ......................................................................................... 84
  Target Participants ....................................................................................... 85
  Target Participants’ Reports of HSD Method/Model Use Throughout the Year .... 86
  Reports of Target Participants’ Use of HSD Methods/Models Across the Year .... 88
  Patterns of HSD Method/Model Use Across the Year .................................... 90
  Summary of Findings .................................................................................. 140

CHAPTER 5  DISCUSSION .................................................................................. 142
  Summary of Findings .................................................................................. 143
  Discussion of Findings ............................................................................... 145
  Implications ............................................................................................... 158
  Summary .................................................................................................... 164

APPENDIX A  CRITERIA FOR USE IN A SECONDARY ANALYSIS OF QUALITATIVE
  DATA ........................................................................................................... 166
LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Timeline of HSDP Involvement with CUSD</td>
<td>60</td>
</tr>
<tr>
<td>2</td>
<td>Participant Roles and Numbers for Cohorts 1 and 2</td>
<td>66</td>
</tr>
<tr>
<td>3</td>
<td>Participant Roles for Fall Interviews</td>
<td>67</td>
</tr>
<tr>
<td>4</td>
<td>Comparison of Number of Participants Interviewed in the Fall and Those Analyzed</td>
<td>71</td>
</tr>
<tr>
<td>5</td>
<td>Target Participants' &quot;Patterns of Use&quot; with Related Contextual Factors</td>
<td>91</td>
</tr>
<tr>
<td>6</td>
<td>Frequency of Reported Method/Model Use by Target Participant</td>
<td>112</td>
</tr>
<tr>
<td>7</td>
<td>Target Participant Roles in Reported Use of HSD Methods/Models</td>
<td>113</td>
</tr>
<tr>
<td>Figure</td>
<td>Description</td>
<td>Page</td>
</tr>
<tr>
<td>--------</td>
<td>------------------------------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>1</td>
<td>Diagram of complex adaptive system</td>
<td>46</td>
</tr>
<tr>
<td>2</td>
<td>Adaptive action model graphic representation</td>
<td>63</td>
</tr>
<tr>
<td>3</td>
<td>Architectural model graphic representation</td>
<td>63</td>
</tr>
<tr>
<td>4</td>
<td>CDE model graphic representation</td>
<td>64</td>
</tr>
<tr>
<td>5</td>
<td>Four truths model graphic representation</td>
<td>65</td>
</tr>
<tr>
<td>6</td>
<td>The continuum of questioning by David</td>
<td>96</td>
</tr>
<tr>
<td>7</td>
<td>Frequency of reported use of methods/models from highest to lowest (n = 76)</td>
<td>106</td>
</tr>
<tr>
<td>8</td>
<td>Reported benefits of HSD methods/models (n = 77)</td>
<td>124</td>
</tr>
<tr>
<td>9</td>
<td>Relationship between &quot;patterns of use&quot; and contextual factors</td>
<td>145</td>
</tr>
</tbody>
</table>
CHAPTER 1

STATEMENT OF PROBLEM

In this age of globalization and technological expansion (Friedman, 2000), education as a whole is under continued scrutiny, with national debates addressing accountability, teacher quality, standards, school choice, and funding. Mouthpieces for the current educational crisis maintain that our public schools are being outranked by foreign countries, that our students are not ready for college, and that literacy rates are declining (ACT, 2012; Cavanagh, 2012). Neoliberal policies such as No Child Left Behind (NCLB), Reading First, and Race to the Top (e.g., Ravitch, 2010; Tye, Tye, & Tye, 2010), which are couched in broader education reform movements, have been enacted to ensure that continued attention be placed on developing the literacy abilities of American public school children. These are all in response, at least in part, to the perceived literacy crisis.

Whether there is a legitimate literacy crisis is often debated (Allington, 2002; McQuillan, 1997; Smith, Mikulecky, Kibby, Dreher, & Dole, 2000); however, all stakeholders agree that literacy requirements have and will continue to evolve as we progress through the 21st century, especially as we try to keep stride with the knowledge expansion and communication tools brought about by technological advances (Leu, Kinzer, Coiro, & Cammack, 2004; Smith et al., 2000). The definition of literacy, including both reading and writing, will continue to “expand into the related constructs of oral and visual literacy” (Smith et al., 2000, p. 382) and will include a focus on higher levels of thinking and reasoning (National Center on Education and the
Economy, 2013). In other words, literacy educators must broaden their focus beyond reading and writing skills.

Unfortunately, neoliberal policies such as NCLB, with their focus on high-stakes accountability, have not produced these broad changes in student literacy achievement promised by policy makers (National Center for Education Statistics, 2011; Tye et al., 2010). One glaring example is the failed closing of the achievement gap between Whites and other ethnic groups and between students of higher and lower socioeconomic (SES) groups. Today, minority and lower SES students continue to score well below their white counterparts (Aud et al., 2012), and the number of dropouts of students of lower SES and minority youth is increasing (Allen et al., 2007; Orfield, Losen, Wald, & Swanson, 2004). Additionally, educators have noted unintended and negative consequences of these policies (e.g., Allington, 2002; Nichols & Berliner, 2007).

To illustrate one example of how these neoliberal policies have been implemented with resulting negative patterns in schools, we can look at California, one of the early state adopters and implementers of neoliberal high-stakes accountability measures. California, the state with the largest population of English language learners and public school students, has been known for its curricular innovations over the last half of the 20th century (LaSpina, 2007). Since the late 1990s, however, the climate in California has switched from local districts making decisions based on providing rich, deep curricula for children to doing whatever was best to avoid the punitive measures threatened by neoliberal policies, if student achievement did not increase annually by a certain percentage. California schoolteacher Debbie Tye (2010) provides a snapshot of
what classrooms are like after over a decade of neoliberal reform implementation. She writes:

\[
\text{Nothing is child-centered,} \\
\text{nothing is meaningful.} \\
\text{No science, no social studies, just an SRA reading card.} \\
\text{No field trips, no projects . . . no motivation.} \\
\text{Teaching has become delivery of material to be tested. Not on the test? Don't teach it. (original format used, p. 31)}
\]

In California and across the country, a major focus of the neoliberal policies is the punitive consequences attached to them. One pattern that has emerged as a result of these consequences is a climate of compliance and fear as educators attempt to avoid the punitive measures (Elmore, 2003; Pennington, 2007; Ravitch, 2010). This pattern has resulted in the narrowing of the curriculum to focus on test preparation (Au, 2007; Linn, 2000; Nichols & Berliner, 2007; Popham, 2004; Resnick & Resnick, 1992; Rothstein, Jacobsen, & Wilder, 2008) and implementing a one-size-fits-all curriculum (Allington, 2002; Johnston-Parsons, 2007). Many argue that these actions ultimately have resulted in the widening achievement gap between richer and poorer students (Aud et al., 2012; Allington, 2002; Lee, 2006).

Neoliberal policies, which often assume simple cause-and-effect relationships, have not and cannot bring about the changes needed to support the ever-changing literacy demands of learners in the 21st century. Scholars and researchers, noting the limitations of these policies, have taken alternative paths to systemic organizational change related to student learning (e.g., Ball Foundation, 2008; Fullan, 1999, 2011;
Morrison, 2002). The primary goal of these systems approaches is to build the capacity of educators so they can respond to changing demands, particularly to the broadening definitions of literacy mentioned above. Capacity-based initiatives, such as the work of Ball Foundation Education Initiatives (BFEI) with midsize urban schools (Ball Foundation, 2008), have traditionally focused on the structures needed within schools to build capacity and a culture of collaboration and learning. One approach that moves beyond descriptions to theoretical explanations for capacity-building is human systems dynamics (HSD), a systems approach grounded in complexity theories. This approach differs from others in that it is grounded in both theory and practice, and that through its methods/models offers both explanations for the dynamics of the system as well as tools to use in accomplishing this work (Eoyang & Holladay, 2013; Patterson et al., 2013).

**Purpose of the Study**

This study examines one school district's attempt to use complexity thinking, particularly the use of adaptive action (an inquiry/action cycle) and other HSD methods and models, to shift patterns across the district (e.g., decisions related to the district’s goals of focusing on what is best for students, not adults, and implementing critical literacy across content areas). The purpose of this study is to explore what participants report about using adaptive action and other human systems dynamics (HSD) methods and models in their work in schools.
Research Question

Specifically, this study seeks answers to the following question: What patterns did target participants report in their use of HSD methods/models?

Significance of the Study

This study makes three significant contributions to the field. First, considering Stephen Hawking’s claim that this is the century of complexity (cited in Davis & Sumara, 2006), this study adds to the growing body of research located at the nexus of complexity theories and education, which will ultimately enable us to “sophisticate our beholding” of the world (Stake, 1995). Second, this study specifically highlights a complexity thinking approach to change and reform across an entire system, differing from other studies that target only one small component of the larger system, such as literacy coaches or the use of particular materials. Third, this study informs teacher educators and professional developers about one district’s attempts to shift student achievement through HSD methods and models, possibly informing their work connecting teacher preparation and ongoing teacher development to student achievement and school reform.

Overview of the Methodology

This study uses secondary analysis of qualitative data (Heaton, 2004) to explore how participants describe their experiences of implementing a complexity thinking approach, specifically the use of adaptive action and other HSD methods/models, in their work. Participants had engaged in a year-long initiative focusing on the use of these methods/models as a way to build adaptive capacity. Secondary analysis of
participant interviews from fall and spring was used to answer the research question.

Interviews for this study were taken from a larger set of archived interviews. Participants in this subsection include a principal, two literacy coaches, three teachers, and a district director. The data were examined via adaptations to the listening guide (Gilligan, Spencer, Weinberg, & Bertsch, 2003) to explore patterns that emerged from participants’ sharing of stories about their use of adaptive action in their work throughout the school year.

Assumptions

This study is built on five assumptions, which are delineated here. First, schools are complex adaptive systems, and so complexity thinking is the most appropriate tool for understanding them (e.g., Davis, Sumara, & D’Amour, 2012; Patterson et al., 2013). Second, schools are nested within other complex systems—communities, states, and nations—each level impacting and influencing each other. Reform can be addressed by looking at any of these levels, but for the purposes of this paper, focus is on the reform that can take place within schools, thus making the unit of reform the school or school district (e.g., Taylor, Raphael, & Au, 2010). Third, instructional quality is of the utmost importance in any discussion about improving learning (e.g., Ferguson, 1991; NCTE, 2007; Sanders & Rivers, 1996), even above the design of curricular materials (e.g., Bond & Dykstra, 1967; Pressley et al., 2001; Ryder, Sekulski, & Silbert, 2003). This assumption underlies any discussion of the conditions needed to encourage deep student learning. This study assumes that “deep thinking” is the ultimate goal of literacy instruction, a term used in this study to capture the type of thinking referred to by Bomer, Zoch, David, and Ok (2010) in their explanation of the learning needed to
support the use of 21st-century literacies, which includes attention to critical thinking, as well as accurate, strategic, and effective reading, writing, speaking, and listening. Finally, effective teachers possess both conceptual and practical knowledge of literacy that enables them to adapt instruction to students’ needs (Snow, Burns, & Griffin, 1998, p. 376).

Contextual Constraints of the Study

There are four factors that might constrain the interpretation of findings of this study. First, due to the nature of this study as qualitative and exploratory, the findings are not generalizable to a larger population. Second, the use of secondary data precluded the inclusion of member checks related to whether the interview transcriptions and subsequent analyses accurately represent participants’ views. Third, the interviews were conducted in 20- to 25-minute time slots. As such, there may be a lack of depth in the answers given by participants. Finally, as a result of the data being self-reported, problems with participant understanding of the questions being asked, desire to report “pleasing” or “acceptable” data to researcher, and/or lack of introspective ability on the part of the participant may all influence the accuracy of the data collected, and thereby ultimately influence the accuracy of the conclusions drawn from this data.

Definition of Terms

For the purpose of this study, the terms below are operationalized as follows:

- Adaptive action: Also considered an inquiry/action process, adaptive action occurs when “we thoughtfully and deliberately watch for patterns in the behaviors
of our students and colleagues, interpret those patterns in terms of the underlying nonlinear dynamics, and take action to reinforce what we see as supportive and productive patterns" (Patterson et al., 2013, p. 10).

- **Adaptive capacity:** Adaptive capacity is the “willingness and ability to respond to the unexpected” (Patterson et al., 2013, p. viii). Adaptive capacity results from multiple iterations of adaptive action.

- **Complex adaptive system:** Richardson and Cilliers (2011) indicate that a complex system is “comprised of a large number of entities that display a high level of nonlinear interactivity” (p. 8). Dooley (1986) indicates a complex adaptive system is “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” (p. 2).

- **Complexity thinking:** Complexity thinking, originating in the study of complex, nonlinear systems in physical and natural sciences, is a shift in philosophical stance that recognizes the “limited and provisional nature of all understanding” (Richardson & Cilliers, 2011, p. 8) due to the multiple nonlinear relationships between and among the many components or agents of a complex system. These systems are inherently unpredictable and, therefore, not amenable to human control.

- **Deep thinking/learning:** Within the context of 21st-century literacies, deep thinking/learning means developing the higher-level thinking, reasoning, and analysis skills needed to be considered literate in an age of technological expansion.
• Drivers: According to Fullan (2011), drivers are “policy and strategy levers that have the least and best chance of [achieving] successful reform” (p. 3).

• Neoliberalism: In the United States, neoliberal doctrine is “free-market capitalism in which economic prosperity is best achieved through unregulated or free markets, the withering away of the state as government’s role in regulating businesses and funding social services are either eliminated or privatized, and encouraging individuals to become self-interested entrepreneurs” (Hursh, 2011, p. 7). Prominent tenets of this philosophy in education are a focus on markets, competition, privatization, and accountability.

• Pattern: In complex adaptive systems, patterns are similarities, differences, and connections that have meaning across space and time (Eoyang & Holladay, 2013).

• Sticky issue: Sticky issues are any intractable problem or situation, usually manifested in the following ways: the solution is not clear, the problem doesn't stay solved, or the problem is so large that the entire thing cannot be focused on (Eoyang & Holladay, 2013).

Summary

Over the years, politicians and policy makers have addressed perceived educational crises in the United States with the implementation of neoliberal reforms, whose primary focus is accountability monitored through the use of high-stakes assessments. The perceived literacy crisis in the United States has, for example, been addressed by policies including high-stakes tests and standardized curricula, neither of which acknowledges learning, classrooms, or schools as complex systems. Under the
influence of this larger socio-political climate, a pattern has emerged in which a
generation of schools is doing what’s best for administrators to avoid punitive measures
rather than what is best for children to have rich instruction that fosters deep literacy
learning. Systems approaches to changing these negative patterns are seen as an
important way to build capacity within schools, which is needed to address such issues
as the need to adapt teaching to meet the ever-changing literacy needs of 21st-century
learners. One approach, grounded in the work of human systems dynamics (HSD),
seeks to see, understand, and influence patterns (Patterson et al., 2013) to build
adaptive capacity within an organization. This study examines one school district’s
attempt to use complexity thinking in general, and adaptive action and other HSD
methods and models in particular, to build capacity in order to shift patterns across the
district.
CHAPTER 2

REVIEW OF THE LITERATURE

The purpose of this exploratory study is to examine participants’ stories regarding the use of adaptive action and other human systems dynamics (HSD) methods and models in their work as district administrators, principals, teachers, and literacy coaches. The context of this study is one school district’s attempt to use complexity thinking in general, and adaptive action and other HSD methods and models in particular, to build capacity in order to shift patterns at all levels of the district, i.e., implementing district goals of being student-centered and implementing a critical literacy curriculum across content areas. Ultimately, the findings of this study inform our understanding about the use of complexity thinking, specifically HSD, in American schools to counteract pervasive patterns detrimental to student learning that result from adherence to neoliberal policies.

This review of the literature begins with an explanation of the 21st-century literacies students must develop, including an ability to think and analyze texts at a deep level. However, the neoliberal literacy education policies here in the United States over the last century do not necessarily support instruction for this kind of thinking. The second section of this chapter surveys these neoliberal policies and their influence on U.S. schools since 1983. The final section discusses alternatives to counteract these neoliberal policies, both grounded in systems views of change and complexity theories. The chapter ends with a discussion of HSD specifically as a viable approach to organizational change in schools to encourage deep learning and the practice of 21st-century literacies.
The Goal: Teaching To Encourage 21st-Century Literacy Practices—Deep Thinking/Learning

According to the National Council of Teachers of English (NCTE) (2009):

To be successful in the 21st century requires skills that an earlier generation never imagined. Fundamental changes in the economy, jobs, and businesses have reshaped industry and the nature of work. Today, employees engage with a technology-driven, diverse, and quickly changing global economy that requires new and different skills. Literacy demands have changed along with these changes in society and technology. (p. 15)

The type of literacies needed in this age are referred to as “new literacies” (Leu et al., 2004), “multiple literacies” (Cazden et al., 1996), or “21st-century literacies” (NCTE, 2009). Each label represents a variety of attitudes and practices required to be considered “literate” in this day and age; for example, literacy as a social and cultural practice (Heath, 1983; Street, 1984), literacy as a digital practice (Coiro et al., 2008; Pahl & Roswell, 2010), or literacy as involving multiple modalities (Cope & Kalantzis, 2000; Kress, 2003). Although these labels signify a range of perspectives, they all refer to “an expansion of the boundaries of what counts as literacy and literacy competency” (Cervetti, Damico, & Pearson, 2006, p. 379). In this study, the term “21st-century literacies” represents this full range of literacy practices.

Beyond a change in modalities and media, however, 21st-century literacies also denote a change in the type of thinking considered essential, what I refer to as “deep thinking.” According to Leu and colleagues (2004), 21st-century literacy practices require individuals to 1) be critically literate, that is, individuals need the ability to critically analyze an author’s message, including thinking about texts from a sociocultural lens of power, agency, and identity; 2) engage with multimodal texts, including electronic tablets, computers, and other digital forms; and 3) transform and
 redesign text information. By comparison, NCTE’s (2009) list of proficiencies needed by 21st-century readers and writers states these individuals must:

- Develop proficiency with the tools of technology;
- Build relationships with others to pose and solve problems collaboratively and cross-culturally;
- Design and share information for global communities to meet a variety of purposes;
- Manage, analyze, and synthesize multiple streams of simultaneous information;
- Create, critique, analyze, and evaluate multimedia texts; and
- Attend to the ethical responsibilities required by these complex environments. (p. 15)

Bomer, Zoch, David, and Ok (2010) suggest that technology is not even the most important part of the 21st-century literacies, but rather the thought processes that underlie technological use and required practices. They report on one fourth-grade teacher’s use of non-technological materials, such as wood, paper, and fabric, to design, link, and use multiple modalities to create a memoir text. They suggest that the thought processes of 21st-century literacies be emphasized since the technological aspects of these literacies are constantly shifting, a point with which Jenkins (2006) and Fisch and McLeod (2010) agree. Some educators (including leaders in the school district in this study) see this “deep thinking” as a primary goal of schooling.

There are a few researchers, like Lankshear and Knobel (2007), who question whether existing structures and policies in K-12 education even support the enactment of 21st-century literacies; however, most researchers, like Cervetti and colleagues (2006), see the potential in schools as places where these literacies can be taught and
developed and where 21st-century literacies and school curricula can work together to benefit students (Collier, 2007). In order for this to occur, however, changes in the status quo are needed—primarily in the form of building and supporting teacher capacity for developing these literacies and in changing pedagogical practices. For example, Cervetti and colleagues (2006) suggest preservice and inservice teachers learn about technology and media, receiving help both in developing a broader understanding of literacy and in exploring their own multiple literacies. Lapp, Moss, and Roswell (2012) state that teachers of 21st-century literacies must be critically literate themselves. In addition, they need to incorporate the interrogation of texts and technology into their instructional practices, assume a stance of co-learner and constructor of knowledge with their students, and understand students’ views of literacy and the world. NCTE (2009) points out that in order for students to engage in these practices, a change in pedagogy needs to occur. This would require professional development to help teachers “learn ways to support student progress in the full range of 21st-century literacies” and across “all content areas” (NCTE, 2009, p. 16).

In short, 21st-century literacies, which continue to evolve and expand, require deep thinking and analysis skills, multimodal practices, and an ability to design and produce texts as well. Organizational change is required so educators can build capacity for this kind of thinking and learning in schools. Educators, in order to help students engage in these deep literacy practices, must receive support through venues such as professional development.
The Context: Neoliberal Policies and Patterns in School Decision-Making

Proclamations of literacy crises, common in industrialized nations whose literacy practices must evolve with the accompanying changes in economic and workplace demands (Nystrand, 2006) have occurred in the United States since at least the 1800s (Shannon, 2007). Of particular concern to educators today are the changes taking place over the past six decades. Beginning in the 1950s with Flesch’s (1955) publication *Why Johnny Can’t Read*, stakeholders have voiced concern about whether the American school system can adequately educate children. As Ravitch (2010) explains, the most influential document regarding literacy education/organizational change today is the 1983 report *A Nation at Risk*.

A Nation at Risk: Setting the Stage for Neoliberal Policies

*A Nation at Risk* (ANAR), sponsored by the Department of Education, voiced concern that America was losing its global edge as a result of the state of education. Authored in the midst of a recession, this document incited a generation of policymakers to action to improve American education. Since 1983, as education became equated directly with American ranking in the global community, an unprecedented level of government control, in the form of neoliberal policies, influenced public school classrooms. Mehta (2013) explains:

> The impetus for the transformation was the creation of a powerful educational paradigm, which crystallized in the famous *A Nation at Risk* report. This paradigm, which emerged in the early 1980s and is still dominant today, holds that educational success is central to national, state, and individual economic success; that American schools across the board are substantially underperforming and in need of reform; that schools rather than social forces should be held responsible for academic outcomes; and that success should be measured by externally verifiable tests. (p. 286)
As such, ANAR marks a turn in federal involvement in education. With the exception of President Johnson’s 1965 enactment of the Elementary and Secondary Education Act (ESEA), education policy and curriculum had traditionally been the purview of state and local governments. Following ANAR, however, policymakers began creating initiatives and committees to address the perceived problems in the U.S. public education system. President George H. W. Bush created a committee to study the feasibility of a national standards and assessment system, while President Clinton, as part of his Goals 2000, provided funds for schools to implement voluntary tutoring programs. The pinnacle of government intervention, however, came when, in 2002, President George W. Bush signed into law the No Child Left Behind (NCLB) legislation, the reauthorization of Johnson’s ESEA.

Patterns Emerging from Neoliberal Policy Implementation

While the original ESEA sought to guarantee equal access to all students, NCLB, the largest national policy to affect teaching (Coburn, Pearson, & Woulfin, 2011), sought to guarantee equal educational attainment for all students, in particular minority students and students of poverty. In the words of the law, “The purpose of this title is to ensure that all children have a fair, equal, and significant opportunity to obtain a high-quality education and reach, at a minimum, proficiency on challenging State academic achievement standards and state academic assessments” (NCLB Act of 2001, § 1001, 20 USC § 6301, 2002). To accomplish this goal, politicians structured NCLB around four neoliberal tenets: markets, competition, privatization, and accountability (Hursh, 2011). With this focus on “carrots and sticks,” in the form of competition for grants and punitive measures for those who fail to make adequate progress, the conditions were set for the
opposite of student achievement to occur, which evidence strongly suggests has happened. In fact, a review of literature on the effects of NCLB and other neoliberal policies, such as California’s Public Student Accountability Act of 1999, points to a shift in educational practices following implementation in order to meet the accountability measures, a shift which generally focuses on surface-level knowledge, rather than focusing on “essential skills” and deep, higher-order thinking (Suskind, 2007).

With this shift in practices, three prominent patterns appeared, including 1) the mandating of scripted curricula (Owens, 2010; Shelton, 2010) that offer a one-size-fits-all approach to meeting students’ needs (Allington, 2002; Johnston-Parsons, 2007; Wright & Choi, 2006); 2) the narrowing of the curriculum in order to focus on test preparation (Au, 2007; Linn, 2000; Nichols & Berliner, 2007; Rothstein, Jacobsen, & Wilder, 2008); and 3) the redirecting of resources to “bubble kids,” or the students whose standardized test scores were thought easiest to increase (Booher-Jennings, 2005; Diamond & Spillane, 2004). Instead of an increase in learning achievement, there has been a widening of the achievement gap between richer and poorer students (Aud et al., 2012) and increasing dropout rates for students of these same populations (Allen et al., 2007; Orfield et al., 2004). The desire to avoid punitive measures has impacted state and school-level decision making with regards to instruction, shifting the focus from “doing what’s best for kids” in order to support deep, flexible learning to “doing what’s best to avoid punishment” (Elmore, 2003; Pennington, 2007). The following discussion focuses on each of these patterns and explores its usefulness in encouraging or supporting “deep thinking” and 21st-century literacy practices.
Mandated Scripted Programs/One-Size-Fits-All Curricula

In the attempt to raise student achievement, many states, school districts, and schools have adopted particular curricular programs that promise to raise student scores on standardized tests, usually programs that are to be implemented with fidelity (e.g., Hartnett-Edwards, 2012; Shelton, 2010). Studies looking at the effects of implementation of these programs indicate students do not receive the instruction they need to meet their needs, either because the content is irrelevant or teachers are not able to individualize instruction (Allington, 2002). In a study of the impact of fidelity program implementation in two elementary classrooms, Shelton (2010) reports teachers in some third-grade Florida classrooms were required to implement one of the “research-based” reading programs recommended for use under NCLB with “high fidelity” in order to raise students’ reading comprehension. The teachers in the past had been allowed to supplement their use of the reading textbook to meet student needs. Her analysis suggests that such fidelity to the highly scripted reading program “did not result in either personal instruction or instruction that aided students’ comprehension” (p. 332).

Owens (2010), in her study of the experiences of 12 highly qualified demonstration teachers in Mississippi, found that these instructors of reading teachers broke with mandates to strictly follow the required reading program because they recognized that the program was not meeting the needs of individual children. Despite this exercise in autonomy, however, the teachers, who began the year discussing reading instruction in terms of individual student needs, were all, by February, discussing their students in terms of the unit they were on in the reading program.
Owens concludes the following: 1) the scripted program did not meet the needs of all children and, therefore, needed to be modified by well-trained, knowledgeable teachers; 2) educational policy cannot ignore the social and cultural context of students in particular regions across the country; and 3) despite teachers’ exercise of autonomy, the mandate to adhere strictly to the reading program “has the potential to diminish the professional competence, confidence, and effectiveness of teachers” (p. 117). This last conclusion is also supported by multiple studies that detail the experiences of teachers living under such mandated curricula (e.g., Assaf, 2006; Samway & Pease-Alvarez, 2005; Shelton, 2005).

Wright and Choi (2006) report that elementary schools across Arizona have chosen to adopt one-size-fits-all language arts curricula despite the fact that such curricula does not meet the educational needs of the English language learners (ELLs) in these schools. In fact, his study suggests that such inappropriate curriculum for ELLs may be causing more harm than good, with ELLs not receiving instruction in content areas or support in learning the academic English they need to be college and career ready. Patterns, such as the one reported by Wright and Choi, are especially lamentable due to the fact that these policies are supposed to bolster the educational opportunities and achievement of minority students.

Narrowing Curriculum/Test Preparation

Another approach educators have adopted is the narrowing of curriculum to cover only the subjects tested, primarily mathematics and language arts (Diamond, 2007; Hoffman, Assaf, & Paris, 2001; McDonnell, 2004; Wright & Choi, 2006), as well as teaching the content in these areas around what is expected to be on the test
(Diamond, 2007). Teachers are sometimes encouraged by their principals to leave out non-tested subjects, such as social studies and science, so that the tested subjects can receive more time (Diamond, 2007). Teachers report covering topics superficially and often cramming in content before a test that would normally be introduced later in the school year (Diamond, 2007; Sandholtz, Ogawa, & Scribner, 2004), in addition to fragmenting their subjects into basic, isolated skills and “test-sized pieces” (Au, 2007; Sandholtz et al., 2004), instead of teaching a higher-order curriculum that is connected to other knowledge (Au, 2007). Additionally, some teachers report spending specific time on “test prep” activities. For example, teachers in Chicago report having an hour each day devoted solely to test-taking practice (Diamond, 2007; Diamond & Spillane, 2004).

**Focusing Resources on “Bubble Kids”**

Educators also report having resources for teaching focused on the students whose scores are closest to meeting the benchmark scores for passing, colloquially known as “bubble kids,” to the exclusion and detriment of higher- and lower-performing students (Booher-Jennings, 2005; Diamond & Spillane, 2004). In Texas, for example, teachers in Booher-Jennings’s (2005) study reported giving extra help in small groups to bubble kids, having tutoring sessions that target the bubble kids, and summer school programs that serve these students. In addition, they report that specials teachers, i.e., teachers of art, music, and physical education, practice test preparation with small groups of bubble kids in lieu of teaching their assigned subject. Diamond and Spillane (2004) report that the lowest performing schools in Chicago received limited assistance, as extra resources were directed to the schools with students who were near the cutoff.
point, which determine whether the school is placed on probation. These schools also provided extra tutoring only to students whose test scores were near the passing cutoff.

In summary, the current neoliberal environment, referred to as a time of unprecedented reductionism (Jaeger, 2007), has not supported instruction that develops the deep thinking required of 21st-century literacies. Instead, what has emerged in this context are instructional patterns focusing on narrow curriculum and low-leveled thinking so students can pass standardized assessments—patterns that are antithetical to the type of instructional support needed to develop deep thinking and other literacy practices. The following section examines alternatives to the status quo, so that the conditions for deep learning/thinking can be set.

Capacity-Building and Systemic Change

Under the context of neoliberal education policies, educators have focused on “teaching to the test” and the low-leveled literacy such tests require—in other words, teaching that does not support the development of deep thinking required of 21st-century literacies. Fortunately, alternative models for setting and/or changing patterns, grounded in systems approaches, within schools exist. These models, such as the one embodied in the work of Ball Foundation Education Initiatives, focus their work on building capacity within schools, where capacity is defined as “the knowledge, skills, and disposition of people individually but especially collectively” (Fullan, 2010, p. 45). In the sections below, elements of organizational change in systems approach are discussed. This is followed by an examination of Fullan’s concept of change drivers and the work of Ball Foundation Education Initiatives.
In his review of international organizational change efforts to determine the drivers used by the countries who score the highest on international exams, Fullan (2011) posits that time spent developing capacity and meaningful pedagogy across the entire system will shift the culture that will enable the educational change Americans are seeking, especially high student achievement and learning. These concepts are supported in other research as well. For example, across the research literature, several themes are present: 1) building capacity and increasing student achievement requires time (Au & Valencia, 2010; Cambone, 1995; Darling-Hammond, 1997); 2) teachers in a school must all be accountable for the success of all students (Au & Valencia, 2010; Lipson, Mosenthal, Mekkelsen, & Russ, 2004; Tye et al., 2010); 3) schools must build a culture of collaboration and shared learning (Au & Valencia, 2010; Datnow & Stringfield, 2000; Elmore, 2003; McLaughlin & Talbert, 2003; Purkey & Smith, 1985); and 4) change happens in phases (Adelman & Taylor, 2007; Scott & Bagaka’s, 2004). These themes are explored further in the following subsections.

Building Capacity Requires Time

One theme that exists in the literature regarding setting conditions for deep student learning is the need for time: time for teachers to plan together (Darling-Hammond, 1997); time for teachers to engage in professional development (Cambone, 1995); and time to implement organizational change strategies (Au & Valencia, 2010; Cambone, 1995).

For example, Hilltop Drive Elementary School, located in Chula Vista, California, whose achievement gap on the language arts standardized test has decreased from 33% to 23%, credits several factors, one of which is time to collaborate. In this school,
every grade-level team gets at least ninety minutes of collaboration time each week, in which teachers meet to “plan instruction, look at student work and other data, and discuss what’s working and not working” (Babiera, 2013).

Cambone (1995), in his review of studies on school restructuring efforts and theoretical writings on time in schools, found that there are different ways to conceptualize the time needed to achieve school reform. With respect to time, he recommends the following: 1) teachers need special time to participate in innovation in schools; 2) school culture of how time is spent needs to be studied; 3) teachers' time for teaching must not be interfered with; and 4) teachers need time to learn and implement new skills and ideas. He also emphasizes that “time for teachers in restructuring cannot and should not be shoe-horned into the existing time structure” (np). Notably, one teacher in McLaughlin and Talbert’s (2003) study commented it had taken their district almost 10 years of planning and implementation to achieve the organizational changes they were seeking.

Everyone Shares Accountability for Student Success

Important to school change efforts is that members in the entire system, from the site level to the district level, are accountable for an “ambitious orientation” toward “the pursuit of deep, long-term changes in school culture” (Au & Valencia, 2010, p. 373). Tye et al. (2010) echoes this need for teachers and administrators to be held accountable for their work. Lipson and colleagues’ (2004) examination of successful schools across one state indicates that “success is fashioned by the educators, students, and community members in a way that is context-specific” (p. 534); however, they do note that successful schools, or those in which there is a high percentage of student
achievement, take responsibility for all students, along with collaborating and focusing their efforts over a period of time.

Capacity Building Calls for a Culture of Collaboration, Learning, and Inquiry

Research suggests that student achievement are schools with a coherent school-wide program/philosophy in which learning takes place across roles (Au & Valencia, 2010; Datnow & Stringfield, 2000; Elmore, 2003; McLaughlin & Talbert, 2003; Purkey & Smith, 1985). In their review of literature on school reform, Au and Valenica (2010) report that “the culture of the school—specifically whether teachers have the ability to come together as a school-wide professional learning community—appears more important to its success in improving student achievement than the particular program in place when the change process is introduced” (p.376). This position is supported by Correnti and Rowan’s (2007) study of schools adopting one of three comprehensive school reform (CSR) programs. Findings in this study indicate that all programs were implemented successfully and under different circumstances. What was similar in schools where these programs were successfully implemented was that these schools provided “numerous supports for teacher learning” (p. 328).

Adelman and Taylor (2007) report that “from the perspective of systemic change, creating an atmosphere at a school and throughout a district that encourages mutual support, caring, and a sense of community takes on added importance” (pp. 68–69), echoing findings from Datnow and Stringfield’s (2000) analysis of 16 studies of schools implementing reform programs. The authors note that for schools to succeed, there must be widely shared goals and participation by all members, including teachers, in the “basic fabric” of the school. Purkey and Smith (1985) note that schools with effective
reform have, among other things, a collaborative culture, professional development, and a sense of community. NCTE Executive Committee (2007) especially emphasizes the need for teachers to engage in ongoing professional development in order to build capacity.

Beyond being accountable, all members of the system also must be seen as learners. Elmore (2003) maintains learning needs to take place across roles, not only with the teachers. Au and Valencia maintain that systematic change “will only be possible when all constituencies are viewed and treated by others as active learners, striving for a common vision” (p. 374). Included in this learning are the central office administrators and staff. McLaughlin and Talbert (2003), in their examination of three reforming school districts in California, note that successfully reforming districts “continually [work] to improve their support of professional learning throughout the district” by “effectively responding to schools’ particular needs. They explicitly model the learning and risk-taking that are essential to effective change as they reform their own practice” (p. 13). One principal in this study described his district “in terms of ‘the free flow of information, honest, and in some cases brutal dialogue’” (p. 13).

Also key in successful school cultures is the taking of an inquiry stance and using data to inform decision-making and instructional planning (McLaughlin & Talbert, 2003). Specifically, “reforming districts improve system performance by using data on trends in organizational conditions and student achievement within and across schools to focus their reform efforts and to refine their supports for individual schools” (p. 20).
Organizational Change Happens in Phases of Transformation

As educators go about the work of changing school cultures, Adelman and Taylor (2007) note that substantive systemic change is accomplished in at least four phases: creating readiness, initial implementation, institutionalization, and ongoing evolution and creative renewal. Important in this study is the first phase, creating readiness, in which the culture of the district is addressed by “enhancing the motivation and capability of a critical mass of stakeholders” (p. 61). Also important in shifting school cultures is teacher perception of success of the reform (Scott & Bagaka’s, 2004), with perceptions almost serving as a self-fulfilling prophecy.

Capacity-Building Initiatives

Three initiatives provide examples of systems change through capacity building. They are Fullan’s work in Ontario, Canada; the National Center for Literacy Education’s work in improving literacy education through collaboration; and Ball Foundation Education Initiatives’ work with mid-size urban schools.

Fullan’s Initiatives in Ontario, Canada

Fullan (2011), one of the most prolific scholars on the topic of systems change, defines a system as elements that are “unavoidably connected and involved, day after day” (p. 16). He emphasizes that holding teachers accountable through high-stakes testing, focusing on individual teaching and/or leadership quality, expecting technology to create change, and implementing fragmented strategies in hopes of effecting change—the current favorites of neoliberals—are the wrong drivers to bring about the change in education that is sought.
For him, the system is ALL schools, students, teachers, and administrators. And within this system, the drivers of capacity building, instructional improvement, and teamwork work synergistically to shift the culture of school systems. He states, “The glue that binds the effective drivers together is the underlying attitude, philosophy, and theory of action. The mindset that works for whole system reform is the one that inevitably generates individual and collective motivation and corresponding skills to transform the system” (p. 5).

Beyond his numerous publications (e.g., Fullan, 1992, 1999, 2001, 2008, 2010, 2011), Fullan has worked with the government in Ontario, Canada, in its initiative to improve student achievement and learning—a model which has improved, as seen in reduced dropout rates, improvement in teacher morale, and closing of the achievement gap between lower SES students and their higher SES counterparts (Fullan, 2012). Fullan’s work in Ontario was centered around the following key priorities: focus on one or two priorities, build relationships, persist, develop capacity, and spread quality implementation (2012.). Maintaining a focus and persisting “ensure that these priorities are not going to be discarded along the way” (p. 1). Building relationships means developing collaboration and trust between teachers, administrators, and other key stakeholders. Capacity building in order to raise accountability means investing in teacher development and education—not implementing a “carrot-and-stick” approach of rewards and punishments. Finally, spreading quality practices involves “breaking down the walls of the classroom, the school, and even the district by increasing communication, cataloging and sharing best practices, and fostering a culture of teamwork” (p. 2).
National Center for Literacy Education (NCLE)

The NCLE initiative, which sees teachers as the drivers for organizational change, seeks to support literacy learning and collaboration among teachers within individual school sites and across the nation. According to their website:

NCLE brings together leading education associations, policy organizations, and foundations to support powerful learning about literacy in every discipline. NCLE provides a structure for educator teams and schools engaged in innovative practices to share and learn from one another through exchanges centered on development of locally viable plans for inspiring student achievement. (NCTE, 2013)

Their three-pronged initiatives seek to 1) build and support a grassroots movement for change in literacy education, 2) support school change through connecting educators and stakeholders in the sharing of resources via their online platform, the Literacy in Learning Exchange, and 3) sustain improved learning by funding research and educator projects grounded in collaboration and inquiry (Literacy in Learning Exchange, n.d.).

Their focus on collaborative inquiry stems from the belief that “effective collaborative inquiry teams build sustainable capacity in schools by giving teachers skills, structures, and support systems to continually learn from and refine their shared practice” (Nelson, 2012). From their review of the literature on collaborative inquiry, they developed a framework of “conditions and practices that support effective collaboration” (Nelson, 2012). These conditions are 1) taking shared ownership for professional practice, 2) using evidence effectively, 3) creating collaborative culture, 4) maintaining an inquiry stance, 5) developing and acting on shared purpose, and 6) supporting collaboration systematically.
Ball Foundation Education Initiatives (BFEI)

One specific examination of the intersection of organizational and systemic change is the work completed by BFEI, which sunset in 2012. Ball Foundation partnered with California Unified School District, the location for this study, prior to BFEI’s involvement with Human Systems Dynamics Institute.

From 2001–2012, BFEI partnered with midsize urban school districts with the express mission of “improving literacy through systemic capacity building with the school district as the unit of change” (Ball Foundation, 2012). They accomplished this mission through multiple-year partnerships where the main goal was the development of the competencies of administrators, at both site and district levels, instructional support members, and school board members, as well as teachers. One of the criteria for partnership with BFEI included the stipulation that this partnership had to be coherent with work already in place in the district; their work could not be an “add-on” to initiatives already at work in the district. In exchange, fiscal resources were provided for professional development and for time for collaboration among team members. For BFEI, the district was the unit of change.

District as the Unit of Change

BFEI, among others, consider the district the unit of organizational change. Several studies indicate the importance that districts play in what goes on in classrooms (Fullan, 1992, 1999; McLaughlin & Talbert, 2003; Spillane & Thompson, 1997; Togneri & Anderson, 2003; Seller, 2005). After all, districts were “historically developed to maximize compliance and control functions” (Jennings, Noblit, Brayboy, & Cozart, 2007, p. 30). Despite more and more of their historical roles being subsumed by individual
schools during this age of accountability (Jennings et al., 2007.), there are still functions only the district can do, such as “the monitoring and management of equity of student resources and outcomes across schools” (McLaughlin & Talbert, 2003). Districts also serve a facilitative function for schools (Jennings et al., 2007), wherein the success of an individual school’s efforts can be linked to the amount of district support (McLaughlin & Talbert, 2003; Purkey & Smith, 1985).

For the Ball Design, taking a whole systems view was important because of the difficulty to “scale-up” changes made at one school to other schools across a district. In their words:

The whole systems view that Ball EI holds in its work sees schools and districts as complex and adaptive rather than as static and mechanistic. As complex systems, they are more than a collection of parts. Each part of a system is interdependent with other systemic parts, some internal and some external to the system itself. These parts of the system are held together by diverse, interactive, and reciprocal relationships. These relationships organize and reorganize into patterns that are influenced by and influence the values and beliefs of the system. (Ball Foundation, 2008, p. 3)

BFEI Core Beliefs

Operating under the assumption that most of the expertise needed for school reform already resides in the district and that what is needed is a chance for people to come together to share and build that expertise, BFEI’s work was grounded in the following principles: build shared purpose, create adaptive solutions, use inquiry to guide practice, build on assets, access the capacity of stakeholders, work in systemic ways, and attend to content and process (Ball Foundation, 2012). Present in these principles are the characteristics of successful school change discussed previously, namely time and cultures of collaboration and learning. The Ball Design, as their brand was called, “takes into account the need of partner schools and districts to not only build
capacity for better instructional practice, but also for partners to build capacity in their organizational and leadership functions as well (Ball Foundation, 2008, p. 3), placing this work at the nexus of organizational change, instructional improvement, and systems approaches. The especial focus on collaboration and capacity building in these core beliefs is built on the theoretical premise that organizations are living systems, and that as such they are “capable of learning, creating, making meaning, and self-organizing” (Ball Foundation, 2012, p. 5) and that “complex organizations change when they engage with new information and new relationships” (p. 5). These core beliefs are grounded in the work of Fullan (e.g., 2001, 2008); Senge (1990); Wenger, McDermott, and Snyder (2002); and Wheatley (1999), to name a few. As Fullan’s work was discussed earlier, the focus here is on the work of Senge, Wegner et al., and Wheatley.

**Senge**

In 1990, Senge published his seminal work on systems change, titled *The Fifth Discipline*. His premise is that organizational change occurs best when the following five disciplines are used conjointly: personal mastery, mental models, building shared vision, team learning, and systems thinking.

*Personal mastery* is “the discipline of continually clarifying and deepening [one’s] personal vision, of focusing [one’s] energies, of developing patience, and of seeing reality objectively” (p. 7). Senge emphasizes the importance of personal mastery by saying “an organization’s commitment to and capacity for learning can be no greater than that of its members” (p. 7).

*Mental models* are those “deeply ingrained assumptions, generalizations, or even pictures or images that influence how we understand the world and how we take action”
By working with these mental models, individuals “carry on ‘learningful’ conversations that balance inquiry and advocacy, where people expose their own thinking effectively and make that thinking open to the influence of others” (p. 9).

**Building shared vision** is more than creating a “vision statement.” Rather, it is “binding people together around a common identity and sense of destiny” (p. 9). In such an environment, “people excel and learn, not because they are told to, but because they want to.” Additionally, the practice of shared vision “fosters genuine commitment and enrollment rather than compliance” (p. 9).

**Team learning**, for Senge, starts with “dialogue,” from the Greek *dia-logos*, in which “members of a team suspend assumptions and enter into a genuine ‘thinking together’” (p. 10). Dialogue is different than discussion, which means “literally a heaving of ideas back and forth in a winner-takes-all competition” (p. 10). Team learning is “vital” because “teams, not individuals, are the fundamental learning unit in organizations” (p. 10). In other words, if the team doesn’t learn, neither does the organization.

Senge’s fifth discipline, **systems thinking**, “integrates the disciplines, fusing them into a coherent body of theory and practice,” and by doing so “it continually reminds us that the whole can exceed the sum of its parts” (p. 12). Systems thinking, which Senge grounds in the work of Forrester, a computer pioneer who developed “systems dynamics,” enables individuals and organizations to recognize and respond to patterns in the system.
In their book *Cultivating Communities of Practice*, Wegner and his colleagues (2002) explicate on how communities of practice “provide a concrete organizational infrastructure for realizing the dream of a learning organization” (p. x). These communities are defined as “groups of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowing and expertise in this area by interacting on an ongoing basis” (p. 4). While communities of practice have been around since before medieval artists guilds, Wegner and his colleagues posit that in order for present-day organizations to manage the influx of knowledge and to design for “aliveness,” organizational leaders must learn to cultivate these communities. They offer seven principles that “embody [their] understanding of how elements of design work together” so that leaders can be “more flexible and improvisational” in their work. These principles are grounded in their view of organizations as organic. The principles are 1) design for evolution, 2) open a dialogue between inside and outside perspectives, 3) invite different levels of participation, 4) develop both public and private community spaces, 5) focus on value, 6) combine familiarity and excitement, and 7) create a rhythm for the community. In addition, their book emphasizes that these communities must be developed and maintained in order for the organization to continue to learn and grow.

In her book *Leadership and the New Science: Discovering Order in a Chaotic World*, Wheatley (1999) draws on her readings of the “new science” in “biology, evolution, chaos theory, and quantum physics” (p. 4) and makes metaphorical links
between those “scientific perspectives and organizational phenomena” (p. 10). For example, she highlights the following scientific perspectives:

- in quantum physics, Capra’s (1996) “new synthesis of the science of living systems” which “reveals processes that are startlingly different from the mechanistic ones that had been used to explain life” (p. 12)

- in the field of human health, Pert and Chopra’s (1997) view of the body as “an integrated system rather than as a collection of discrete parts” (p. 12)

- Lovelock’s (1988) Gaia theory, in which the earth is viewed as “a self-regulating system, a planetary community of interdependent systems that together create the conditions which make life possible” (p. 12)

- in chemistry, Prigogine and Stengers’ (1984) work in dissipative structures that “demonstrated that any open system has the capacity to respond to change and disorder by reorganizing itself at a higher level of organization” (p. 12).

One “metaphorical link” Wheatley makes is between dissipative structures and organizations. She writes:

In a dissipative structure, anything that disturbs the system plays a crucial role in helping it to self-organize into a new form of order. Whenever the environment offers new and different information, the system chooses whether to accept that provocation and respond. This new information might be only a small difference from the norm. But if the system pays attention to this information, it brings the information inside, and once inside that network, the information grows and changes. If the information becomes such a large disturbance that the system can no longer ignore it, then real change is at hand. At this moment, jarred by so much internal disturbance and far from equilibrium, the system will fall apart. In its current form it cannot deal with the disturbance, so it dissolves. But this disintegration does not signal the death of the system. If a living system can maintain its identity, it can self-organize to a higher level of complexity, a new form of itself that can deal better with the present.

In this way, dissipative structures demonstrate that *disorder* can be a source of new *order*, and that growth appears from disequilibrium, not balance. The things we fear most in organizations—disruptions, confusion, chaos—need
not be interpreted as signs that we are about to be destroyed. Instead, these conditions are necessary to awaken creativity. (p. 21)

Wheatley's work helps practitioners understand, through the lens of “new science,” the dynamical nature of change and learning that are necessary for organizations to grow. She purposely does not provide a list of indicators or strategies for leaders to follow; rather, she invites the leader to join her in understanding “the dance” of order and chaos, of change and stability.

To summarize, organizational change efforts can be viewed from a “systems view,” as exemplified in the initiatives of Fullan, NCLE, and BFEI. Within this view, drivers of organizational change, such as capacity building, instructional improvement, and teamwork, are required to shift the culture in schools in order to support student achievement at high levels of learning. Other empirical research also emphasizes themes of time, collaboration, learning for all members of the system, and accountability for that learning as requisite drivers of organizational change.

Complexity Theories and Systemic Change in Schools

Clearly, these systems-based approaches focus on collaboration and capacity building throughout the system. They stand in sharp contrast to the recent neoliberal approaches that focus on competition between parts of the system. Organizational change leaders who use these capacity-building approaches have focused, for the most part, on particular practices, or they may describe a systemic approach (with lists of indicators), but they have not yet articulated a comprehensive theoretical frame that provides a rationale for their recommendations for practice.
To respond to the need for a rationale, a number of researchers are looking to complexity science for that theoretical explanation. Grounded in the natural and physical sciences, complexity theory, chaos theory, nonlinear dynamics, and other complexity approaches detail a range of phenomenon that do not follow linear, Newtonian laws (Alhadeff-Jones, 2008; Prigogine & Stengers, 1984; Waldrop, 1992). For example, Prigogine’s work in “dissipative structures” demonstrated that order and newness can emerge out of the chaos and disorder of entropy (Prigogine & Stengers, 1984). Social scientists noticed that many of the models and metaphors used in natural science’s study of complexity applied to human systems as well (e.g., Cilliers, 1998; Eoyang, 2001; Sawyer, 2005; Senge, 1990; Waldrop, 1992; Wheatley, 1998). By nature of this genesis in diverse fields, complexity theories are transdisciplinary in nature. This transdisciplinary character is helpful in that it is able to provide many models and metaphors for understanding the world around us, including the complex systems known as schools.

Two general applications in education of complexity theories are examined in the discussion below. This discussion is followed by an explanation of one specific approach to complexity in human systems. The first general perspective, understanding organizations and organizational change, looks at the ways in which complexity theories help researchers and educators understand the dynamics of school systems and ways in which organizational change can be supported, such as enabling collaborative cultures to self-organize. This understanding is especially important as changes in education that support “deep thinking” are attempted in contrast to neoliberal policies. The second application, understanding the complex nature of teaching and learning,
looks at current areas of study, such as the relationship between teacher and student, what it means to understand, and implications for emergent teaching.

Finally, Human Systems Dynamics (HSD) provides an example of how complexity theories can be applied in human systems at both the organizational level and the level of the individual teacher and learner. HSD recommends a number of specific models and methods designed to help system agents “see, understand, and influence patterns” in their systems (e.g., Patterson et al., 2013). The school district in this study was engaged in an initiative using HSD models and methods to impact the work of teachers and administrators in their various roles in a district to effect both organizational change and changes in pedagogy.

Complex Understanding of Organizations and Organizational Change

With the emergence of complexity and chaos sciences, researchers and scholars across a variety of disciplines have begun to use theories, metaphors, and models from these fields of study to examine phenomena in their own areas of study (Waldrop, 1992). Coupled with this emergence is a paradigmatic shift from viewing all of the world as mechanistic, and Newtonian—a world in which it is possible to model and understand all phenomena—to one which recognizes and embraces the messiness and interconnected nature of our world (Prigogine & Stengers, 1984; Richardson & Cilliers, 2001).

This expansion of the use of complexity theories has occurred in education as well. The following five studies exemplify some of the various ways in which complexity theories are currently being used to understand schools as organizations as well as they dynamics of organizational change. Siu (2008) used complexity thinking as the
framework for her study of the influence of communication in facilitating educational change. Her findings suggest that “school contextual factors affect the interactions among teachers” (p. 162). What is needed, according to Siu, is for principals to use “better coordination and interaction” plus a “personal approach of caring and understanding” (p. 162) as schools attempt to shift organizational patterns.

O’Day (2002) examined school accountability mechanisms in Chicago and Baltimore through a complexity theory lens, particularly looking at how information travels through the system. One of the key findings she reports is that multiple agents in the system, i.e., teachers and administrators, are responsible for school improvement. McQuillan (2008) uses complexity theory to examine the effects of creating “small schools” out of larger urban high schools. He contends that complexity thinking is “good to think with” as it “offers a systematic way to conceptualize and direct reform in a dynamic, nonlinear system” (p. 1793). In his study, he concludes that in order for organizational change to occur, policies and actions cannot target individual system elements, as is typically done.

Bower (2006) studied the experiences of a middle school staff in order to better understand self-organization’s role in sustaining school improvement. His findings suggest that schools need leadership, via the principal, but they also need collective leadership, via teachers and principal working together, if change is to be sustained over the long term. He concludes that we need “fewer models of innovation and improvement and more knowledge about how to sustain the work” (p. 70). Finally, Davis, Sumara, and D’Amour (2012) study three districts in the Canadian province of Alberta to examine in what ways district administrators had distributed resources
received from an initiative to improve learning throughout the province. Their findings suggest that “a school district is something more than an administrative structure” (p. 395), as districts have a “coherent and stable” core narrative that is “rooted in history and anchored to community” and that “informs discussions and orients decisions” (p. 395). In other words, context matters.

Complexity Theories and Teaching/Learning

Another focus of researchers and educators using complexity theories is the area of teaching itself, thus bringing complexity theories in direct contact with classrooms. Particular areas of focus include, but are not limited to, studying the teaching of writing (e.g., McQuitty, 2012), and the teaching and understanding of second language acquisition (e.g., Cvetek, 2008; Larsen-Freeman, 1997; McAndrew, 1997), understanding what it means to be a learner (e.g., Davis, Sumara, & Luce-Kapler, 2008); viewing teaching and learning as recursive (e.g., Guanglu, 2012); using complexity theories to inform our understanding of cognition (Bloom, 2001; Davis, Sumara, & Luce-Kapler, 2008); as well examining the intersection between curriculum and complexity (e.g., Doll, 2012; Smitherman, 2005) and the intersection between the act of teaching and complexity (e.g, Crowell & Reid-Marr, 2013; Davis et al., 2008; Ricca, 2012).

To highlight one example of complexity theories and teaching/learning, Crowell and Reid-Marr’s (2013) book Emergent Teaching: A Path of Creativity, Significance, and Transformation uses narrative inquiry to explore “the concept of emergence as it is experienced within the context of teaching” (p. vii). In their introduction they state:
The concept of emergence has similarities to Piaget’s use of autopoiesis and self-organization and is related to Prigogine’s research in thermodynamics. However emergence cannot be fully understood outside the context of complexity and chaos theory. These areas of scientific inquiry are still in their infancy and they remain highly abstract and mathematical. Yet they have also captured the imagination of researchers in fields other than physics and mathematics.

Because the language of complexity, chaos, and emergence is highly metaphorical they elicit assumptions that are not necessarily consistent with theoretical constructs or are overly simplistic when translated into applied situations. Nevertheless, we believe the science-based particulars as well as the metaphor of emergence can be used to understand transformational processes that occur in everyday life.

The sciences of complexity, chaos, and cognitive constructive theory do share some common assumptions that can be applied to a deeper understanding of holistic relationships, dynamical change, and emerging patterns of organization (see Fleener et al., 2005, p. 9). We find these ideas particularly relevant to teaching and to the understanding of transformational shifts that occur in our own lives and in the lives of our students. (p. vii–viii).

Throughout the chapters of their book, Crowell and Reid-Marr describe what emergent teaching is and what it might look like through the sharing of stories from their own teaching, one example of which focuses on nonlinearity, or meandering, as the authors refer to it. Crowell states of the class he taught:

Recently, I was teaching a two-week class on the neurobiology of stress from educators. On the first day, I invited the students to spend twenty minutes outside by themselves just taking in the day with no agenda in mind. They could stroll the beautiful campus, lie down in the grass, or follow their natural interest wherever it led them. I called the exercise aimless wandering. (p. 44)

Through this process of aimless wandering, Crowell and Reid-Marr suggest that students are able to personalize their learning. Stated differently, “Meandering provides students the freedom to pay attention to what they find interesting and to allow a destination or outcome to emerge organically” (p. 45).

In their final chapter, Crowell and Reid-Marr offer some suggestions, in the form of questions, to educators for moving toward emergent teaching. For example, “Is the
assignment open-ended? Does it include the student’s subjective experience?” and “Does it include opportunities to be creative?” (p. 132).

Across the studies examined, complexity theories have played an important role in understanding the nonlinear nature of organizational change as well as teaching/learning. Both aspects are important to consider in designing and supporting instruction that will enable students to be deep thinkers and to be full participants in 21st-century literacies. What is missing from these descriptive studies is a framework that provides concrete methods that scale across the system that also integrates theory and practice. Human systems dynamics (HSD) is such a framework.

Complexity Theory and Practice: Human Systems Dynamics (HSD)

In this study, a subfield of complexity theories, HSD, was used by California Unified School District in their implementation of two district-wide goals: to focus their work on “doing what’s best” for students and to implement a critical literacy curriculum across all grades and content areas. HSD, grounded in a complexity view of the conditions for self-organizing in human systems, offers a deeply theoretical framework for organizational change coupled with models and methods founded in the complexity sciences to enable people to operate in uncertain contexts, such as those found in schools today.

Founded in 2003, the Human Systems Dynamics Institute (HSDI) is committed to expanding the field of human systems dynamics through “research, teaching, consulting, and coaching” (Human Systems Dynamics Institute, 2010). HSDI has worked with people in many fields, including organization development, peacemaking/conflict resolution, education, evaluation, performance management,
leadership, and personal growth/development (HSDI, 2010) to help people understand and create options for action in situations where human agents come together to work, play, plan, and make decisions. Through various courses and certification programs, people learn to use a number of methods and models that people learn to use to help them see, understand, and influence the patterns around them (Eoyang, 2001; Eoyang & Holladay, 2013; Patterson et al., 2013).

History of the Field of HSD

According to the History page on the HSDI website (2010):

Human systems dynamics, as a field of study, began in 1990 with the first meeting of the Chaos Network. Though the field was not named until 2001, the work began when forty practitioners and academics met in Washington, D.C., under the guise of the Chaos Network, to explore the theory and practice of applying chaos and complexity theory to the arena of human interactions. That gathering, organized and hosted by Mark Michaels, was the first time a public meeting was held to convene people who were working at the boundary between social sciences and what was known then as chaos theory. . . .

In 2001, Glenda completed her Ph.D. and proposed “human systems dynamics” as a name to capture the primary characteristics of this field of study that partakes in many different traditional social sciences and many threads of research into complex systems dynamics.

In her dissertation, Eoyang (2001) credits theoretical works in the physical sciences, contact with communities of scholars and practitioners, nonlinear dynamics, and her work with clients as the theoretical and practical foundation for human systems dynamics (HSD). For purposes of this study, only the theoretical frameworks from complexity and chaos theories involving complex adaptive systems are presented. Foundational to Eoyang’s work (2001) is her container-difference-exchange (CDE) model of the self-organization in human systems. For her the work of Prigogine and Stengers (1984), Bak (1996), and Kauffman (1995) “were critical in helping to identify
the three conditions and to investigate how they were related to each other and to the emerging coherence of the system” (p. 22).

Prigogine and Stengers (1984)

In their book, *Order Out of Chaos*, physicists Prigogine and Stengers introduce the concept of dissipative structures, structures that contradict previous laws of thermodynamics, which posit that all systems are moving toward disorder. According to the authors:

We now know that far from equilibrium, new types of structures may originate spontaneously. In far-from-equilibrium conditions we may have transformation from disorder, from thermal chaos, into order. New dynamic states of matter may originate, states that reflect the interaction of a given system with its surroundings. We have called these new structures *dissipative structures* to emphasize the constructive role of dissipative processes in their formation. (p. 12)

In other words, order, in the form of dissipative structures, can emerge from disorder.

For Eoyang (2001), “The metaphor [of dissipative structures] was a good one for the nonlinear developmental processes experienced in this writer’s learning and in groups” (p. 20). From Prigogine and Stengers’ work in dissipative structures, Eoyang developed the CDE model of self-organization in human systems. She explains that dissipative structures contain “a boundary that separates the system from its environment (container), a chemical or thermal gradient between the system and its environment and or within the system itself (significant difference), and the ability of the system to transfer energy from one part to another (transforming exchange)” (p. 20).

From her wide and deep reading across the nonlinear and chaos sciences, Eoyang identified that these three conditions—a container, significant differences, and transforming exchanges—existed in all systems, including human systems. A further
explanation of this CDE model follows later (see the section Key Concepts from Complexity Theories).

Bak (1996)

In his book, How Nature Works, Bak presents the concept of self-organized criticality. Through the metaphor of grains of sand being dropped individually onto a sandpile, Bak illustrates the idea that change within systems happens according to power laws, i.e., the size of the event is inversely proportional to its frequency. For Bak, changes in the sandpile occur through small and large perturbations, sometimes called avalanches in this metaphor. While forecasters might be able to watch the sandpile for signs of an avalanche, there is no way to predict the magnitude of this restructuring, or self-organization, of the sandpiles (Bak, 1996).

It is important to note, from Bak’s perspective, self-organized criticality occurs without any external organizing force (p. 48), parts of the critical system cannot be understood in isolation since the dynamics observed locally are the result of the interaction of agents in the entire sandpile (p. 60), and in the critical state, the sandpile is the functional unit, not the single grains of sand, meaning a reductionist approach of study does not make sense (p. 60).

For Eoyang (2001), Bak’s model “became the foundation of the connection across scales of self-organizing in human systems. Self-organizing processes at smaller scales (individual learning) over time generate differences in larger scales (groups). The differences between individuals accumulate as tensions in the group as a whole. Eventually, the larger system must self-organize to resolve the internal tension” (p. 21).
Kauffman (1995)

Theoretical biologist Kauffman expounds on the idea of fitness landscapes in his book *At Home in the Universe* as his explanation for self-organization. Eoyang (2001) explains how Kauffman’s (1995) fitness landscapes influenced her work. For her, fitness landscapes are

a way to visualize the interactions of agents in a simulation model. Agents exist on a landscape (container) in which some states are more fit for survival (differences) than others. Agents take action (exchanges) in iterative processes to move “up” or “down” on the fitness landscape. Kauffman goes on to discuss how a single agent can function in multiple fitness landscapes simultaneously. The landscapes can be coupled, so that a move in one affects the fitness criteria and the fitness of the agent on another landscape. This model provided a method to visualize and to relate multiple containers for self-organizing processes and to relate the differences and exchanges in one container with those in another. (p. 21)

Additionally, Eoyang states:

Kauffman (1995) also describes a related model in which the number of agents and the number of connections between the agents determine the stability or predictability of the system behavior. Too many connections tie the system into an unchanging pattern. Too few connections keep the system from settling into any pattern at all. The “right” number of connections among agents allow for flexibility and adaptability. (p. 21)

Key Methods/Models from HSD

An HSD perspective on school change, teaching, and learning assumes that schools are complex adaptive systems, and that as such, they embody their histories (Davis et al., 2012), meaning agents in a system interact to produce system-wide patterns of behavior. Each iteration of action influences each subsequent iteration as these larger patterns of behavior influence the interactions among agents (Dooley, 1996). In other words, actions/decisions made at one point in time may constrain or enable further options for action at a later point. It is this influence of action on
subsequent iterations that gives rise to the term *adaptive action* or *learning*, and it is for these reasons that we refer to these complex systems as *complex adaptive systems*. In this final section, three concepts key to work in HSD are presented: complex adaptive systems and self-organization; conditions for self-organization in human systems; and adaptive capacity and its partner adaptive action. Appendix B contains more information on HSD methods/models.

Complex Adaptive Systems (CAS) and Self-Organization

Complex systems are known by an array of names, depending on the field of study; for example, *complex adaptive systems* (CAS) in physics, *nonlinear dynamical systems* in mathematics, *dissipative structures* in chemistry, and *organized complex systems* in information science (Davis et al., 2012). Because this study uses HSD as its complexity lens, CAS is the term used here. Dooley (1996) indicates a CAS is “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” (p. 2).

![Diagram of complex adaptive system](image)

*Figure 1. Diagram of complex adaptive system (c) Human Systems Dynamics Institute. Used with permission.*
Important to note is the distinction between complicated systems and complex systems (Weaver, 1948). According to Davis et al. (2012), complicated systems consist of relationships among components that are fixed and clearly defined, while complex systems consist of relationships and interrelationships that are subject to ongoing co-evolution (Davis et al., 2012). Put simply, complex systems learn or adapt. Three characteristics of these complex adaptive systems are they are open (to new information, resources, and pressure from other systems), diverse, and nonlinear, meaning relationships between agents are interdependent and patterns of behavior are not predictable (Morrison, 2002; Patterson et al., 2013). School systems, whether at the federal, state, or local level, certainly display these characteristics, and therefore, qualify as complex adaptive systems.

According to Eoyang (2001), when we seek to influence the patterns of a system, we can either amplify the desired or damp the undesired patterns. Such amplifying/damping of patterns over time will hopefully produce a shift in the patterns we see. In other words, when we shift our behavior to influence conditions in the system, we hope to see new system-wide patterns emerge. When this happens, we can say self-organization has occurred (Eoyang & Holladay, 2013). Five attributes of self-organizing systems, according to Cilliers (1998), are as follows:

1. The structure is a result of the interaction between the system and its environment
2. Self-organization involves “higher-order, non-linear processes” (p. 91) that are not merely the result of regulating processes
3. Self-organization is an “emergent property of the system as a whole” (p. 91), not a description of the individual agents.

4. Self-organizing systems increase in complexity. “Since they have to ‘learn’ from experience, they have to ‘remember’ previously encountered situations and compare them with new ones” (p. 92). The more a system can remember, the better its response to new situations.

5. Self-organizing systems must have some form of memory. In this sense, self-organized systems are said to embody their history. Patterns are stored in memory along the lines of “use it or lose it” (p. 92), i.e., the more something is used, the stronger its representation in memory.

Conditions for Self-Organization in Human Systems

Eoyang’s (2001) CDE model identifies three conditions present in all self-organizing systems, including human systems. They are 1) container (C), 2) significant differences (D), and 3) transforming exchanges (E). Each of these conditions is explained below. These conditions interact to create/generate patterns in the system.

Container (C)

Since self-organizing systems must be distinguished from the surrounding environment in some way, the boundary that marks this distinction serves as a container. The container condition holds the system together; it gives a human system its identity. As Eoyang (2001) states, “If there is no constraint on the agents, if there is nothing that defines the agents as a group, if there is no condition that increases the probability of contact among the agents, then the agents dissipate, and no new system-
wide structures or patterns can form” (p. 34). The container condition holds the system together long enough for patterns to form. Eoyang identifies three types of containers:

1. **external boundaries**, or systems whose boundaries are fence-like. In this type of container, agents are constrained “into a shared space in which they can build their self-organizing patterns” (p. 35). Rooms, membership criteria, and information system firewalls are examples of this type of container.

2. **central attracting forces**, or systems that can be described as magnet-like. In this type of container, charismatic leaders, a clear and shared vision, or a desirable resource “draw system agents together and increase the probability that they will interact in ways that will lead to self-organizing patterns” (p. 35)

3. **one-to-one attractive forces** between agents, otherwise known as affinity-like containers. Examples of this container type include age, gender or ethnic identity, shared language, and trust (p. 35).

**Significant Differences (D)**

In complex adaptive systems, there have to be enough differences or else no pattern will emerge. In human systems, differences can be “of any kind, as long as they are significant to the players” (Eoyang & Holladay, 2013, p. 28). These differences can reside between and within different containers as well. According to Eoyang and Holladay (2013), “differences that make a difference determine the speed and path and outcome of self-organizing processes. If there are too many differences, the system can’t settle down. If there are not enough differences, change can’t get started” (p. 28). There needs to be an optimal amount of differences for the self-organizing process to take place.
Transforming Exchanges (E)

Containers and differences are connected together by transforming exchanges. Eoyang and Holladay (2013) define these exchanges as “any connection that transmits information, resources, or energy between or among parts of the CAS” (p. 29), and refer to them as “the engine for self-organizing change in a CAS” (p. 29). Through these exchanges, parts of the system are changed, which then send out exchanges that change other parts of the system.

One example of these conditions working together is of Jennifer, a high school English teacher, who was required to teach British Literature, such as *Beowulf*, to English Language Learners. Jennifer accomplished this task by “using whole-group discussions (container) to focus on a narrow range of issues (differences) and help students think and talk (exchanges) as they connected familiar topics to unfamiliar British literature” (Patterson et al., 2013, p. 79).

Adaptive Capacity/Adaptive Action

This study assumes that adaptive capacity is needed in our schools if we are to meet the challenges of teaching diverse learners in a time of rapid technological change so that students become deep, flexible learners and literacy users. Adaptive capacity, or the “willingness and ability to respond to the unexpected” (Patterson et al., 2013, p. viii), goes beyond the concept of capacity normally used in the research literature, meaning the ability to produce or perform, to delineate a road map for action. According to Patterson and her colleagues (2013), building adaptive capacity entails the use of adaptive action, an inquiry cycle in which agents “thoughtfully and deliberately watch for patterns in the behaviors of our students and colleagues, interpret those patterns, and
take action to reinforce what we see as supportive and productive patterns” (p. 10). Stated more simply, adaptive action involves an iterative cycle of asking what is happening, so what does it mean, and now what shall I/we do about it (Patterson et al., 2013)?

We need to prepare our students to be deep, reflective thinkers who are literate for 21st-century demands. We also need to support schools’ ever-present challenge of adapting to changing populations and changing literacy requirements. In order to do this, we need schools to build adaptive capacity to be able to proactively and reflectively address these ever-changing responsibilities to teach an ever-changing population.

Summary

The high-stakes testing environment brought on by neoliberal federal and state initiatives has produced a shift in how schools make decisions regarding teaching/learning because of the overwhelming focus on competition between and among agents in the system. This shift has resulted in an emergence of patterns that are inconsistent with theory and research about the need for deep learning and problem-solving, especially as they relate to 21st-century literacy practices. One alternative to these simplistic approaches is using a whole systems approach through a focus on building capacity and collaboration. Human systems dynamics offers another alternative. This approach, grounded in theory and practice, both explains how to influence change as well as provides tools for action. Taking this approach can shift patterns in schools. Additionally, through iterations of adaptive action, adaptive capacity is built, which allows educators in a system to address the ever-changing needs of learners, including the teaching/learning of 21st-century literacies.
CHAPTER 3
DESIGN AND METHODOLOGY

This exploratory study examines one school district’s attempt to use complexity thinking in general and adaptive action and other human systems dynamics (HSD) methods/models in particular to shift patterns in pursuit of district goals, i.e., the implementation of a critical literacy curriculum and to build coherence in their work around students’ needs. Specifically, this study seeks answers to the following question: What patterns did target participants report in their use of HSD methods/models?

Chapter 3 provides a description of the methods used in this research study. These procedures are presented under the headings: a) research design and rationale, b) forms of secondary analysis of qualitative data, c) general methodological challenges, d) addressing methodological challenges in this study, e) research setting and context, f) data collection, g) data analysis, h) trustworthiness, and i) summary statement of methodology.

Research Design and Rationale

This study focuses on one school district’s attempt to use complexity thinking to shift patterns of instructional decision making among members of the district. Analysis focuses on participants' interviews as they share their stories of using adaptive action and other HSD methods/models in their work across the 2011–2012 school year. Since this study solely uses data collected for the purpose of a different study, a secondary analysis of qualitative data is the appropriate research methodology.
Secondary analysis of qualitative data is the use of existing data collected for a prior study to answer a research question different from that used in the primary study (Hinds, Vogel, & Clarke-Steffan, 1997). Heaton (2003) points out that these research questions may be new or may provide an alternative perspective to the one used in the original study. As a result, secondary analyses extend the knowledge that is gained from one or more existing data sets. In contrast, meta-analyses and systematic reviews provide a synthesis of multiple studies on the same topic primarily by the use of published research findings.

Despite secondary analysis' long history of use with quantitative data (Heaton, 2003, 2008; Hinds et al., 1997), its use with qualitative data sets is more recent. Thorne (1998) points out, however, that many researchers who utilize this methodology fail to acknowledge their work as such, making it hard to accurately track its usage. Important to note is its use in educational research, specifically within a complexity thinking framework (e.g., Davis, Sumara, & D'Amour, 2012). Due to this recency of use, a specific methodological approach is not definitively outlined in the research literature (Heaton, 2008); however, there are several guidelines for its use available in the fields of social and health research (Heaton, 2004; Hinds et al., 1997; Thorne, 1994, 1998), which will be addressed in the following sections.

Forms of Secondary Analysis of Qualitative Data

Several forms of secondary analysis exist, which are categorized by the focus of the analysis and the nature of the original data (Heaton, 2004; Hinds et al., 1997). This study's focus, known as a supra analysis (Heaton, 2004) of a single qualitative data set, provides a new perspective/conceptual focus from the original study because it
“transcends the focus of the primary study from which the data were derived, examining new empirical, theoretical, or methodological questions” (p. 38). Secondary analyses provide findings that were not “made explicit” in the primary studies (Hinds et al., 1997, p. 411); however, as with any methodology, there are some challenges inherent in this type of analysis. These are addressed in the following section.

General Methodological Challenges

Due to the nature of using qualitative data for a purpose not originally intended, there are three main challenges that must be considered and addressed in a supra analysis of secondary data. They are a) the degree of data fit, b) the problem of “not having been there,” and c) informed consent of participants.

The degree of data “fit” in a subsequent study is an important consideration in the design and carryout of a secondary analysis (Heaton, 2004; Hinds et al., 1997; Thorne, 1994). More specifically, the degree of data fit includes the suitability and quality of the data set to the purposes of the current study.

Because of the semi-structured nature of qualitative data collection, suitability of the data is of paramount concern in a secondary analysis of qualitative data. Heaton (2004) states, “Issues such as the composition of the sample and the extent of vital missing data may limit the potential for reusing the data for secondary purposes” (p. 57). Missing data can occur, according to Hinds et al. (1997), if the current “phenomenon of interest” is not uniformly addressed in the primary study (p. 412). Ultimately, the suitability of data depends on two considerations: 1) the extent of the missing data and 2) the degree of convergence between the original research questions and those of the secondary study (Heaton, 2004).
Quality of the data set includes both the completeness of the data and the quality of the design and conduct of the primary study (Heaton, 2004). Completeness of the data refers to the condition of the data set, the accuracy of transcription, the comprehensibility of the data, and how interpretable the data are (Hinds et al., 1997). Additionally, levels of access to the data are considered as a part of determining completeness. In other words, to what extent does the secondary researcher have access to all forms of data from the primary study? Quality of the primary study can be assessed by examining the credentials of the primary study team, including the team’s preparation for and experience with qualitative methods, team training for conducting the study, integration of the team within the study site, and the length of time spent collecting data (Hinds et al., 1997).

To address issues of degree of data “fit” and quality of the data set, Hinds and her colleagues (1997) suggest completing a pilot study, which can be accomplished by reviewing three randomly selected interviews, including both the audio and transcripts, to determine if researchers can achieve their stated purpose or if they need to revise their research question, as well as to determine the accuracy of transcription and the comprehensibility of the data.

A second issue to consider in a secondary analysis is the problem of “not having been there” (Heaton, 2004). Qualitative research is often linked with gaining an “insider’s perspective” on the issue being studied. Some researchers, such as Weaver and Atkinson (1994), see a benefit in using data collected by someone else, as there can be impartiality during the data analysis phase that might not be possible when analyzing self-collected data. For most researchers, however, one concern in using
someone else’s data is whether a researcher who was not present for the interviewing and gathering of information can interpret data gathered by others. While some consider this an issue, Heaton (2004) reminds us that this problem is also inherent in larger primary studies where researchers must analyze data gathered by other members of the research team. In other words, the problem is common in the primary analysis of data as well. Additionally, Hinds et al. (1997) point out that the secondary researcher can become sensitized to the original research context by meeting with the primary researcher to become acquainted with the research setting, thereby mitigating some of the issues that may arise as a result of “not having been there.”

A final concern is the informed consent of participants (Hinds, et al., 1997; Heaton, 2003, 2004). Heaton (2003) explains that where sensitive issues are addressed in the primary study, informed consent for a secondary analysis cannot be presumed. However, where this is not the case, “a professional judgment may have to be made about whether reuse of the data violates the contract made between subjects and the primary researchers” (np).

Studies using secondary analysis do have specific challenges. However, Hinds and her colleagues (1997) point out, “asking additional questions of existing qualitative data sets can generate new knowledge, new hypotheses, or support for existing theories” (p. 419), while Thorne (1998) emphasizes that secondary analysis “extends the contexts in which we are able to use and interpret qualitative research data” (p. 548). Despite the inherent methodological challenges to be addressed, secondary analyses make important contributions of new knowledge in our field, and therefore need to be a part of the methodological options available to researchers. In the next
section, I discuss how I address the methodological challenges inherent in this type of study.

Addressing Methodological Challenges in This Study

In this study, the methodological challenges inherent in a secondary analysis of qualitative data were addressed in the following ways:

1. To ascertain the degree of data fit, I followed Hinds et al.’s (1997) recommendation to complete a pilot study in which three randomly selected interviews were evaluated for the quality and suitability of the data for use in the current study. I also evaluated the completeness of the data set, quality of interviewing, access to the study team and documents, and the training of the primary team. Appendix A details this analysis of the data set.

2. To address the problem of “not having been there,” I consulted with a member of the primary research team to become familiar with the research context and purpose of the primary study.

3. To address the informed consent of participants, I consulted the Institutional Review Board (IRB) to find out what protocol I should follow. Because my data do not contain personally identifiable information, I do not need to obtain IRB approval, as per the IRB Office. I do, however, have permission from the foundation and from the school district superintendent to use these data for my study. In addition, the participants volunteered for these interviews, agreeing via e-mail with the original
research team that excerpts from the interviews would be used for various purposes.

Research Setting and Context

The primary study from which the data for this secondary analysis was obtained was situated in California Unified School District (CUSD), a middle-size K–12 school district in California that serves approximately 13,000 kindergarten through 12th grade students. The purpose of the original study was threefold: 1) formative evaluation of Human Systems Dynamics Institute certification training program (HSDP training) to provide feedback to trainers for future sessions, 2) program evaluation of HSDP training to determine professional development effectiveness, partially determined by whether there was an increase in student achievement as measured by STAR, the state standardized test, and 3) historical documentation.

School Context

The following timeline and context comes from a conversation I had with Tom Mare (personal communication, April 1, 2013), the director of Ball Foundation Education Initiatives (BFEI), which was instrumental in bringing HSDP training to CUSD. According to Mare, in 2008, Karen McGavin (all names are pseudonyms) took over as CUSD superintendent. This school district, which serves approximately 13,000 kindergarten through 12th grade students in 11 schools, has a diverse population. Like school districts throughout the state, CUSD faced a limited budget with which to increase student achievement, as mandated by NCLB and state regulations. Ms. McGavin thought the solution to increasing student achievement was to transform
teaching and learning through a district-wide instructional focus on literacy. She also
wanted teachers to be involved in district leadership; therefore, she created instructional
leadership teams (ILTs) at each school in the district. These features of organizational
change are aligned with BFEI principles.

In 2009, Ms. McGavin contacted Tom Mare, the director of BFEI, to inquire
whether the foundation would be interested in helping CUSD with the leadership and
literacy initiatives she wanted to undertake. BFEI had a history of working with midsize
urban schools in order to build the capacity of educators to increase literacy
development for all students. Ms. McGavin had previously been employed at one of the
schools where BFEI had formed a partnership, so when she became superintendent of
CUSD, already familiar with BFEI and the type of work they did, she wanted to bring
them on board to help fund and implement the leadership and literacy initiatives she
was seeking to put into place at CUSD.

Tom Mare and his team from BFEI began their work at CUSD in 2009, helping
the district to build capacity for leadership and literacy teaching in the format they had
used in other districts—which included a focus on district-wide systems thinking. During
this time, he and several of his colleagues from BFEI participated in one of the HSDP
trainings and became associates, the name given to participants who have completed
the full 10-day training. Mr. Mare saw the fit between HSD methods and models, BFEI
philosophy, and the work that was going on at CUSD. He suggested that CUSD have a
team go through the HSDP associate training to further increase the instructional and
leadership capacity in the district. Consequently, two cohorts of participants went
through HSDP training, which is described in more detail in the next section.
Table 1 provides a timeline of events regarding training, interview dates, and other meetings. Notably, associate training occurred over three multiple-day sessions at the end of the 2010–2011 school year and over the summer prior to the 2011–2012 school year. Associates, those who completed the entire 10-day HSDP program, also met two other times at reunions, which gave them a chance to share their adaptive action stories and to ask questions regarding their use of HSD methods/models. Three HSDP trainers also provided coaching throughout the year to individual associates.

Table 1

**Timeline of HSDP Involvement with CUSD**

<table>
<thead>
<tr>
<th>EVENT</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meeting with CUSD Superintendent</td>
<td>January 2011</td>
</tr>
<tr>
<td>Cohort #1 Session 1</td>
<td>May 23–25, 2011</td>
</tr>
<tr>
<td>Cohort #1 Session 2</td>
<td>June 21–23, 2011</td>
</tr>
<tr>
<td>Cohort #1 Session 3</td>
<td>August 15–17, 2011</td>
</tr>
<tr>
<td>District design team meeting to plan follow-up interventions</td>
<td>August 18, 2011</td>
</tr>
<tr>
<td>Cohort #1 Interviews--Fall</td>
<td>November 9–10, 2011</td>
</tr>
<tr>
<td>Cohort #2 Session 1</td>
<td>October 6–7, 2011</td>
</tr>
<tr>
<td>Cohort #1 Reunion</td>
<td>January 8, 2012</td>
</tr>
<tr>
<td>Cohort #2 Session 2</td>
<td>January 9–10, 2012</td>
</tr>
<tr>
<td>Cohort #2 Session 3</td>
<td>May 7–8, 2012</td>
</tr>
<tr>
<td>ILT meeting (teams from all campuses)</td>
<td>May 9, 2012</td>
</tr>
<tr>
<td>Cohort #1 Reunion</td>
<td>May 10, 2012</td>
</tr>
<tr>
<td>Cohort #1 Interviews--Spring</td>
<td>May 10–11, 2012</td>
</tr>
</tbody>
</table>

**HSDP Training Curriculum**

The HSDP training program, which focuses on the theory, methods, and models of human systems dynamics (HSD), takes place over a 10-day time period, usually broken into three blocks. The program is “an intensive time of learning and growth where [participants] learn the concepts and tools of HSD, observe how others use the work, reflect on [their] own work and emerging competences, and practice applying
principles of HSD to challenging organizational issues” (Human Systems Dynamics Institute, 2010). Primary goals of this training include “learning how to work with a system when it is not under your control, develop skills in asking questions to help you find answers, understand what drives change, respond effectively to uncertainty, and to apply solutions that are simple, adaptable, and powerful”— all with the ultimate goal of building individual and organizational adaptive capacity, or the ability and willingness to adapt to the unexpected (Patterson et al., 2013).

HSDP training is not a traditional professional development program, which emphasizes pedagogical development. Rather, the aim of HSDP is to help participants build their capacity to see, understand, and influence system patterns, based on methods and models grounded in the complexity sciences. This theoretical underpinning was discussed in Chapter 2. More specifically, training begins with building an understanding of the characteristics of complex adaptive systems (CAS) and with participants identifying a “sticky issue,” or a problem that seems intractable (Patterson et al., 2013). Training primarily focuses on adaptive action, which is also referred to as “standing in inquiry.” In adaptive action, a person asks What? So What? Now What? in a series of iterations so that s/he can “engage with dynamical change in an ever-emerging, always self-organizing world” (Eoyang & Holladay, 2013, p. 30). What makes this inquiry/action cycle different from other such cycles is that it involves the analysis of patterns to identify the underlying nonlinear dynamics of the system.

Examples of HSD Methods/Models

Methods/models meld theory and practice. As such, they provide a way of understanding a particular concept as well as a tool for action. Taking an HSD
perspective means that an individual (or group) tries to see, understand, and then influence the patterns s/he sees in human systems (Patterson et al., 2013). Patterns, in the HSD sense, are “whatever you perceive in the complex landscapes around you,” and they appear “over time and space, in particular times and places” (Eoyang & Holladay, 2013, p. 42). HSD is “concerned with . . . patterns and how they shape your ability to influence your emerging future” (p. 42). Finally, “every human system generates (and is predetermined by) patterns” (p. 43). In a sense, to take an inquiry stance, through adaptive action, helps individuals/group prepare for the constant nonlinear, dynamical changes of human systems. HSD methods/models help individuals analyze the patterns they see in order to understand them and to plan action.

Adaptive Action

Architectural Model

From an HSD perspective, “Complex systems require organizational structures that allow us to function in adaptive and responsive ways, according to the work we have to do and according to what we believe about the work we have to do” (HSD, n.d.). The Architectural Model helps users examine their beliefs, so they can decide which functions will help them live out those beliefs. This in turn helps them decide which structures must be in place to support these functions.

Figure 2. Adaptive action model graphic representation © 2012 Human Systems Dynamics Institute. Used with permission.

Figure 3. Architectural Model graphic representation © 2012 Human Systems Dynamics Institute. Used with permission.
CDE Model

According to Eoyang (2001), three conditions exist for self-organization in all systems, including human ones. They are a container that binds the system until pattern can be formed, differences that are “points of emergence” in a system, and exchanges that allow for movement of information and/or resources within the system and between the system and its environment. The CDE model represents these conditions and helps users decide where to take action within a system in order to shift patterns.

![CDE Model graphic representation](image)

*Figure 4.* CDE Model graphic representation © 2012 Human Systems Dynamics Institute. Used with permission.

Four Truths Model

This model helps users understand different perspectives they encounter in their work with others. Each “truth” represents a way of understanding and knowing. As a method, the Four Truths allows users to inquire into the perspectives of others, leading to an understanding of similarities and differences as well as an understanding of others’ actions or points of view.
Participants in HSDP Training

The first cohort to go through HSDP program were chosen from various leadership positions throughout the district, including district office personnel and members of school site leadership teams. Forty-three participants completed the full HSDP training over the course of 10 days from May 2011 to August 2011, with additional meeting days known as “reunions.”

Members of the second cohort were also chosen from various leadership positions throughout the district. Fifty-three participants completed six days of HSDP training, which emphasized selected areas of the full training. Table 2 details the participant roles and numbers of those who participated in each round of training.
Table 2

Participant Roles and Numbers for Cohorts 1 and 2

<table>
<thead>
<tr>
<th>Role</th>
<th>Cohort #1</th>
<th>Cohort #2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrative Assistant</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Assistant Principal</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Assistant Professor, Nearby University</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>District Office Administrators</td>
<td>10</td>
<td>9</td>
</tr>
<tr>
<td>Counselor</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>CUSD School Board</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Principal</td>
<td>11</td>
<td>3</td>
</tr>
<tr>
<td>Psychologist</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Sargent-at -Arms</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Superintendent</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Teacher</td>
<td>13</td>
<td>28</td>
</tr>
<tr>
<td><strong>Total Participants</strong></td>
<td><strong>43</strong></td>
<td><strong>53</strong></td>
</tr>
</tbody>
</table>

Data Collection

The data used in this study were obtained through informal data sharing, as explained by Heaton (2008). In other words, the primary researchers shared the data they gathered for the purposes of this study. The next section delineates what data were collected and by whom.

Data were collected from May 2011 to May 2012, which is the length of time CUSD participated in the HSDP training. Data, collected for the purposes of program evaluation, both formative and summative, and historical documentation were composed of the following: surveys, interviews, and meeting notes. For the purposes of this study, however, only the interviews were used to answer the research question.

Interviews

Individual, semi-structured interviews were conducted with 23 members of the first cohort in the fall of 2011. The purpose of these interviews was to capture the
adaptive action stories of the participants, thus detailing whether and how the complexity principles/methods/models taught in training were used in participants’ practice. All participants were invited to share their stories; however, 23 out of the 43 participants chose to do so. Table 3 delineates the participant roles for the fall interviews.

Table 3

<table>
<thead>
<tr>
<th>Role</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chief Academic Officer</td>
<td>1</td>
</tr>
<tr>
<td>Director (District Office)</td>
<td>3</td>
</tr>
<tr>
<td>Principal</td>
<td>10</td>
</tr>
<tr>
<td>Superintendent</td>
<td>1</td>
</tr>
<tr>
<td>Teacher</td>
<td>7</td>
</tr>
</tbody>
</table>

In spring 2012, semi-structured interviews were conducted individually with 14 members of the first cohort as well as three small groups—an elementary instructional leadership team (ILT), a middle school ILT, and 11 principals, with at least one principal from an elementary, middle, and high school present. One member of both the HSDP and BFEI teams conducted the interviews. All interviews were transcribed by professional transcribers under the employ of the BFEI. Informed consent was obtained via e-mail by the primary researchers before interviews were completed.

Participants of Analyzed Interviews

As discussed below in the section Close Reading of Text and Initial Coding, ultimately I only included interviews from the seven participants who had completed both a fall and spring interview. In this section I provide a short description of each participant. For this study, the seven participants represent the district level \( n = 1 \), site
leadership \((n = 1)\), classroom teachers \((n = 3)\), and literacy coaches \((n = 2)\). Information on each participant was gathered from HSDP records as well as the interviews themselves.

- Denise, one of the directors who works from the district office, is responsible for student interventions and adult education. She has been with the school district for 22 years. No one else from her office attended the HSDP training, but she was joined by other district office personnel, specifically six other directors, the superintendent, the chief academic officer, and the associate superintendent of personnel.

- Sharon, principal of one of the seven K–5 elementary schools, has been with the district for 16 years. At the time of the training she was entering her second year as principal. Previously she had been an assistant principal for five years at a different site. Prior to this she was a literacy specialist at the elementary site where she is now principal. She mentions that many of the teachers she worked with before are still there. She also mentions that during the intervening years the school site has gone from mostly upper SES students to now being classified as a Title I school. One of Sharon’s teachers went through the initial HSDP training with her.

- David is a fifth-grade teacher, member of the school’s ILT, and a grade-level leader. He has also worked on district committees, such as the district grading task force. He attended the HSDP training with his principal.
• Josh is also a fifth-grade teacher and ILT member. He states his role at the site has changed over the past few years, as he is now seen as a voice for the 80% who don’t speak at meetings. He attended the HSDP training with his principal.

• Rob is a high school sophomore social studies teacher and department head. He is a member of his school’s ILT, and this year he is a member of the site’s self-study team. He attended the training with his principal, a counselor, the sergeant-at-arms, and another teacher.

• Vanessa is a literacy coach at an elementary school. She attended the HSDP training with her principal and another teacher.

• Jen is a literacy coach at an elementary school. She attended the HSDP training with her principal and assistant principal.

Data Analysis

To answer the research question for this study, a qualitative analysis was conducted (Thomas, 2003). First, data files were prepared for analysis before close readings of the text occurred (Thomas, 2003). Close readings of the text were guided by the listening guide method (Gilligan, Spencer, Weinberg, & Bertsch, 2003). Finally, an analysis was composed from the “trail of underlinings, notes, and summaries” (Gilligan et al., 2003, p. 168) resulting from the multiple readings so that the research question might be answered.
Preparation of Data Files

First, I examined the data files I received from the primary researchers. My goal at this stage was to determine what types of data were available. I contacted the primary researchers to ascertain how each source of data was collected and by whom. I then formatted all electronic copies of the survey results, interviews, and meeting notes to facilitate analysis. For example, I adjusted the interview and meeting note files so there would be double spacing between lines and a two-inch margin. Ultimately, however, only the interviews were used to answer the research question.

Next, as stated previously, data were analyzed for degree of “fit” according to the criteria outlined by Hinds and her colleagues (1997). In accordance with these criteria, I randomly selected three interviews, which were then evaluated for the quality and suitability of the data for use in this secondary analysis. Primary researcher qualifications were also evaluated. Results of the full analysis may be found in Appendix A.

Close Reading of Text and Initial Coding

At this stage, I read through the fall interviews to become familiar with the data and to start developing ideas for potential categories and themes, as I had anticipated completing an inductive coding analysis of the interviews (Thomas, 2003). I then started to initially code the fall interviews according to Charmaz’s (2006) guidelines for grounded theory analysis. During this process, I listened to the audio recording of each interview, corrected any significant typos, then I coded according to Charmaz’s guidelines—which includes using the gerund verb form to capture the main ideas of the participant’s words. I also used in vivo coding when appropriate. My goal at this stage
was to stay close to the text. When I completed this initial coding, I completed a close reading and initial coding of the spring interviews. There were 22 interviews from fall, 14 individual interviews and three group interviews from spring.

At this point, I became concerned with how to best capture the multiple voices represented in each interview. I came across the listening guide (Gilligan et al., 2003), as described below, and decided this method would best capture the insight I was looking for. I was also interested in seeing potential changes between the fall and spring groups, not only collectively, but for individual participants as well. To accomplish this, I decided to include in this study only the interviews for participants that had a fall and spring interview transcript. This provided seven participants total, each with a fall and spring transcript, giving me a total of 14 interviews for my data set.

Table 4 indicates the positions of the participants whose interviews I analyzed. There was representation from the district administration, site administration, and teacher levels. Additionally, I found through the close readings of all of the interviews that the main themes seemed to be present in this subpopulation of interviews. It should be noted that many of the participants from the fall interviews did participate in the group interviews, especially the principals’ group; however, the format of the interview did not allow the kind of comparison between fall and spring that I wanted.

Table 4

<table>
<thead>
<tr>
<th>Role</th>
<th>Number</th>
<th>Analyzed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chief Academic Officer</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Director (District Office)</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Principal</td>
<td>10</td>
<td>1</td>
</tr>
<tr>
<td>Superintendent</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Teacher</td>
<td>7</td>
<td>5</td>
</tr>
</tbody>
</table>
Using the Listening Guide Method

Use of the listening guide method, founded in psychoanalytical theories, emphasizes the many-layered nature of people’s experiences and stories (Gilligan et al., 2003). The goal, therefore, of this type of analysis is to recognize the complexity of the human experience rather than reducing it to a few categories and codes. Analysis of data in alignment with listening guide protocol occurs in four general stages: 1) listening for the plot, 2) I-poems, 3) listening for contrapuntal voices, and 4) composing an analysis (Gilligan et al., 2003). Each of these stages is explained in the following sections. Gilligan et al. emphasize that each step, called a “listening” rather than a “reading,” is not a “simple analysis of the text but rather is intended to guide the listener in tuning into the story being told on multiple levels and to experience, note, and draw from his or her resonances to the narrative” (p. 159).

Listening for the plot

In this stage, Gilligan et al. (2003) recommend reading through the entire text to note the plot, which includes the who, what, when, where, and why of the narrative. During this stage, the listener also records her impressions and reactions to the narrative. Because I did not come to the listening guide until I had already completed my initial readings and subsequent initial coding of the interviews, I let these count for this first stage, as I had already noted through process and in vivo coding the basic plot of each interview. I had also already written a memo for each interview, which contained some basic plot items as well as my initial reactions to the interviews.
I-poems

During this second stage, the goal is to tune into the voice of the “I” who is speaking. I followed Gilligan et al.’s protocol for this step, which consists of two parts. First, I underlined every first-person “I” within a chosen passage along with the verb and any other seemingly important accompanying words. Then, I pulled the underlined phrases from the text, kept them in order, and wrote them on a separate line, similar to lines in a poem. Gilligan et al. explain the importance of this stage, saying, “Tuning into another person’s voice and listening to what this person knows of her- or himself before talking about him or her is a way of coming into relationship that works against distancing ourselves from that person in an objectifying way” (p. 162). I then read the resulting I-poems in order to attend to “the sounds, rhythms, and shifts” (p. 163) in the person’s use of “I.” Subsequently, I made note of my reactions and insights gained from the reading of each I-poem.

Listening for contrapuntal voice

The first two stages, listening for the plot and creating I-poems, are designed to provide a context for the subsequent listenings of the text (Gilligan et al., 2003). In the third stage, listening for contrapuntal voices, the focus shifts to the research question. For me, this meant listening for the ways in which participants used adaptive action and/or other HSD methods and models as they went through their 2011–2012 school year. After reading the interviews several times, listening to the audio recordings, and looking at notes and memos I had written during and after the previous stages, I noticed topics that emerged from these stories. For example, participants discussed the following:
• their adaptive actions/sticky issues, frequently talking about how these changed over a period of time
• the HSD methods/models used as they worked on their adaptive actions/sticky issues
• their reactions to the HSDP training as well as factors that enabled or constrained their use of HSD methods/models
• the historical contexts, part of which could be considered factors that enabled or constrained action
• examples of how they wanted to use HSD methods/models in the future and how they would do things differently
• examples of support they received from HSDP staff or from others in the district
• examples of how they provided support for others
• the changes they saw within themselves as well as the larger context in which they work, but they also mentioned places where they didn’t see change, or at least only fleeting change
• issues of language use of HSD methods/models and the decisions they made to use/not use explicitly the language that they learned in training.

Each of these were not discrete topics, but were related to each other in intertwining ways.

Cilliers (1998) reminds us that the description of a complex system is as complex as the system itself. In other words, there is no short way to represent the reality. This is one of the issues for using complexity theories as a theoretical framework. While I acknowledge that complexity research must maintain the complexity of what is being
studied, I also understand the need to put boundaries around what is being studied (Neuendorf, 2001), and therefore what is discussed as a result of this study. For this reason, when I began my third, fourth, and fifth read-throughs, I focused on the voice of the user/implementer of HSD. In other words, I listened for answers to the following sub-questions:

1) What methods/models did participants report using?

2) In what roles did participants use the methods/models?

3) In what ways, if any, were the methods/models useful to participants?

4) What enabling/constraining factors, both explicit and implicit, did participants report in their spring interviews with regard to their use of HSD methods/models?

5) What patterns of HSD methods/models use are evident in participants’ stories across the school year?

For each of these readings, I highlighted the words, phrases, or sentences that answered the particular focus for that listening. Following Gilligan et al.’s guidelines, I “specified the voices” I would listen for and “determined what the markers of a particular contrapuntal voice” consisted of (p. 165). In order to do this, I developed a coding framework, grounded in the patterns I saw emerging from the interviews, which is presented below. During this stage I engaged in “self-checks” of my codes. First, I underlined on a hard copy of the interview, then I underlined on a digital copy before cross-checking these codes against the codes on the hard copy. During this process, I thought through and resolved any discrepancies in marking, thus helping me to further define what I did/did not consider an answer to a particular reading. As part of
establishing trustworthiness, I had two peers, one familiar with HSD and the other not, independently code two interviews each after I had trained them on using my coding framework. This exceeds the recommendation of Neuendorf (2002) that there be a 10% overlap in coding between different readers. We discussed any discrepancies in order to establish inter-reader agreement. Finally, I went back and used a comparative check, similar to Corbin and Strauss’s (1967) guidelines for the constant comparative method, to ensure similar application of codes in all interviews.

Coding for sub-question 1: Reported use of methods/models

Coding for this question took place in two stages. First, I underlined the portions of the interview that answered the question, explicitly or implicitly. The unit of analysis was the topic unit, defined as one or more sentences that focus on one topic or issue, such as a claim, a claim-plus-evidence, or an anecdote. For the spring interviews, I did not include methods/models that were a reiteration of the same event shared in the fall interviews, unless new information was added in some way. Second, I coded each topic unit according to the method/model s/he used. Each topic unit was coded by the name of the method/model used by the participant, either explicitly or implicitly. Explicit references specifically named the method/model used by the participant. For example, “In creating the professional development, I thought about the learning triangle.” Implicit references were of two kinds. First, participants talked about the language or questions used in conjunction with a particular method/model. For example, “I asked her the questions what, so what, now what.” Since these questions are associated with the adaptive action method/model, this portion was coded as such. Second, participants sometimes talked about a process of problem solving or described their solution to a
problem without actually saying they used a method/model in their course of problem solving. For example, “I changed the container by having the literacy coach join the grade level meeting.” In this case, the assumption is the participant used the CDE method/model in problem solving, and therefore this topic unit was coded as such. More information on the methods/models is located in Appendix B.

Coding for sub-question 2: Participant role for method/model use

Following the process I used for question 1, I highlighted the portion of each participant’s interview that addressed the research question. I then coded each topic unit according to the following coding scheme:

- **Teaching**=method/model was used in the act of, or in thinking about, instruction and/or interactions with students. For example: “I look at my teaching through the lens of adaptive action, so I can change course if I need to.”

- **Leadership**=method/model was used in planning a professional development, working on a committee, ILT, or grade-level team, or in an administrative capacity. For example, “I thought about the school as a container in thinking about aligning our schedules.”

- **Interactions**=method/model was used in interacting with someone else outside of the leadership or teaching role. This code is especially for vague references that do not give enough information to understand the exact purpose of the method/model use, other than it was used in the course of the person-to-person or person-to-group interactions that come as being part of a school site. For example, “I use the Four Truths to help me focus on where a difficult teacher is coming from.”
• Outside work=method/model was used with family or other out-of-work relationship. For example, “I used the Four Truths to understand my spouse better.”

Coding for sub-question 3: Reported usefulness of HSD methods/models

Repeating the process I used for question 1, I underlined the portions of each participant’s interview that answered the research question. In this instance, I considered reports of benefits, usefulness, helps, or other synonymous words. As in question 1, the unit of analysis was the topic unit, with a particular focus on the claims participants made. I applied the following criteria in determining whether to underline the topic unit: First, participants had to have directly received the benefit, either as an individual or part of a team. For example, “HSD has helped me be more intentional with my interactions.” This code was not used for topic units where the individual reported a change in the school or district. For example, “My principal has totally stepped back and let us lead the meetings.” Second, this code was not used for participants’ changed ability to use HSD methods/models. For example, “I am now able to identify my sticky issue better.” Third, this code was not used for situations in which the participant reported wanting a change for the future. For example, “I think we could really benefit from using generative engagement with our team.” Fourth, this code was not used for general statements about HSD. For example, “I tell my friends thank heavens for HSD.” Finally, reiterations of stories were not coded.

During the second step, I coded each topic unit with one of the following:
• **Gain in insight/understanding**=used for report of a new understanding or learning. For example, “I can understand where the parents are coming from.”

• **Reminder to stand in inquiry**=used for report of a way of seeing the world, way of attacking issues, or worldview. For example, “I am always thinking through the cycle of inquiry.”

• **Use as a tool**=used for report of accomplishing work, or some sort of action. For example, “HSD gives me a structure for my meetings.”

• **Provide a language or vocabulary**=used for report of “having the words” or “creating a common vocabulary” or other form of articulation. For example, “I now have the words to describe what I am seeing.”

• **Change in interactions/relationship**=used for report of new patterns or communication or interacting with others. For example, “We now call each other on being responsible.”

• **Other claim**=used for any other reported benefit. This code also includes quotes like “This has really invigorated me.”

**Coding for sub-question 4: Enabling/constraining factors in use of HSD methods/models**

Since this question looks at factors that support or limit the use of HSD methods/models in the work of the participants, I included the spring interviews only because by this time participants had used the methods/models for the entire school year. I followed the same two-step process in coding the spring interviews as reported previously. First, I underlined the portions of each interview that answered the research
question. Similar to questions 1 and 2, the topic unit was the unit of analysis. To
determine whether to underline a topic unit, I applied the following criteria. This code
includes factors that participants claim were a support/constraint in their use of HSD
methods/models. For example, “Having the district provide time for HSD kept me
focused on my adaptive actions.” This code also includes explanations for what
participants surmise as supports/constraints. For example, “I think it would help if more
people were trained so that they could understand this way of thinking.”

Next, I coded each topic unit with one or more of the following codes:

- **Time/pressure**=used for expressions of lack of time, desire for time, or feeling
  pressured due to the amount of tasks that need to be completed. In the latter,
  the implication is that there is not enough time to do everything and that
  something “must give.” For example, “There is too much being shoved down
  our throats. Something has to give.”

- **Sharing/feedback**=used in instances where participant indicated a desire to
  share their HSD work or to receive feedback. For example, “I think I could
  benefit from having someone to give me feedback on my adaptive action
  plan.”

- **Common language/understanding**=used for statements where “language”
  was explicitly mentioned as a support/constraint. For example, “The work
  goes so much faster when everyone has the same language.”

- **District support/accountability**=used for statements that support must come
  from the district level or that the district needs to hold people accountable for
their use of HSD. For example, “It needs to be a top-down thing where the
district carves out the time once a month for us to meet.”

- **Exercising agency**—used where the implication is that the participant
  exercised his/her agency in using a method/model. For example, “I never
gave up.”

- **Peer-level support**—used for statements of peer support or help in using or
  understanding HSD methods/models. For example, “My team members
  helped remind me of the tools I could use.”

- **Depth of knowledge**—used in instances where participants indicated the
  amount of their learning was a supporting/constraining factor. This code was
  also used to indicate participants’ expressions of learning supports needed.
  For example, “I think I need a book club every month to help with my
  learning.”

- **System creep**—used in instances where “system creep” was specifically
  mentioned or where the implication was that the use of HSD methods/models
  was no longer being focused on as a natural part of the implementation
  progress. For example, “HSD isn’t at the forefront anymore.”

Originally, I planned to label each factor as either a support or a constraint;
however, as I coded I discovered that the same factor could sometimes either be
classified as both a support and a constraint. I therefore did not complete this type of
coding.
Coding for sub-question 5: Shifts in use of HSD methods/models over school year

For this question, instead of coding each interview, I returned to the memos and notes I had made regarding each person’s “plot” to consider what each participant reported as their overall experience for the year in using HSD methods/models. After composing a short synopsis, I then chose a quote from each interview that seemed to capture the “essence” of each person’s experience.

Composing an analysis

The final stage in the listening guide method, composing the analysis, “pulls together and synthesizes” what has been learned in regard to the research question (Gilligan et al., 2003, p. 168). In other words, during this stage, I sought for patterns, those similarities and differences across time and space, between the various interviews. Chapter 4 provides this synthesis.

Trustworthiness

For a qualitative study, trustworthiness is more appropriate to determine than reliability and validity. Following Lincoln and Guba’s (1985) guidelines, trustworthiness of this study was enhanced in the following ways:

1. Since secondary data were used, the completeness and quality of the data set were determined according to the criteria outlined by Hinds and her colleagues (1997), as explained in the section on data analysis.
2. Two types of triangulation occurred: triangulation among sources of data and triangulation by way of inter-reader agreement.
a. Triangulation of data. Even though interviews served as the sole data source, triangulation occurred by comparing information between and among the interviews to see if there was any data that conflicted with the themes I was beginning to see in the data. Also, comparison of participants’ fall and spring interviews served as a sort of cross-checking for information.

b. Inter-reader agreement: Peer examination by two others during the data analysis stages occurred. Any discrepant coding was discussed and resolved. There was a 10% overlap, which is supported by Neuendorf (2002).

3. There was a creation of an audit trail, including raw data, data reduction and analysis products, data reconstruction and synthesis products, and process notes (Halpern, 1983, cited in Lincoln & Guba, 1985).

Summary

This study uses a secondary analysis of qualitative data methodology (Heaton, 2004) to explore the themes that emerge from participants' descriptions of their use of adaptive action and/or HSD methods and models in their work during the 2011–2012 school year. Data consisted of seven participants' fall and spring semi-structured interviews, which were analyzed via the listening guide method (Gilligan et al., 2003).
CHAPTER 4

FINDINGS

This study examines one school district’s attempt to use complexity thinking, in the form of adaptive action and other HSD methods/models, to shift patterns across the district with the goal of supporting more student-centered decisions and implementing a critical literacy curriculum across content areas. The purpose of this study is to explore target participants’ reports of their use of these methods/models in their work in schools. The overarching goal is to explore to what extent target participants utilize and find useful HSD methods/models in their work as administrators and teachers. Specifically, the following question guided this study: What patterns did target participants report in their use of HSD methods/models?

As discussed in chapter 3, in order to answer this larger question, data from participant interviews were examined in regards to four sub-questions: 1) What methods and models did target participants report using, 2) In what role(s) did target participants use the methods/models, 3) In what ways, if any, were HSD methods/models useful to target participants in their work, 4) What enabling/constraining factors, both explicit and implicit, did target participants report with regard to their use of HSD methods/models? Analysis of these sub-questions provided the data to answer the overarching research question. The final step in the listening guide method (Gilligan et al., 2003) is to “compose an analysis.” In other words, the findings of the study are reported in a way that honors the multilayered nature of target participants’ interviews.
This chapter begins with an introduction to the target participants, including their roles in the district and their “sticky issues,” or intractable problems, that they decided to focus on during the summer training. Next, findings for this study are presented in response to the overarching research question for this study: What patterns did target participants report in their use of HSD methods/models? The chapter ends with a summary of findings.

Target Participants

The target participants for this study comprise a subgroup of the 43 CUSD participants involved in the initial HSDP training that took place primarily over the summer before the 2011–2012 school year. Of this initial group, 22 participants completed an interview in the fall to share their stories of using adaptive action and other HSD methods/models in their work in schools. Spring interviews were completed in both group and individual formats, with some participants being interviewed for the first time. The seven target participants chosen for this study were the only members of this initial HSDP training who completed both a fall and spring individual interview, making them the only participants for which it was possible to consider both initial and subsequent implementation patterns. It is important to note that the fall and spring interviews, talked about in this chapter as initial and subsequent interviews, are not a pre- and post-measurement of HSD method/model use. By the time target participants were interviewed in November, they had already been engaged with HSD methods/models in their summer trainings and in the first several months of school.
Target Participants’ Reports of HSD Method/Model Use Throughout the Year

The seven target participants represent both district and site-level administration, literacy coaches, and teachers. This section introduces each of these target participants. Information for target participants was taken from their interviews.

Administrators

Two administrators are represented in the target participants: Denise and Sharon. Denise, a district director over adult education and intervention services, has been with the district for 22 years. As a director, she meets weekly with other district administrators, almost all of whom participated in the initial HSDP training. Denise also is the principal of the adult education school, so she does work there most of the week. She has an on-site leadership team she works with, none of whom received the initial training, and the teachers of the adult education school. Denise’s “sticky issue” was hard to pinpoint at the beginning of the year, but revolved around how to best meet the needs of the adult students since 70% of their budget had been cut.

Sharon is a principal for one of the elementary schools in CUSD. This is her second year as a principal at this site, although she was a teacher there about 12 years ago. Previously, she was an assistant principal at a different school. The demographics of her current school has shifted from the time she was there previously—from one of high SES and high test scores to one of lower SES and test scores that are falling “a little further down and a little further down” (interview, November 9, 2011) over the past six or seven years. Last year, Sharon focused on building relationships with the staff. This year her “sticky issue” focused on building coherence and alignment across the grade levels. She attended the training with one of her literacy coaches.
Literacy Coaches

Two literacy coaches are represented in the target participants: Jen and Vanessa. Jen is an elementary literacy coach, working primarily with 3–5 grade teachers. There is another coach at her school who primarily works with the K–2 teachers. She has been a literacy coach at the same site for five years. Because she had focused for several years on the “difficult” teachers, without success, Jen decided her “sticky issue” was focusing on how to help the “silent majority” of teachers find their voice. By chance, she ended up switching her focus to working with a “difficult” teacher—this time with success. Jen attended the HSDP training with her principal and assistant principal.

Vanessa is a literacy coach at an elementary school. It is unclear how long she’s been with the district, but she has been at the same school for at least the past ten years. She doesn’t state a specific “sticky issue” in her interviews; however, she discusses using the HSD methods/models in a variety of contexts in her roles as literacy coach and colleague. She attended the HSDP training with her principal and another teacher.

Teachers

Three teachers are represented in the target participants: Josh, David, and Rob. Josh is a fifth-grade teacher and a member of his site’s Instructional Leadership Team (ILT). He states his role at the site has changed over the past few years, as he is now seen as a voice for the 80% who don’t speak at meetings. Josh did not share a specific “sticky issue.” He did, however, share in his initial interview instances of using HSD
methods/models in several contexts, including his classroom and with the staff. He attended the HSDP training with his principal.

David is a fifth-grade teacher, member of the school’s ILT, and a grade-level leader. He has also worked on district committees, such as the district grading task force. At the beginning of the school year, he focused his efforts on keeping an adaptive action journal so that he could work on his site’s goal of thinking about how to engage students in the construction of meaning, rather than having learning be a passive event, which was his “sticky issue.” He attended the HSDP training with his principal.

Rob is a high school sophomore social studies teacher and department head. He is a member of his school’s ILT, and this year he is a member of the site’s self-study team. He states that although he attended the HSDP training with his leadership roles in mind, since school has started he has primarily focused his use of HSD methods/models on his role as teacher. He stated two particular “sticky issues”: working with a “prickly” teacher and implementing the new literacy curriculum in his content-area class. This year he has a student teacher, whom he is helping understand the HSD methods/models in the planning of their instructional units. He attended the training with his principal, a counselor, the sergeant-at-arms, and another teacher.

Reports of Target Participants’ Use of HSD Methods/Models Across the Year

Six findings emerged from examining which HSD methods/models were used, the roles target participants enacted in using the methods/models, in what ways target participants found the methods/models useful, and what elements they felt either constrained or enabled their use of HSD methods/models. In discussing their use of
HSD methods/model across the year, the following patterns are evident in target participants’ reports:

- Target participants began the school year with a similar level of enthusiasm and implementation, but, as individuals, those levels varied widely at the end of the year. These individual ways in which target participants engaged with HSD methods/models over the course of the school year are referred to as “patterns of use.”

- Adaptive action and CDE (Conditions of Self-Organizing) seem to be the most useful of the methods/models, although 14 others were also mentioned at least once in the interviews of the target participants.

- Target participants report using HSD methods/models across a broad range of contexts—in leadership roles, in teaching interactions, in interpersonal relationships with colleagues, and in their interactions with family members.

- The choice of particular methods/models does not seem to be related to a participant’s role in the district; in other words, the methods/models seemed to be equally useful (or challenging) to teachers, instructional coaches, and administrators. For example, target participants report HSD methods/models in the following ways: use as a tool, or means to accomplish a goal; reminder to take an inquiry stance; helping to bring about a change in interaction/relationship; and providing a common language or vocabulary among those who have been trained.
In addition to these “patterns of use,” target participants report contextual factors that seem to enable and/or constrain their use and learning of HSD methods/models. These contextual factors include the following:

- Target participants report the need for frequent and consistent support in the learning and use of methods/models. This includes support from district-level administration, time to share and receive feedback about the use of HSD methods/models, making HSD methods/models use a priority instead of an accretion to the other innovations, and the support of peers who share the same training, language, and understanding.

- Target participants report that their use of methods/models was influenced by their individual histories, as well as their particular campus- and district-level histories.

In the sections below, each of these findings is examined further.

Patterns of HSD Method/Model Use Across the Year

One important finding is that target participants reported using HSD methods/models in distinct ways across the school year. In this section, an examination of target participants’ “patterns of use” is reported. Next, findings related to which methods/models were used, where they were used, and how they were used are presented. Following this section on patterns, the contextual factors that seem to influence HSD method/model use is considered.
**Table 5**

**Target Participants' "Patterns of Use" with Related Contextual Factors**

<table>
<thead>
<tr>
<th>Target Participant</th>
<th>Implementation of HSD Methods/Models</th>
<th>Contextual Influences</th>
<th>Patterns of Use</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Rob</strong>&lt;br&gt;high school social studies</td>
<td>&quot;sticky issue&quot; involved dealing with &quot;prickly&quot; colleague and implementing new literacy curriculum</td>
<td>continued to use inquiry-type of instruction; using HSD as a &quot;framework&quot; for completing school site study</td>
<td>HSD mentor cohort reunions</td>
</tr>
<tr>
<td><strong>David</strong>&lt;br&gt;5th grade</td>
<td>&quot;sticky issue&quot; involved teaching/learning at deeper levels; created 2 new methods/models</td>
<td>moved on to analyzing systemic patterns at the district level; feels use of M/M (AA) has become integrated into his practice</td>
<td>HSD mentor cohort reunions</td>
</tr>
<tr>
<td><strong>Denise</strong>&lt;br&gt;district office; adult education &amp; intervention services</td>
<td>&quot;sticky issue&quot; hard to pinpoint; seemed to have several; revolved around the 70%-cut in funds for adult education program</td>
<td>mentions her ability to identify &quot;sticky issues&quot; has increased; feels use of M/M has become more natural</td>
<td>HSD mentor cohort reunions weekly meetings with district administrators expected to share AA work</td>
</tr>
<tr>
<td><strong>Jen</strong>&lt;br&gt;elementary literacy coach</td>
<td>&quot;sticky issue&quot; changed—from helping &quot;silent majority&quot; find voice to helping &quot;difficult&quot; teacher</td>
<td>sees changes in &quot;difficult teacher&quot;; in addition; began working with his grade level in planning; feels use of M/M has become integrated into her practice</td>
<td>HSD mentor cohort reunions later joined by trained colleague</td>
</tr>
<tr>
<td><strong>Sharon</strong>&lt;br&gt;elementary principal</td>
<td>&quot;sticky issue&quot; related to building alignment and coherence; related to improving student learning/ test scores</td>
<td>sees changes in teachers’ desire to participate in critical literacy training; changes in alignment of schedules; saw increase in test scores; feels use of M/M has become integrated into her practice</td>
<td>HSD mentor cohort reunions walk-throughs with district administrators expected to show AA plans to district administrators</td>
</tr>
<tr>
<td><strong>Vanessa</strong>&lt;br&gt;elementary literacy coach</td>
<td>doesn’t indicate a specific &quot;sticky issue&quot;; mentions using M/M to resolve misunderstandings; deepen understanding of coaching role and literacy content</td>
<td>questions why she is not engaging in HSD as much as she &quot;should&quot;; sees the power of it; not using it as often as she’d like</td>
<td>HSD mentor cohort reunions</td>
</tr>
<tr>
<td><strong>Josh</strong>&lt;br&gt;5th grade</td>
<td>doesn’t indicate a specific &quot;sticky issue&quot;; mentions using M/M</td>
<td>didn’t share any new stories about use of M/M; mentions not trying out any new M/M</td>
<td>HSD mentor cohort reunions</td>
</tr>
</tbody>
</table>
Distinct Patterns of Method/Model Use

In their fall, or initial, interviews, target participants seem equally enthusiastic about their use of HSD methods/models. However, in their spring, or subsequent, interviews, there is a distinction in their levels of enthusiasm and implementation. By the end of the year, each target participant displayed his or her own distinct pattern of method/model use; although most of the target participants seemed to be engaged with HSD methods/models throughout the school year. One target participant in particular seemed to lose interest or hit a plateau in his use of the methods/models. Throughout the interviews, there are notable distinctions in which HSD methods/models each participant used and how they used them (see Table 6).

Pattern of Continuous Use

First, six target participants—Rob, David, Denise, Jen, Sharon, and Vanessa—reported that they used HSD methods/models throughout the year. Beyond this “pattern of continuous use,” target participants seemed to vary in their comfort levels and in their ability to use them appropriately. Each of these six target participants’ “pattern of use” is discussed below. An overview of these findings is located in Table 5. (N.B. Table 5 combines target participants’ implementation of HSD methods/models with some of the contextual factors they reported. This section discusses the columns regarding method/model implementation. Contextual factors are addressed later in this chapter.)

Rob, a high school studies teacher, used HSD methods/models continuously throughout the year in what appears to be an almost seamless integration of the methods/models into his current instructional and leadership practices. He identified
two “sticky issues” during the summer training: dealing with a “prickly” teacher in his department and incorporating the new Reading Apprenticeship curriculum into his social studies courses (interview, November 9, 2011). Notably, Rob stated he had previous experience with this type of work, which may have helped him integrate HSD methods/models into his work more easily. What is unclear to what extent he used the methods/models and to what extent they simply reminded him of approaches he learned previously. In talking about working with the “prickly teacher,” Rob stated:

I just dropped back in terms of asking myself what’s the difference that can make a difference here? And so I haven’t allowed myself to be baited by any of those things. I have let him create his subjective reality and acknowledge it and we can move on. So a lot of those hurdles that had been there . . . have lowered considerably. (interview, November 9, 2011)

Importantly, he stated that others have also noticed the “lowered hurdles” in that relationship. With regard to his teaching, Rob explained he started the year with a more teacher-centered approach before moving to a combination of teacher- and student-centered instruction. By his third unit of study, Rob had made a shift to a student-centered inquiry format. For him, this shift took place gradually because “you’re set in your procedures and routines” (interview, November 9, 2011). In his subsequent interview, Rob shared he had continued to use an inquiry approach in his teaching throughout the school year. In addition, he was part of the school site study team that used several HSD methods/models as a framework for how they interacted with teachers in collecting the data they needed for this study. It was important to this team that they create a document that would guide the school’s future work—not just complete a report that “looks good on the shelf” (interview, May 10, 2012).
David, a fifth-grade teacher, used the methods/models continuously throughout the year. Additionally he created two of his own methods/models. In his initial interview, David identified his “sticky issue” as trying to foster deeper levels of conversation in the classroom. To accomplish this, he used an adaptive action journal at the beginning of the year. In it he wrote down “what I’ve been working on in my classroom” (interview, November 9, 2011). Early on he realized that “It’s very easy to think I’ll make this one change and this thing will happen. Sometimes it has a desired effect, sometimes it doesn’t. And a lot of it is not up to me. . . . You have to kind of live with the ideas for a bit” (interview, November 9, 2011).

David used his understanding of HSD methods/models to create two new methods/models in order to deepen the level of conversations in his class. His goal was to provide instruction that empowered learners and that invited them to participate in “deep thinking.” The first model, which he called the Continuum of Questioning, which is based on the HSD Learning Landscape, helped him think about the relationship between the degree of constraint and the degree of student autonomy in the types of questions he asked during class discussion. He also created an inquiry framework, which he called Recognize, Redirect, Rework, that he said allowed him and his students to talk about texts in a much more meaningful way.

Looking to David’s own reports of these new models, he explained the Continuum of Questioning (see Figure 6). He stated:

I came up with a model in which I saw a box where you have constraint on one side, predictability on the other, and the autonomy of the learner on the bottom. And what I’m thinking about is that what teachers do, what we do is add constraint in order to increase the predictability of how the lesson is going to go. So for instance, if I’m having a discussion, one of the things we’re noticing is that lots of discussions that teachers are leading are about comprehension. We’re
not getting down to things like personal significance or implications or inference. We’re not getting to the meat of the text. . . . Now I was asking myself like Bloom’s Taxonomy, but [that] is kind of linear. It’s not interrelated enough. . . . It’s kind of like a production line rather than a network. So I like the idea of thinking of this in terms of a continuum.

So if you had a continuum, what you would have is when you’re asking what I think about the kinds of questions I’m asking I can think about where they might fall. If I’m trying to prompt kids or drive the conversation to personal significance or implications in the world or conceptual thinking, what kinds of questions would I ask and how would they fall on here. So I came up with a couple. If you say, “What are you thinking about?” That pushes this [indicating to chart], there’s very little constraint in that because the kids can come up with anything they want. . . . When you do that, the constraint is very low, the predictability is very low, but the autonomy of the learner is very high. (interview, November 9, 2011)

He admits, “It’s great in theory,” but it is a little difficult to actually use in the middle of a conversation. The value for him in creating/using this method/model is that it provides a framework for him in “trying to get generative learning” (interview, November 9, 2011).

The other method/model that David created is one he uses with the students during discussions. The purpose is to get to deeper meanings within a text. He explained that based on an article he read, he came up with a method/model similar to the adaptive action cycle “where you recognize, redirect, and rework.” He explained:

So in a classroom discussion when a kid comes up with an idea, what I try to do is recognize, OK, here’s what this kid is saying. You redirect to the group. So what does this mean, what is the significance of this or what do you think about this? The classroom then discusses, we do this “turn and talk” [to a partner] and things and then new ideas come out of that, which can then be reworked. (interview, November 9, 2011)

David explained a teacher continues in this fashion until “you can tell [you’re] done with the concept” and then you go back to the text for the next talking point.
Figure 6. The Continuum of Questioning by David. This is a replica of the method/model created by David to help him think about the relationship between the degree of constraint and the degree of student autonomy in the types of questions he asked during class discussion.

In his subsequent interview, David stated that he used the journal until January, when he realized “the journal was kind of holding me back” (interview, May 10, 2012)—meaning that by this point in the year, his use of adaptive action in the classroom had become automatic and that the written reflections in the journal distracted from his instructional decision-making. He stated, “Everything I do now I look at as a puzzle” (interview, May 10, 2012), referring to the way in which adaptive action had become integrated into his practice.

Subsequently, David found “greater utility [with the methods/models] looking at big system problems rather than the problems in my classroom” (interview, May 10, 2012). One of the “big system problems” David discussed involved him trying to
understand why there was such tension throughout the district when new policies were
implemented. He stated:

We’ve had lots of policy changes that have been coming down and . . . every
time there’s a policy change within the district, there’s pushback. There’s grief,
there’s tension. And so what I started thinking about was, I looked at the
Architectural Model but instead of just seeing these structures and functions [two
aspects of the model], I was trying to use that tool to see what could be causing
the grumblings and the discontent. And what I find is that the beliefs I think that
the district had in their underlying policy are not being communicated--they’re
being interpreted differently by the system. And because of that, the outcomes
that the district is hoping for is creating the exact opposite effect. (interview, May
10, 2012)

Denise, Jen, and Sharon also provide examples of target participants who
continuously engaged with HSD methods/models across the school year. Denise, a
district office administrator, explained in her initial interview that her sticky issue “kept
changing” as she tried to pinpoint what it was. Her budget had been cut dramatically,
and she was trying to figure out how to continue meeting Adult Education’s needs with
this reduction in funds. She came to the realization that her sticky issue was really
“several” (interview, November 9, 2011) and that she “really [hasn’t] been willing to let
go of any of them” (interview, November 9, 2011). In her subsequent interview, Denise
feels that as she’s “gotten more experience with adaptive action” that she’s also “gotten
more refined” in identifying what her sticky issue is. She stated, “I think I’ve gotten
better at really identifying those things that are sticky and there is no clear solution to
the problem” as opposed to those problems where the solution is “a little clearer”
(interview, May 10, 2012). Importantly, Denise feels that her use of HSD
methods/models had become more internalized across the year.

Another important shift Denise noted is that she has learned to live with
"uncertainty" (interview, May 10, 2012). She feels her biggest gain is “developing a
comfort level with not knowing what the solution is” when she starts working on a problem (interview, May 10, 2012). Prior to this training, she wanted the plan to be entirely worked out before she acted. She stated that with HSD she is “having to step back and become comfortable with some chaos and standing in inquiry and living with the unknowns for a while and seeing what develops” (interview, May 10, 2012).

Jen, a literacy coach, “pushed through” despite not feeling confident about whether she was using HSD methods/models “as they were intended” (interview, May 10, 2012). Like several of the other target participants, she feels she had internalized the HSD methods/models she used. Jen stated:

I was trying to reflect before this interview and I was thinking to myself, oh I haven’t been [using them] because when I was first interviewed, it was still a little fresh off of the training and I was thinking oh, I don’t know, I haven’t been using the language. I don’t know. And then I was looking and realizing, it just becomes a natural part of what you do. (interview, May 10, 2012)

Jen’s “sticky issue” was working with the “silent majority” of teachers (interview, November 9, 2011). She had focused her energy on “difficult teachers” for the past several years, and felt this shift in focus might be beneficial for the school. Unexpectedly, she was able to work with a teacher with whom she had not been able to previously. She stated that she “pushed [herself] to really kind of hear where he was coming from” (interview, November 9, 2011). As a result, she strengthened her relationship with him, which then opened up a space for her to work with his entire grade level—something that was not possible previously.

In addition to this work on her “sticky issue,” Jen stated that she feels the HSD training has strengthened her role as a coach in that she now has a concrete tool to use that helps guide their discussion. Prior to having the language of What? So What? Now
What? Jen felt like teachers were able to pull her into “giving the answers” during their coaching sessions, even though Jen wanted teachers not to view her as an expert. She admits that when she began this protocol of engaging teachers in inquiry, they still wanted her to “just give the answer.” However, after going through the cycle with her several times, Jen stated that teachers now know this is the procedure, and they go through the cycle of inquiry more willingly with her. She stated:

In the beginning of the year, they were saying things like oh come on. Just don’t put it back on me. Just give me the answers. And now it’s more OK I know kind of the cycle we’re going to go through. I know this is kind of what we do now and there hasn’t been the same attitude towards the reflection part. It’s we do a cycle of inquiry. (interview, May 10, 2012)

What is interesting is that despite her apparent “success” in using HSD methods/models in a variety of ways at her site, she doesn’t always feel confident in using the HSD methods/models, as she is not sure she’s using them how they were “intended” to be used. Despite this, Jen stated, “I really didn’t give up. I felt more empowered and pushed through” (interview, May 10, 2012).

Sharon, a site administrator and target participant who displayed a pattern of continuous use throughout the year, felt that by spring she had internalized many of the methods/models. She stated:

I really appreciate the opportunity [to be interviewed] because I think until we kind of set an appointment and do something like this you don’t take the time to reflect and so it really caused me to sit down, think about my year. I started reflecting on it, but honestly the HSD stuff I’ve internalized—but I don’t know the name of what I’m using all the time. (interview, May 10, 2012)

In her initial interview, Sharon explains her “sticky issue” was focusing on the alignment of the literacy instructional practices and teaching schedule across the school with the goal of improving student learning—and raising test scores. She stated that
when she began her role as principal the year prior to this study, she felt there was a “lack of urgency” (interview, November 9, 2011) at her site. Her site had experienced a shift in demographics over the past ten years, which had resulted in a drop in test scores over the past seven or so years. By the spring, Sharon felt there was a difference in how teachers felt toward their professional development—part of her “sticky issue.” In addition, she noted the increase in test scores across the entire population of students. She noted that HSD methods/models especially helped her act in ways that supported the growth she witnessed at the school. For example, Sharon "wasn’t a cheerleader" at her school (interview, May 10, 2012), instead pushing her teachers to make some difficult changes. She shared:

I think that in those moments that I talked about earlier, had I not been through this, I may not have really picked up on the patterns that I saw as clearly and spent as much time looking at it as a pattern, rather than a problem. . . . I’m kind of the cheerleader type and everything’s great and so my shifting my response pattern, shifting my manner and bringing [the problems] to [my staff], I think this really helped a lot in giving me the courage to do that. (interview, May 10, 2012)

By the end of the year, Sharon felt that she was ready to share HSD methods/models with her staff. Sharon stated, in regards to her use of HSD methods/models,

Where I’m thinking now is where to go. And this has been excellent for me. What I haven’t done is bring a lot of this to the staff. And so I needed to understand and use it by myself, I felt for my own personality, before I could kind of present this as another thing. And I don’t think of it as another thing. It’s just the way you think and grow together. (interview, May 20, 2012)

The preceding stories exemplify the continuous use of HSD methods/models throughout the school year. They also seem to indicate instances in which target participants are pleased with their engagement with HSD methods/models by their subsequent interviews. Data indicates one target participant, Vanessa, engaged with the methods/models over the course of the year; however, there seems to be a tension
between the vision she sees in using HSD methods/models and the reality of her implementation. More specifically, Vanessa appears to be interested in using HSD methods/models. As a matter of fact, she feels “invigorated” by her use of the methods/models—so much so that she no longer wants to leave the profession (interview, May 10, 2012). However, she seems to need more support than what she had in order for her to feel successful using them. Her interviews indicate several instances in which she tried to engage in the use of the methods/models, but in which something prevented the successful use of the method/model.

One example is her use of the What? So What? Now What? format during staff and professional development meetings. She and her principal felt the format “made [the focus of each meeting] a bit clearer” (interview, November 9, 2011) since their school has two foci for professional development: implementing guided reading and improving instruction for English Language Learners. Instead of maintaining the iterations of What? So What? Now What? over the course of the year, this format morphed into just addressing What? So What? without going into a more reflective space. Vanessa said:

I think I forgot the intentionality of we do this work, we talk about it, we engage with it, and we’re meant to come up together with OK, now what? Right? Now what do we do after we did a full cycle? And I think life happened. I think we had too much, too many things shoved down our throats, people were feeling pressured and it didn’t come back to giving time to let’s follow up and get input again and let’s craft a so what and then let’s start our cycle again. Unfortunately, it turned a lot into input. It felt more like putting out fires to me.” (interview, May 10, 2012)

This isn’t the only example where Vanessa wasn’t quite successful in using methods/models with others. Her initial and subsequent interviews illustrate several conversations and professional development meetings in which she tried to engage in
the use of HSD methods/models without the desired outcome. In each case, she felt that her use of the method/model was constrained by the unfamiliarity of the others with HSD, since they had not been trained. For example, she stated:

I had brought [the Learning Triangle] up without using the terminology of the Learning Triangle [with a couple of the coaches]. I said, well, so some of us tend to be practice-heavy and some of us tend to be theory-heavy and so if we can balance off the two to help the teachers—and then it kind of fell on deaf ears at that time because people didn't, they got it but I don't think they really worked on it or I wasn't clear in my meaning in saying that. . . . I think if you go through the methods and if you go through the training and the methods, you're like oh, now I can engage in this conversation. . . . At that time, no one else in the group of 12 had gone through it so it was like crickets. I thought, OK. And I didn't know how to question it further so I was just like OK, I tried. I let it die, you know. (interview, November 9, 2011)

In another example, Vanessa pointed to an incident in which she did not respond to an email from her HSD mentor because “life gave [her] 10 minutes, and that's not fair to the process” (interview, May 10, 2012). She wanted to provide a lengthy and detailed response, since she felt that was what the situation required. Instead of sending a short reply, she didn’t respond at all. It took over six weeks for her to find the time she wanted in order to reply to her HSD mentor.

At the close of Vanessa’s subsequent interview, she questions why she isn’t engaging with HSD as much as she could—despite feeling that HSD has “invigorated” her and changed her outlook on teaching in the current climate. In a poignant remark, Vanessa points to the tension she feels in seeing how useful HSD methods/models are and the reality of how she is engaging with them. She stated:

And so even for me, knowing that I wanted to go to this training, I signed up for it, I was willing to leave the career because I didn’t like the culture of the schools and change wasn’t happening. This has really changed for me. It really has invigorated me and like OK, I can be part of the system where I didn’t like where I was before. . . . So it’s a healthier place for me to be. But so, that’s how much I value this, but I don’t know if I’m spending enough time with it…. It’s just I’m
looking at it now and I’m like, how come I’m not doing it? And what’s inhibiting me from going there? (interview, May 10, 2012)

In Vanessa’s case she did not specify a specific “sticky issue” during the training or at any other point in the year. Only one other target participant did not identify a “sticky issue”—Josh, who is discussed below. The other five target participants each identified at least one “sticky issue” to work on during and after their HSDP training experience.

**Pattern of Plateau in Use**

In what might be considered a “negative case,” one target participant seemed to plateau in his use of HSD methods/models as the year went on. He is also one of two target participants who did not identify a “sticky issue.” In his initial interview, Josh, a fifth-grade teacher, eagerly shared using HSD methods/models with his students, with the Instructional Leadership Team, and at home. In his subsequent interview, however, Josh indicated that by that time of the year he only used the methods/models he felt comfortable with at the beginning of the year. His subsequent interview also did not contain any new evidence or stories of method/model use. He still reported using HSD methods/models in the classroom “to promote those behaviors that you want to see and change the patterns without the punitive or consequential kind of actions that usually happens to behavior in a classroom” (interview, May 10, 2012); however, his answers to questions from the interviewer always referred to an example of something that happened at the beginning of the year. For example, he stated that as far as using HSD with the staff “we’ve learned that using the language almost makes people defensive. So the language is kind of left out, but the [thought] process is still there” (interview, May 10, 2012). He then gave the same accounting of the story regarding the Simple Rules with the staff.
There also was a change in how he explained his use of the HSD methods/models reference card. What is unclear is why Josh did not have new stories to share or why he used only the methods/models he felt comfortable with at the beginning of the year. In his initial interview, Josh stated that he used the HSD methods/models reference card frequently as it’s hanging by his desk. He stated, “I have the actual, the charts are sitting on my wall, pinned right next to my desk, so I see them every day. But I’ll look over, Oh, I can do that one. I should try that one right there” (November 9, 2011). By comparison, in his subsequent interview he stated:

I think that having the reference card right there on my wall right next to my desk, glancing at it and looking at it, I made conscious efforts in the beginning but now it seems like I’m kind of stuck in that cycle of these are the ones I was comfortable with. Instead of venturing on and saying, let’s try this or let’s take this problem or issue and apply this to it. (May 10, 2012)

It appears Josh may have hit a plateau in using HSD methods/models; however, it is unclear why and how this occurred. Like Vanessa, Josh did not identify a “sticky issue.” In thinking about the significance of this finding, it appears there may be a connection between the identification of a “sticky issue” and the continuous learning/use of HSD methods/models. Perhaps having something “tangible” and “concrete” to work on aids in the learning/use of the methods/models, rather than simply using methods/models when the chance arises.

In short, administrators, literacy coaches, and teachers reported using a variety of methods/models in a variety of ways. Each participant’s “pattern of use” reflects one of three general patterns: continuous use, continuous use with a tension between vision and implementation, and hitting a plateau/losing interest. Each of the five target participants who engaged with HSD methods/models continuously noted that by the end
of the school year the methods/models had become integrated into their practice.

Notably, the target participants whose use of HSD methods/models reflect the last two patterns did not identify a “sticky issue” either during their training or later. Perhaps there is a connection between the identification of a “sticky issue” and the further “continuous” learning and use of HSD methods/models.

The next three findings discussed in this chapter reflect a deeper examination of target participants’ use of HSD methods/models. More specifically, these findings indicate patterns of which method/models were used, where they were used, and how they were used throughout the school year.

Adaptive Action and CDE (Conditions of Self-Organization) as Most Used Methods/Models

Target participants reported using a wide variety of methods/models. This finding represents the pattern of which methods/models participants reported using. When considered in toto, target participants’ use of methods/models indicates that some methods/models were used more frequently than others. Individually, however, target participants’ use of methods/models differed from each other, with no two participants using the same number and/or combination of methods/models. In addition, one participant created two of his own methods/models.

As a group, target participants reported using 15 specific methods/models, in addition to one reference to using unspecified models, in their initial and subsequent interviews (number of coded responses=76), as shown in Figure 7. Target participants reported using adaptive action most frequently (n=22). This was also the only method/model that all seven target participants reported using. Five target participants
reported using the CDE method/model (n=10); four target participants reported using the Four Truths method/model (n=7); four target participants reported using the Architectural Model (n=6); and three target participants reported using Simple Rules (n=6). Chapter 3 provides more information on each of these methods/models.

<table>
<thead>
<tr>
<th>Method/Model</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adaptive Action</td>
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</tr>
<tr>
<td>CDE</td>
<td>10</td>
</tr>
<tr>
<td>Four Truths</td>
<td>7</td>
</tr>
<tr>
<td>Simple Rules</td>
<td>6</td>
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<tr>
<td>Architectural Model</td>
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<td>Conflict Circles</td>
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<td>Generative Engagement</td>
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<td>Same Different</td>
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<td>Learning Triangle</td>
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<td>Change Maturity Model</td>
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<td>&quot;models&quot;</td>
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</tbody>
</table>

*Figure 7. Frequency of reported use of methods/models from highest to lowest (n=76).*

**Adaptive Action**

Across target participants’ stories, the adaptive action method/model was referred to in a variety of ways, including “what—so what—now what,” “sticky issue format,” and “adaptive action.” For example, Sharon, an elementary principal, refers to this method/model by the three questions used when going through the adaptive action process. She stated:

I used the what—so what—now what, so that was kind of where I started at the beginning of the year. In my first meeting with the staff, in my communications with the staff, it’s given me some structure to everything we start to look at again.
So even in my SSC meetings and everything, I’ve just kind of outlined my agendas that way. (interview, November 9, 2011)

Josh, a fifth-grade teacher, also reports using adaptive action in this way. His story provides an example of going through each question for this method/model. He stated:

I think it’s made an impact in the way I view teaching. Always looking through that cycle of what I need to do. . . . It makes [teaching] even more real because it makes it in that sociological sense, with a student. What is wrong with, what’s going on with the student? So what can I do about it? And now what can I do? (interview, November 9, 2011)

Target participants also reported “looking for patterns,” which is the “what” stage of adaptive action. David, another fifth-grade teacher, explained:

As I think about—reflect on the day, I think so what were the patterns I was seeing the way kids were engaging? And then what patterns do I want to see? And then what kind of suggestions, what things can I do the next day? (interview, May 10, 2012)

Denise, a district administrator, refers to adaptive action as the “sticky issue format,” where a sticky issue is the intractable problem that begins a cycle of adaptive action. She reports, “We’ve been using this whole sticky issue format to begin to look at our work and what we want to do and set our goals for the year” (interview, November 9, 2011).

CDE (Container, Difference, Exchange)

Five target participants reported using the CDE model at some point during the school year. CDE refers to the conditions for self-organization: a container, a significant difference, and a transformative exchange. Interestingly, target participants using this method/model only reported using part of it, meaning in their stories they referred to either using “container” or “difference” or “exchange,” or a combination of any two of the three elements. Target participants did not use all three conditions in their descriptions.
One example of the use of CDE occurs in Rob’s account of fulfilling his role as social studies department chair. He stated:

There was a particular person in my department that was the most prickly person to deal with. And so I just dropped back in terms of asking myself, what’s the difference that can make a difference here? And so I haven’t allowed myself to be baited by any of those things. (interview, November 9, 2011)

Jen, a literacy coach, reports using the concepts of containers and exchanges in her work with a particular teacher. She said:

I went and pushed myself to really kind of hear where he was coming from and found out that he actually divulged to me that he didn't feel cared about in our community or in our container and that he felt alone and that he was one of a kind and he knew it had to do with his exchanges and his way of going about it. So then that’s what our focus has been. It’s been on his exchanges. (interview, November 9, 2011)

Sharon, an elementary principal, worried about the lack of “urgency,” as she puts it, exhibited by her teachers explained how she used the notion of containers to address this issue. She said:

I did do some work on the CDE, the containers and the differences and the exchanges. Me being in the classrooms, not in the office—I think of the whole school as a container and as my work, my most important work is when I’m out at the classrooms with the kids and with the teachers. . . . And putting myself in the container of the classroom . . . has made a difference in our exchanges, which is good because what happens is, I found when I’m in the office all of the conversation goes around the kids that got sent to the office and what were the details about that. When I’m in the classrooms, it’s around what their lesson was and the educational piece. (interview, May 10, 2012)

Four Truths

Four of the seven target participants reported using Four Truths in some fashion. No one reported using the method/model to label someone’s particular truth, for example, “This is a subjective truth” or “This is an objective truth.” Rather, this method/model seemed to be used as a reminder that there are multiple ways of seeing
and understanding and as a way to engage others in conversation around what is perceived. For example, Jen reports using this method/model to help her understand those whom she coaches as well as to clarify her actions/intentions. She stated:

I’ve used the Four Truths model but not really the Four Truths model. I just feel like it helps me to see people’s reality. It helps with courageous conversations. What makes you say that? Where before I would have just said, oh you know, of course you’d say that or of course you’re always negative, right? But I’m getting to the root of why they have this belief now and we’re [principal and other coaches] asking them really what evidence has given you that? So let’s say walk-throughs as an example and people will say oh they’re just judging us. Oh really? What evidence you know has made you feel that way? When has that happened? Oh wait, oh, they realize in that reflection just by asking those questions that [they] haven’t been judged. (interview, May 10, 2012)

Vanessa, another literacy coach, also reports using Four Truths as a way to help her understand her colleagues. She said, “I don’t use [Four Truths] with teachers, but I keep them in the back of my mind. It really helps me with what has brought you to this point? What is the story you’re telling yourself?” (interview, November 9, 2011)

One target participant, a high school social studies teacher, reports using part of the Four Truths method/model in a unit at the beginning of the year. Rob stated:

[The unit is] about imperialism. Was it good? Was it bad? The facts are easy enough to get to. And so we’re [he and his student teacher] asking kids to be more mindful of what they’re reading, how they’re reading it, how they’re discussing it, and ultimately it’s not that we’re looking for the objective truth, . . . It’s what conclusions can they draw. . . . And so we’re trying to talk to kids about similarities and differences, about whose truth, subjective truth, objective truth. And the unit gives itself very nicely to it. (interview, November 9, 2011)

Architectural Model

Four target participants reported using the Architectural Model in some form as well. One target participant reported use of this model three times—half of the reported uses. One of the ways this target participant, a literacy coach, used the method/model was to help her clarify her role, with a particular emphasis on the “beliefs” portion.
Vanessa explained: “We’ve been using a lot of the Architectural Model beliefs, because for us, that really takes it away from being personal and focusing on the students and for our school that really works” (interview, May 10, 2012).

Sharon and David provide two other instances for the use of Architectural Model. Sharon, in conjunction with her literacy coaches, used the entire Architectural Model during a staff development around equity. She stated:

We did some good work with equity and we really used the beliefs, functions, structures—so Architectural Model. So [coach] did a lot of work planning that staff development. She really lined it up that way for the staff because it was a conversation that was really my sticky issue. . . . It was a beautiful day because I was in the back of the room, they were doing the meeting, she had it all set up—the Architectural Model—and I was trying to stay out of it . . . and I just had to smile. . . . The conversation that came out of [everyone’s] mouths, it was like picture perfect, how you would want a conversation about equity to start. (interview, May 10, 2012)

David reports using the Architectural Model to help him understand the tension that exists in the district around policy implementation. He stated:

We’ve had lots of policy changes that have been coming down and . . . every time there’s a policy change within the district, there’s pushback. There’s grief. There’s tension. And so what I started thinking about was, first I’ve done several things. I looked at the Architectural Model but instead of just seeing these structures and functions—I was trying to use the tool to see what could be causing the grumblings and the discontent. And what I find is that the beliefs I think that the district had in their underlying policy are not being communicated. They’re being interpreted differently by the system. And because of that, the outcomes that the district is hoping for is creating the exact opposite effect. (interview, May 10, 2012)

Simple Rules

Unlike the other methods/models, Simple Rules are developed by individual teams or groups, although Simple Rules created by a different group can be used as well. Three target participants reported using Simple Rules a total of six times. Two target participants reported using the Simple Rules that the entire district administration
and district leadership teams had adopted. This is a common use of the Simple Rules throughout the interviews, even those not included in this study. For example, Sharon reported:

> What we’ve done is some Simple Rules at our ILT [Instructional Leadership Team] level. . . . We talked about bringing that back to the staff and working through the Simple Rules but there’s such urgency, . . . so ILT decided we just are going to use them at ILT right now. (interview, November 9, 2011)

One target participant, however, reported creating Simple Rules with her team. Denise stated:

> We’ve been a pretty focused team, very collaborative, but going through the process of really calling out what are our Simple Rules . . . It’s still ongoing because even though we’ve identified what our Simple Rules are, we’re actually working on OK what does it look like when it’s happening? (interview, November 9, 2011)

As is evident in this sample of target participants’ stories, a variety of methods/models were used and in a variety of contexts. Additionally, each target participant had his/her own pattern of method/model use, as Table 6 shows. Interesting to note is the following:

- Each target participant reported approximately the same number of methods/models, i.e., 11 or 12. The exception being David who reported only seven—five of which were adaptive action.

- Rob had the most diversity in the methods/models reportedly used. He reported using, either directly or being influenced in his thinking by, 10 different methods/models.

- There does not seem to be a pattern in the use of a method/model by job position. While this is a small sample size, there is no discernible trend
between administrators, literacy coaches, and teachers. Of course, this pattern would need further exploration in a larger sample.

- Participants indicated using either the “entire” model, such as all three questions for adaptive action. For some methods/models, however, participants indicated focusing on using only a part. For example, in the Architectural Model, one participant focused on the “beliefs” only, omitting “structures” and “functions.” In addition, no participant indicated using all three parts of the CDE model.

Table 6

**Frequency of Reported Method/Model Use by Target Participant**

<table>
<thead>
<tr>
<th>Method/Model</th>
<th>Denise</th>
<th>Sharon</th>
<th>Jen</th>
<th>Vanessa</th>
<th>Josh</th>
<th>David</th>
<th>Rob</th>
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<th>%</th>
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<tr>
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**Broad Applicability and Usefulness of Methods/Models**

Another pattern evident in target participants’ reports is where they used HSD methods/models. Not only did target participants report using the methods/models in leadership roles, which is role in which they attended the training, they also reported
using them in other roles as well. Throughout their interviews, target participants report on the usefulness of the methods/models in a variety of contexts: in leadership roles, in teaching interactions, in interactions with colleagues, and at home.

All target participants reported using HSD methods/models while serving in a leadership capacity, as indicated in Table 7. In this study, leadership capacity is defined as 1) target participant serving on a committee, such as the district equity task force, or a site or district Instructional Leadership Team or grade level team, as well as any interaction with colleagues/parents in a leadership role; 2) target participant planning/delivering professional development; 3) literacy coaches working with individual teachers in their specified job description; 4) principals or district administrators fulfilling any of their specified job description. The use of HSD methods/models by target participants in a leadership capacity was expected, as this was the point of the HSDP training. However, as Table 7 indicates, target participants used methods/models in a variety of other capacities: for classroom instruction/planning, for interacting with and understanding colleagues, and in relationships outside of school.

Table 7
**Target Participant Roles in Reported Use of HSD Methods/Models**

<table>
<thead>
<tr>
<th></th>
<th>Denise DO</th>
<th>Sharon Principal</th>
<th>Jen Literacy Coach</th>
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Leadership Roles

Target participants for HSDP training were selected from leadership positions across the district. The purpose of the training was to enable school leaders to use adaptive action to build adaptive Capacity throughout the district as they worked to make more student-centered decisions and to implement a critical literacy curriculum. In line with this purpose, all target participants in this study reported using HSD methods/models in their leadership roles. For example, Josh, a fifth-grade teacher, reports in his role as member of the Instructional Leadership Team he presented the staff with the “landscape model for change” so that they could understand the stages of change when something new is implemented. He told the staff, “We’ve introduced this new thing [critical literacy curriculum], this is where we’re at. We’re trying to get here. What’s leaving the system now and is what is leaving the system what we want to leave the system?” (interview, November 9, 2011). In addition, he and the Instructional Leadership Team gave the staff Simple Rules, which they revisited at every staff meeting. There was also pushback from the staff around this action. He reported, “We realize that by giving people this, they didn’t feel like it was theirs. So as a leadership team we talked about what are we going to do to make people feel like they own it?” (interview, November 9, 2011). The team decided to have the staff take one of the Simple Rules to talk through and discuss what that rule meant to them individually so that they could co-construct a meaning for their staff.

Jen, a literacy coach, reports using HSD methods/models to help her look for patterns before she plans her professional development meetings. She states, “I’ve done a lot of looking for patterns, like take a step back, really look for patterns, and
before I react or respond or give a PD or whatever it is, [I] really look for patterns and prioritizing” (interview, November 9, 2011). One pattern she noticed was teachers’ frustration when other teachers shared examples of work they were doing in their room, because what they were sharing was the final product and not the process of how they got to that point. In other words, they were sharing their successes and not the failures that occurred along the way. She states:

So I’ve been asking people to explain how did you get to that point? What was your original question? What did you try that didn’t work? What did you try that worked? So whether teachers can see that there’s a whole process of getting there. And it’s not magic. (interview, May 10, 2012)

Rob reports in his subsequent interview that as a member of the school site study team that must evaluate the school and come up with a strategic plan for the next three years, some of the HSD methods/models, like Generative Engagement, served as a model for him and his team. They are carrying this study out in a way that everyone at the school feels like their voice is being heard and that they are able to provide input and feedback into the process, so that “this huge document [is] not just something that looks good in a binder on a shelf, but actually is a living document” that “embodies what we in fact do and will be an ongoing resource” over the next three years (interview, May 10, 2012).

Sharon, a site administrator, shares several instances of using HSD methods/models in a leadership capacity. Sharon is a principal for one of the elementary schools in CUSD. This is her second year as a principal at this site, although she was a teacher there about 12 years ago. Previously, she was an assistant principal at a different school. The demographics of her current school have shifted from the time she was there previously—from one of high SES and high test scores to
one of lower SES and test scores that are falling “a little further down and a little further down” (interview, November 9, 2011) over the past six or seven years. Last year, Sharon focused on building relationships with the staff. This year her “sticky issue” focused on building coherence and alignment across the grade levels. She said when she first came to the school as principal her “first impression was everybody’s sort of doing their own thing and it has worked for them in the past, but that’s not going to work anymore with the new population” (interview, November 9, 2011).

This year she aligned everyone’s reading schedule so that all teachers were teaching literacy at the same time. She said, “I’m having schedules posted in every room that reflect a balanced literacy day” (interview, November 9, 2011). She noticed that with this shift, other issues “surfaced,” i.e., transition times between subjects and between class time/recess. Where there wasn’t an urgency before, Sharon noted that teachers now felt this sense of “every minute counts” (interview, November 9, 2011).

Along with the shifts in schedule, Sharon noted there were some teachers who were already strong in teaching in a balanced literacy format. The Change Maturity Model guided her decision to allow those teachers to carry on with what they were already doing. She didn’t want to “bring them back” to where the others were (interview, November 9, 2011). After teachers’ schedules were aligned, they worked on improving the teaching for each of the balanced literacy components, beginning with shared reading. Two other things Sharon worked on, according to her initial interview, were being in the classroom more, rather than in the office, and being present at grade level collaboration team meetings. She felt that her “presence is important” at this stage of teachers learning to work together (interview, November 9, 2011).
In her subsequent interview, Sharon noted that she’d internalized many of the HSD methods/models. Her biggest take-away from the training was “seeing and understanding and influencing patterns” (interview, May 10, 2012). She said, “I really have taken a look at OK, what is the pattern here? And how can I influence it in a way that it changes directions if we need to damp it and then if things that are going well, how to amp it” (interview, May 10, 2012). She also noted that by being in the classrooms more, there was a shift in communication between her and the teachers and between teachers—to where their interactions were now focused on instructional issues and not behavior issues.

**Teaching Interactions**

As expected, target participants used HSD methods/models in a leadership capacity, since this was the purpose of the training. What is interesting is that target participants reported using these methods/models not only in these leadership roles but in other areas as well, demonstrating the broad applicability of use for HSD methods/models. Teachers, for example, all reported using HSD methods/models in their work in the classroom—from planning instructional units to “kidwatching” (Goodman, 1985) in the course of lesson delivery in order to make moment-by-moment decisions regarding instruction. This type of inquiry around instruction enabled one teacher to understand his students better. David reports:

I was working with this one kid [on a writing prompt in which students were to write clues about an object], and he said well, I don’t know what to do. I don’t know what to do. And I said Well, just pick something. My room is very cluttered. You can see there’s a million things to look at and he said Well, I don’t know what to look at. So I said OK. Ah, we need to focus. So OK let’s pick one wall. Let’s look at this wall. What do you see? And he said, I see a wall. I know, [student], but what do you see? I have posters up and there’s pictures and what I’m seeing is light hitting the wall and textures and shadows. And he looks at the
wall and he said, It’s a wall. It’s white. I said OK. Let’s focus in. What do you see? Do you see a table? Do you see—He said, yes, there’s a table. OK. Anything with that? I got the computer is on, I got all kinds. I got science things and a lava lamp is in the corner. And he said there’s a floor and a ceiling. And I thought at first I was getting a little frustrated and I thought that maybe he was being difficult but then it dawned on me that that’s probably the way he sees his world. . . . He sees the world in these giant chunks. He doesn’t, he’s not a kid that sees nuance. And I could just imagine how frustrating his life is. . . . And that was very early in the year. And it came from kind of the reflection I’m doing, trying to slow down my thinking and thinking about this. (interview, November 9, 2011)

David also reports using HSD methods/models to consider the type of instruction that needs to occur if “deep thinking” is to be developed and supported. To this end, David created two methods/models for use in his classroom. One model, the Continuum of Questioning, focused on the degree to which questions asked by the teacher encouraged or limited student autonomy and the degree to which questions constrained or supported higher-level thinking.

Another teacher, Rob, used adapted formats of several methods/models to create and implement inquiry units in his social studies class, including discussions of different notions of truth and understanding various perspectives. Rob stated that in his work with his student teacher, he is being more intentional about using inquiry in planning and carrying out his units. He didn’t make the shift in his teaching right away, though. After all, “you’re set in your procedures and routines” (interview, November 9, 2011). He did make the transition slowly, by moving from entirely teacher-centered to “a combination of student activity and teacher-directed activities” to his unit now, which has “both individual and group responsibilities” (interview, November 9, 2011). In the fall, he explained some of the ways he was incorporating HSD methods/models into his instruction. He stated:
[The unit is] about imperialism. Was it good? Was it bad? The facts are easy enough to get to. And so we’re [he and his student teacher] asking kids to be more mindful of what they’re reading, how they’re reading it, how they’re discussing it, and ultimately it’s not that we’re looking for the objective truth. . . . It’s what conclusions can they draw. . . . And so we’re trying to talk to kids about similarities and differences, about whose truth, subjective truth, objective truth. And the unit gives itself very nicely to it. (interview, November 9, 2011)

He carried this inquiry-centered planning through the entire year. In the spring, he reports planning his last unit of the year, an “inquiry-based unit on human rights” (interview, May 10, 2012). For him, “now there’s kind of an ebb and flow” to the use of some of the HSD methods/models (interview, May 10, 2012).

Josh, a fifth-grade teacher, used methods/models as a way to build student ownership in the classroom environment around the types of behaviors they wanted to see. He states, “My impression of the training is that it’s made me a better teacher and a better listener overall” (interview, November 9, 2011). One example of his use of HSD methods/models in the classroom is using the adaptive action model in looking at a pattern of behavior with his students and then having the kids come up with the “so what” and “now what” portions. He states:

We were having a problem with partner talking, pair sharing and partners, and so I sat with the class and we elicited, these are fifth graders mind you, we elicited a bunch of the things that were happening that were patterns that they saw. And then I went through and showed them how all these are connected. Here’s the pattern. What are we noticing? It’s a pattern of a lack of respect for your partner, so how can we change that? What’s the difference that makes a difference? And my fifth graders came up with a few things that they wanted to try and change the exchanges and since then it’s been, you know, we still have to go back and remind ourselves, but it’s been pretty good. (interview, November 9, 2011)

He also gave students Simple Rules, what he calls “agreements,” and reports that children in class are even asking each other, “Is this something true and useful that will contribute to the class?”—referring to one of the Simple Rules.
Josh reports using the adaptive action framework throughout his teaching—both in interactions with students and in the process of instructing. In trying to understand his students’ points of view, he asks himself, “What’s going on with the student? So what can I do about it? And now what can I do?” (interview, November 9, 2011). In addition, he involves students in this type of thinking. Josh states:

I have a few [students] that are doozies and there’s the reactionary kind of way to [handle classroom behavior] and there’s the way where you can sit with that student and go, so what is bothering you, so what is it? And breaking it down with that student just individually and trying to get them to analyze their own behavior and see what patterns they have and how they can change those patterns to get the desired outcomes they want. (interview, November 9, 2011)

Additionally, Josh reports:

The one thing I always have mulling through my brain is what, so what, now what. Like what’s going on with my class right now? I even had it happen in the middle of lessons where you just kind of feel the lesson isn’t going where you wanted it to go, so what’s going on right now? So what can I do right now to change that?” (interview, November 9, 2011)

Interactions with Colleagues

Target participants also reported using these methods/models in their interactions with colleagues. Apart from leadership “tasks,” using HSD methods/models helped target participants understand their colleagues better and helped clarify misunderstandings between members of a team. For example, Vanessa described how she used “models” to clear up a misunderstanding between her, her supervisor, and some other literacy coaches. She stated:

So [supervisor] was willing to talk and with the models, [we] were able to say, so this is my perception of what happened . . . and then she’d say something and then we’d go back and forth and then we’d clarify like oh, that’s what happened? I didn’t perceive it like that, I just thought. (interview, November 9, 2011)
Josh mentioned using HSD methods/models with his colleagues in conversations as the need arises. He stated:

Little snippets of [HSD] are brought out when it’s appropriate I think because a teacher will come up and say you know well what do you think the problem is with this and this? And I’ll say well, look at this right here. These are the people that are involved in, these are the containers that they’re in. And I said, let’s look at how these containers, how the exchanges happen with them. (interview, November 9, 2011)

Sharon mentioned using HSD when she comes to “moments of judgment” in her interactions with staff and parents (interview, November 9, 2011). During these times she tells herself to “really, really stand in inquiry right now” (interview, November 9, 2011). Additionally, when conversations veer toward complaining or about areas she has no control over, Sharon stated:

I can’t spend any second of my day talking about the true and useless. I’ve been much better about just stopping it because I used to feed into it and it took too much time and I don’t have time. So the minute it goes there, I know that’s true about the family or we can only talk right now in these minutes together from 8 to 2 but I can’t spend any more time on trying to solve something that’s out of my control. I can try to influence that in a different way but right now we need to concentrate on the true and useful and not the true and useless. And that’s with the parents, the staff members, kids, and all my interactions. (interview, May 10, 2012)

Jen reported using HSD methods/models to understand a “feisty” teacher on her campus (interview, November 9, 2011). She explained that during the summer training she had decided her “sticky issue” was going to be to focus on the “silent majority” of teachers as opposed to the “difficult” ones. She and her principal felt that finding a way to help the silent teachers use their voice might be one way of generating new patterns at their school. By happenstance, what ended up occurring is that one of the difficult teachers she had tried to work with unsuccessfully in the past became the focus of her work. By doing so, she came to understand this teacher’s point of view better.
I pushed myself to really kind of hear where he was coming from and found out that he actually divulged to me that he didn’t feel cared about in our community or in our container and that he felt alone and that he was one of a kind and he knew it had to do with his exchanges and his way of going about it.” (interview, November 9, 2011)

Jen worked with this teacher on his “exchanges,” as mentioned in her initial interview. Instead of only working with this individual teacher, however, she “planted seeds” with other teachers so that they would know how to interact more effectively with this teacher. He had a lot of knowledge to share around critical thinking and critical literacy, so she “worked from both ends,” so to speak, to help him strengthen his exchanges and to help others know how to work with him to access his expertise. By spring, Jen saw improvements in her relationship with this teacher and with his grade level as well. In her subsequent interview, Jen relates that this particular grade level now had her planning with them—something that never had occurred previously. She stated:

[His] grade level asked me to come in and plan because of the work I’ve done with him. . . . So I now work with this grade level regularly. I’ve never worked with them in the past. They actually asked me based on the work that I did with the one teacher to come in and kind of help guide their grade level meetings because they weren’t [coherent] in their thinking. (interview, May 10, 2012)

At Home

Finally, target participants even reported the use of HSD methods/models in their home relationships. While they did not provide a lot of information regarding their use, the fact that home is even mentioned points to the usefulness target participants find in these methods/models in a variety of contexts. This also points to the wide applicability of these HSD methods/models—they aren’t confined to use in one setting and in one way. Denise reports hearing various people at district meetings share “Well, I did this with my spouse or I did this with my child or I did this within my church” (interview, May
Josh, referencing the kind of thinking that comes from using HSD methods/models, said:

Even in my own relationships at home, it’s changed, it’s just that perception of what’s going on and looking at it and thinking about it without reacting to it. That analysis. It all goes back to that first day when you guys were talking about giving us the not really tools but just the, a way to analyze behaviors and systems, and actually recognizing the systems and seeing the patterns. (interview, November 9, 2011)

Rob stated, referring to the CDE model:

Within my personal life, obviously dealing with my wife or my wife dealing with me, that’s not even a good way to phrase it, just as two human beings that are on the same path, short-term versus long-term. Within the family, within our friends, there’s so many different foci out there and you’re not always zoomed in on the same thing. But I think it’s a legitimate question to ask [what’s the difference that will make a difference?]. And it’s a point of conversation. (interview, November 9, 2011)

In sum, target participants reported using HSD methods/models in a range of contexts and capacities. Not only did target participants use the methods/models in leadership roles, they also used them in teaching/learning interactions, in various interactions with colleagues, and at home. Use of methods/models in these various ways points to their broad applicability and usefulness.

Reported Usefulness/Benefits of HSD Method/Models

Finally, target participants report how they used HSD methods/models across the school year. HSD methods/models are designed to integrate theory and practice. As such, they provide tools for users as they seek both to understand and to act in complex human systems. In line with this intent to meld theory and practice, target participants reported HSD methods/models as useful tools in their work as well as insightful explanations of complex situations. Target participants report the usefulness of these
methods/models in the following ways: to help them take an inquiry stance, to change patterns of interaction with colleagues, and to provide a common language in working on school issues.

All seven target participants reported finding HSD methods/models useful or helpful in their work, although there is variation in target participants’ reporting of what they perceived as useful, as seen in Figure 8. In almost one-third of the responses coded \( (n = 77) \), target participants reported benefitting from HSD methods/models as tools that help them in some aspect of their work, including interactions with others \( (n = 25) \). Six of the target participants reported gaining new insight or understanding as a result of their use of HSD methods/models. Six target participants also reported HSD methods/models’ role in reminding them to take an inquiry stance \( (n = 15) \). Six target participants credited HSD methods/models in helping to change interactions between the target participant and a particular colleague or among team members \( (n = 10) \). Three target participants noted HSD methods/models’ role in providing a common language of understanding between those who were trained or in providing new language to understand a new concept \( (n = 5) \).

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<thead>
<tr>
<th>Benefit</th>
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<tr>
<td>Use as a tool</td>
<td>24</td>
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<tr>
<td>Gain in insight/understanding</td>
<td>17</td>
</tr>
<tr>
<td>Reminder to take an inquiry stance</td>
<td>15</td>
</tr>
<tr>
<td>Change in interaction/relationship</td>
<td>10</td>
</tr>
<tr>
<td>Other claim</td>
<td>6</td>
</tr>
<tr>
<td>Provide a language/vocabulary</td>
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*Figure 8. Reported benefits of HSD methods/models \( (n = 77) \).*
Use as a “Tool”: A Means to Accomplish a Goal

Target participants most often reported that HSD methods/models helped them accomplish a task or work toward a goal. For example, Vanessa and Jen both expressed that HSD methods/models helped provide them with a structure for staff meetings and professional development meetings. Vanessa stated:

I think [what—so what—now what] gave us a really good consistent structure for our staff meeting to really say, so this is the what and this is the so what. Because our school also has so many foci, so for example we have an ILT [Instructional Leadership Team] focus which is literacy, so we chose guided reading . . . then we also have the focus on ELD because that’s our subgroup that’s not achieving so half our PD is on ELD and half the PD is on guided reading, which really, you could say it’s one and the same and it’s embedded, but it’s pretty confusing for our staff. By saying what and the so what, it just made it a bit clearer. (interview, May 10, 2012)

Sharon stated:

[Adaptive action] has given me some structure to everything we start to look at again. So even in my SSC meetings and everything, I’ve just kind of outlined my agendas that way. So it helps me to reflect and collect my thoughts about where we’re going with this group of people. (interview, November 9, 2011)

Three target participants reported that the methods/models helping them create a more student-centered classroom. For instance, Josh found some of the methods/models to be useful in “giving the students a little more input and responsibility into the classroom environment” (interview, May 10, 2012)—a statement he makes about using the methods/models in talking about classroom behavior patterns he and the students notice.

For some target participants, methods/models were a tool to develop coherence within a team around their work. In one example, Denise stated that work with Simple Rules with her leadership team “helps [them] be more consistent and just go deeper”
with the work they were already doing around adult education (interview, November 9, 2011).

Interestingly, David reports a benefit and a “problem” from using the HSD methods/models. He stated:

I can use the tools to see a direction to go [with the patterns he’s noticing]. On the other hand, I can use the tools to see how far it is we need to go. . . . And I’ll tell you what—HSD training has been both a benefit and a real problem in a way. . . . Because what it does is it gives you a set of tools to evaluate things in a detached way. And by doing that, you can see really what’s going on but then to try and communicate that is extremely difficult for people that don’t have that way of seeing. (interview, May 10, 2012)

**Gaining Insight or Understanding**

Another benefit target participants reported in conjunction with HSD methods/models is the insight they gained into another person or the change process itself. For example, Jen explained how HSD methods/models helped her understand her teachers as learners. She stated:

So with our work with critical literacy, [the Change Maturity Model] really opened my mind too as a coach because I was suddenly realizing that even though I always look at my teachers as students and I try to remember that they’re learners too, this really helped me to feel like OK, where are they in their learning of this because I did have a tendency without realizing it to walk in and have in my mind the way it should look. . . . So I started realizing around our school I was not truly understanding what has to go into the learning process and in learning something new . . . I was trying to move people too fast. (interview, November 9, 2011)

Jen also describes how her use of HSD methods/models helped her understand a “difficult” teacher. She said:

So we’re doing work in critical literacy and he did not have an open door as far as observations and in talking with him I realized where it was coming from and it wasn’t just a resistance. It was, you know, I think more of a worry. Little self-conscious. And so we just worked right through that and talked right through that. (interview, November 9, 2011)
Rob and Denise both stated that HSD provides an understanding of “how to move the work forward” (interview, November 9, 2011) along with providing insight into “what is involved in the change process” (DO, interview, May 10, 2012).

**Reminder to Take an Inquiry Stance**

Another benefit of HSD methods/models that target participants reported was in relation to the attitude, disposition, or stance they were able to take. Most frequently, target participants reported that HSD methods/models helped them take an inquiry stance, or in HSD terms, “to stand in inquiry.” David, fifth-grade teacher, stated that as a result of keeping his Adaptive action journal:

> Everything I do now I look at as a puzzle, meaning so if I say I give a math test and a kid doesn’t do well on fractions, I instead of saying this kid doesn’t know this, I'll reflect on OK here’s what I’ve been teaching. Where did this go, what went wrong for this kid? Something happened? And then I will think about so if this is what happened, what inputs would I need to first of all diagnose the problem so I really understand it and then what will I do, how will I intervene to help get the outcomes that the kid and I both want? That process I do constantly. (interview, May 10, 2012)

With regards to how she approaches problems, Denise reported that HSD has helped her develop a comfort level with not knowing what the solution is when I start. And I’ve really begun to notice in my entire life how much I tend to kind of revolve everything I do around having that solution identified and so it really is having to step back and become comfortable with some chaos and standing in inquiry and living with unknowns for a while and seeing what develops. (interview, May 10, 2012)

Sharon reported because of her work with HSD, she has a different perspective toward issues that arise. She stated, “Had I not been through this [training], I may not have really picked up on the patterns that I saw as clearly and spent as much time looking at it as a pattern, rather than a problem” (interview, May 10, 2012).
Change in Interaction/Relationship

Several target participants reported HSD methods/models as being helpful in shifting or changing interactions between them and colleagues. For example, Rob shared that as a result of using one of the methods/models:

I have let [my colleague] create his subjective reality and acknowledge it and we can move on. So a lot of those hurdles that had been there, they were hurdles, they were impediments, have lowered considerably. And it’s something that not only I’ve noticed—other people who are part of this process have also noticed. (interview, November 9, 2011)

Denise reported that as a result of using Simple Rules, her team is pointing out each other’s behaviors that don’t support their goals. She said:

I don’t want to say they called each other out because that sounds negative but [they] began to identify some of the behaviors of the team that maybe weren’t helping us move forward as quickly as we could. (interview, November 9, 2011)

Provide a Language or Vocabulary

One target participant made a connection between the patterns he saw in his students and a pattern at the district level because of his understanding of how a system “scales.” He credits HSD methods/models with providing him with the “language to explain” what he was seeing. According to David, administrators don’t respond to requests until there is a “tantrum,” a pattern he’s also noticed with students. He stated:

I’ve been noticing, I didn’t have the language to explain it but I’ve been noticing this has been a pattern for a while and the system deals with that is to say yeah, you’re right, but we’ve got to get this done right now. But I’ll say but what we’re doing doesn’t make sense. Well, we have to get it done. We’ll deal with the next issue. And that goes on and on and on until you have a tantrum, and the tantrum is, I’m done with this. Here are all the problems. Then the system responds to you. . . . If someone just keeps forcefully saying the same thing, but without emotion, we’re not geared to deal with that and what this tells me is that the system . . . is geared toward problem solving. All it wants to do is put out fires. So until you’re on fire, you get no attention. . . . You can see why kids in the
classroom end up in the office, because it’s the same thing. A kid will be going on and on and on having difficulties, but if no one notices, finally they blow their top and they get to talk to somebody. It’s the same exact system. (interview, May 10, 2012)

Two other target participants also commented on the usefulness of HSD methods/models with regards to aspects of language. For example, Vanessa noted that HSD “has allowed [her team] to have a more, kind of common vocabulary for things” (interview, May 10, 2012). Denise explained that the language of HSD has helped her team in the following way. She stated, “I think the conversation around the Simple Rules has really helped us define in a deeper way what’s important to us as a collaborative group and I think the [adult] school is benefitting from that” (interview, November 9, 2011).

Other Claims

Target participants made a number of other claims about the usefulness or benefit of using HSD methods/models that couldn’t be categorized by the above groups. For example, Vanessa stated, “This really has invigorated me” (interview, May 10, 2012). Jen said she feels “empowered” in her work (interview, May 10, 2012). Finally, Josh stated he felt he was “a better teacher and listener” because of HSD (interview, November 9, 2011).

In short, not only have HSD methods/models been “tools” for people in their work, target participants reported a range of other benefits associated with their use. Specifically, target participants reported gaining insights or understandings of colleagues or of the system in general, as well as being reminded to stand in inquiry when approaching situations. They have reported benefitting from changes in interactions with colleagues and within their teams. Of particular interest is the benefit
some target participants reported regarding the language HSD methods/models provides to aid target participants in their work.

Contextual Factors

Within systems approaches, the nested nature of complex systems means that researchers must look beyond individual agents to the larger context to better understand the question being studied. In addition to the “patterns of use,” target participants also reported several contextual factors that seem to enable/constrain their learning of and engagement with HSD methods/models. Generally, these factors can be classified under the following: 1) the need for consistent support, 2) the role of history, and 3) the role of agency.

Need for Consistent Support

In their use of HSD methods/models, target participants reported factors that enabled or constrained their use of HSD methods/models. Because this question was not specifically addressed by the interviewers, only five target participants had portions of their interviews that could be coded in response to this question. Of the remaining responses, data indicate the need for consistent support as target participants implement HSD methods/models in their work. What is less clear is in what ways this support should be provided.

Target participants report the need for consistent support in learning and using HSD methods/models. For several target participants, the responsibility for this support belonged to district administration. Denise, a district administrator, recognizes the
importance of the support she received in her weekly meetings with the superintendent.

She notes:

Having the district-wide focus on adaptive action has really helped because I think without that, it would have been really easy after the training for gradually the use of the tools and the focus on the adaptive action to kind of dwindle away as you get busy with day-to-day stuff. (interview, May 10, 2012)

Important to note is that not everyone had this amount of support—especially the teachers. Vanessa and David, both located at school sites, expressed the need for support from the district level. They were surprised at this response, since they didn’t consider themselves to be “top-down” people. Vanessa states, “As much as I’m not a top-down person, I think top-down, they have to put the value in that it has to be said that this is important work and we’re going to put time into it” (interview, May 10, 2012).

David, in a similar statement, reports:

This is so weird that I’ve come full circle. It has to kind of almost be top-down, and here’s what I mean by that. The conditions for my classroom, I can set. I can set the patterns, . . . and even with my colleagues. But to get a whole system shift, the patterns have to be set at the district level. (interview, May 10, 2012)

In looking at the time it takes to build reflection into individual routines and into the routines across schools, target participants noted that the district office had to be responsible for creating this time and supporting the use of it more than what they perceived was already happening, including the removal of unspecified responsibilities. Vanessa noted that the district office kept adding to their plates, but not removing anything. She feels that they have “too many things shoved down our throats” (interview, May 10, 2012). In addition, some felt that “being held accountable” for HSD methods/models use was also the district’s responsibility. Josh, for example, noted the influence of Ball Foundation Education Initiatives and Human Systems Dynamics.
Institute in the district as important to holding the district accountable in their use of HSD methods/models, while at the same time acknowledging the role that personal accountability has in the implementation process. Josh states:

Having [the HSD facilitators] in the district gives more accountability to using the process. And I think that that’s one of the biggest steps the district is going to have to take is to take the time and try to find the resources to have the people that are trained in it to have an opportunity to be held accountable and celebrate what they’re doing. (interview, May 10, 2012)

The need for consistent support is addressed in David’s observation that the district had backed away from its promotion of HSD methods/models. He states:

There was a lot of fervor around this and we’re really going to do this and we’re going to stick it out. And then life happened and we’re suffering right now as a system from creep. We’ve crept back away from I think the commitment. Not the commitment, that’s the wrong word. We’ve, it’s not the forefront anymore. (interview, May 10, 2012)

While data clearly indicate that target participants need and want support, what is unclear is exactly how this support should occur. For Denise, support came from the weekly meetings in which she participated. She states:

Being part of the teaching and learning meetings that happened weekly with the directors and we do a check-in at the beginning of the meetings, everybody has a chance to share with at least one other person what’s happening with their adaptive action and where they’re going with it and get some feedback has helped to keep that learning going where we’re learning from ourselves and learning from each other and asking each other good questions and having that chance for reflection. (interview, May 10, 2012)

Vanessa, on the other hand, expressing the desire for a format in which people could come together and meet, stated, “I think to enhance my learning I would need more of a book club, just time to really study and talk about it and to have people’s feedback back and forth” (interview, May 10, 2012).

Target participants in several interviews note the fact that using HSD methods/models is easier when there are other people who have been trained to work
with, indicating that support needs to come from a local level as well. While administrators across the district were trained, there were fewer literacy coaches and even fewer teachers trained. In fact, Rob mentions that this work has “filtered least to the teachers” (interview, May 10, 2012). Two examples from the literacy coaches exemplify the desire for others to be trained. Jen reports:

I just wish more people could go through the training. It’s very complex and obviously I’m not very articulate about it so when getting together with the few that have, like when the coaches get together, . . . having that common language or that common understanding and we do share little tidbits. Oh, I’ve been using and I’ve been doing this and oh this has really helped. (interview, May 10, 2012)

Vanessa relates an instance in which she tried to engage other coaches in a conversation about the need for balance in theory and practice (related to the Learning Triangle Model). The conversation didn’t turn out as she wanted it to. She reports:

I think I found it frustrating for me because I didn’t have that verbiage to really create that dialogue. I wasn’t sure what I was trying to get at. . . . I think if more people had had that training at the time, I would have gotten help of are you trying to say this? And I would have said yes. (interview, May 10, 2012)

In brief, target participants report the need for ongoing, consistent support in their learning and use of HSD methods/models. That the district is largely responsible for this support in unquestioned; however, there is also a need for local support. What is less clear is how this support should occur.

**Influence of “History” in Use of Methods/Models**

Throughout target participants’ interviews, there is evidence that “history” affects whether and how HSD methods/models are used. Data suggest three types of history: individual history, site-level history, and district-level history. The following sections explore each of these aspects further.
Influence of Individual History on HSD Method/Model Use

While a few of the target participants referenced the similarity of some of the HSD methods/models to other tools they’ve been introduced to in the past, Rob in particular discussed the influence of this history on his use of HSD methods/models. In both interviews, there is the sense that he is intentionally applying what he learned at the HSDP training; however, because of his prior experience, he seems to have integrated the methods/models into his work almost seamlessly. He states:

A lot of the tools that were talked about over the summer, some of them were new ways of thinking about things in some ways were just reminders of strategies and approaches using the past and my experience has been when I’ve used them, they been kind of embedded into what I’m doing as opposed to being explicit. I’m going to use this approach to do this. And maybe it’s with that greater sense of awareness I notice that I’m doing the things more. (interview, November 9, 2011)

Although the HSDP training did remind him of strategies he has used in the past, he feels that “anytime you revisit something, there is a discovery element there” (interview, November 9, 2011).

In looking more closely at his interviews, the embedded nature of HSD methods/models is apparent. Rob states that in his work with his student teacher, he is being more intentional about using inquiry in planning and carrying out his units. He didn’t make the shift in his teaching right away, though. After all, “you’re set in your procedures and routines” (interview, November 9, 2011). He did make the transition slowly, by moving from entirely teacher-centered to “a combination of student activity and teacher-directed activities” to his unit now, which has “both individual and group responsibilities” (interview, November 9, 2011).
He carried this inquiry-centered planning through the entire year. In the spring, he reports planning his last unit of the year, an “inquiry-based unit on human rights” (interview, May 10, 2012). For him, “now there’s kind of an ebb and flow” to the use of some of the HSD methods/models (interview, May 10, 2012).

He reports in his subsequent interview that he is on the school site study team, which must evaluate the school and come up with a strategic plan for the next three years. Some of the HSD methods/models, like Generative Engagement, served as a model for him and his team. They are carrying this study out in a way that everyone at the school feels like their voice is being heard and that they are able to provide input and feedback into the process, so that “this huge document [is] not just something that looks good in a binder on a shelf, but actually is a living document” that “embodies what we in fact do and will be an ongoing resource” over the next three years (interview, May 10, 2012).

Rob seems to think that his previous learning may have accelerated the integration of HSD methods/models into his work. His interviews show that although he was not currently using this previous training, being reminded of those strategies along with learning some additional ones did influence the work he did in his various roles at his school site.

Influence of Site- and District-Level History on HSD Method/Model Use

There is an intertwined relationship between site-level and district-level history. At the local level, a site’s past history with administration, implementation of mandates, or other factors can impact the ways in which HSD methods/models are introduced or
used. Of course, what happens at individual sites is also influenced by district-wide patterns.

At least three target participants commented on staff reactions to the use of HSD methods/models at their sites because of the district’s history of adopting then “jettisoning” various innovations. Denise received pushback from her leadership team when she introduced Simple Rules to them. She states, “Initially I got some pushback from the team saying feels like we’re doing this because this is the new flavor of the month for the district” (interview, November 9, 2011). Rob describes the work his Instructional Leadership Team did at his school site as being “embedded” in their work. He states:

I think a lot of the things were simply embedded in what we’re doing as opposed to OK, we went through a training and this is the new thing were going to do, because teachers, at least teachers where I work, are really resistant to that because we’ve had so many other layers placed on that are jettisoned later. (interview, November 9, 2011)

Josh also makes this observation to staff reactions. He states that he and his Instructional Leadership Team “learned that using the language almost makes people defensive. The language is kind of left out, but the process is still there. When we use the words simple rules, we had a definite pushback like you’re giving us rules” (interview, May 10, 2012).

In David’s work on the district equity task force, he found that HSD methods/models helped reveal one district-wide issue as a result of the history of the district. This task force, headed by Denise, was looking for patterns (the what? stage) to inform their plans of action around equity. David shares an incident in which the task force discussed what to do about the high numbers of deficiency notices students were
getting across the district, noting that one could almost predict by a student’s race whether s/he would receive a deficiency notice. He states:

We don’t have common understandings of what it means to be deficient or in need. There is also in her task force, we talked of how what is the underlying belief? And the belief was, we’re coming out of the No Child Left Behind where we were going to end social promotion and the idea was that anybody who was not absolute proficient got a deficiency which meant, and I remember 2000 when all this came down, I was teaching in middle school and out of 32 kids, 31 kids got a deficiency. And while we were making the statement was . . . just the system is saying if you’re not proficient, then you will be retained. We moved on beyond that, but our policies have stayed the same so that belief system of we have to rigorously defend ourselves in case these kids can’t pass these tests so were going to need to leave a paper trail of all these deficiencies that we set showing that we know, not that we fix the problem, but know that there is a problem. That is the belief system that we have continuing. (interview, May 10, 2012)

In looking more closely at Vanessa’s interviews, evidence of the role of site-level history and district-level history is apparent. After the summer training, Vanessa and her principal decided in their interactions with the staff to “be HSD without saying it’s HSD and introduce it to the staff” (interview, May 10, 2012)—a sentiment that appeared in several of the other target participants’ interviews. Part of the reason for this decision is related to the history of the district, in which there is a pattern of using and then discarding multiple innovations, and of the school, in which there have been five principals in the last 10 years. She states, “Our history has told us that they’re like, one more thing. Don’t do another mandate please because I’m not going to pay attention. It’s going to go away in two years” (interview, May 10, 2012).

In another illustration of using one of the methods/models, the Architectural Model, she discussed using the part of the model about “beliefs” with a group of teachers. She stated:
We started with what do you believe? And sometimes asking a question it’s good because you hear it. I think now I’m learning it frightens me to know what people don’t know really. I don’t know if they don’t believe or they haven’t made their beliefs up or they’re so willing to be told so then I have to question why create it in order for you to have that? And I do, I do look at what we’ve created of, well let’s be fair, the last five years here, we’ve told you what to do. We’ve never asked you. So I don’t know if you’ve gotten lost in it so now when I ask you, you’re like I don’t know, just tell me. (interview, November 9, 2011)

In this example, Vanessa illustrates part of the culture that has taken root in her school over the last several years. She makes it clear that they have told teachers what to do, and that the system has been very top-down. She also questions in her subsequent interview whether one reason she didn’t have much success using HST method/models with her teachers is because they haven’t taken the time to develop reflective culture.

Vanessa addresses the value she sees in HSD methods/models helping address some of the emotional history of her school site. She specifically notes that this staff could benefit from using the Architectural Model. She also states, “I think ultimately one day we would benefit from the truth to really transform us because I think there are a lot of hurt feelings or interpretations of what has happened in the past” (interview, May 10, 2012).

Connected to the history of the district, more than anything Vanessa wants generative engagement across the district. The Generative Engagement model specifies the conditions needed to create a “culture of invitation and equity,” namely, voice, identity, and agency (HSD, n.d.). Several times throughout both interviews, Vanessa particularly mentions wanting faculty to have “voice.” She has been with the district for over 15 years, and during that time she has noticed teachers “lay on their back” like “little dogs” because they do not feel like they have any influence or any say
in what goes on. Vanessa says, “That’s the worst thing for me to see” (interview, November 9, 2011). Interestingly, though, she mentions wanting generative engagement for all the teachers, but she’s not sure “if every participant is ready for that” (interview, November 9, 2011).

In another example of wanting “voice,” Vanessa shares an account of an ongoing interaction she had with Sally, the district administrator in charge of the coaches across the district. According to Vanessa, there had been an incident between her and Sally at a coaches’ meeting. Vanessa didn’t think that was the “right forum” to get into a deeper discussion. Vanessa wanted to resolve the issue, so she invited Sally “to HSD.” Through the use of “models” she and Sally were able to talk through and clarify each other’s perceptions and intentions. Vanessa felt the experience was “therapeutic” and wanted the other coaches to have the same experience.

At the next coaches’ meeting, she and Sally shared briefly what had occurred. Vanessa then explained she felt like the coaches could do some “really good work” if they were able to speak freely and honestly. Vanessa questioned the coaches, “Do you speak freely?” One coach answered yes. The others were quiet. Unfortunately, the conversation got sidetracked. Vanessa states she wished everyone had spoken. She wanted their group to move beyond past patterns in which coaches felt like they had to “cover their asses” (interview, November 9, 2011). She felt strongly that everyone should be able to be “true to their authentic selves” (interview, November 9, 2011).

Finally, Vanessa describes a meeting with the Instructional Leadership Team and the principal. Following district mandate, the principal was asking teachers to examine their data for patterns. This would lead to a discussion of So What do these patterns
mean so that an action plan could be formed. Past history affected the nature of this meeting. Vanessa states:

One of [the principal's] questions was, so look at your data. What patterns do you see? What have you done and what could you do differently? Now, on paper you could say it's a basic question. One teacher thankfully just said well that when you asked that, it put me on the defensive. And it took just one person and all of a sudden it all trickles down. Everyone said the same thing…. There’s a feeling of blame, and is it about Heidi? Not necessarily. It’s a culture of what education has been. Back up your data, back up your numbers. So it just taught us a lot of the outside pressure, people’s baggage was administration because we had five principals in the last 10 years. So it’s like all meshed together and no longer do I hear the simpleness of no seriously what’s happening with your reading? Because it’s not simple, it’s just that. When we say look at the data, then it feels like blame. (interview, November 9, 2011)

In short, target participants report the influence that “history” has on whether and how they implement HSD methods/models into their work. Three aspects of history are evident in the data: individual's history, site-level history, and district-level history. Prior use of other inquiry models seems to have a positive influence on target participants’ use of HSD methods/models. On the other hand, the district’s, and by extension each site’s, history of “innovation accretion” seems to have a negative impact on target participants’ use of HSD methods/models.

Summary of Findings

The purpose of this study was to explore what target participants reported about their use of adaptive action and other HSD methods/models in their work across the 2011–2012 school year. Data were analyzed via adaptations to the listening guide method (Gilligan et al., 2003) in order to capture the many layers of target participants’ stories. In their interviews, target participants report using methods/models in distinct, unique ways across the year; finding HSD methods/models useful in a broad range of
contexts; wanting frequent and consistent support for the learning and use of methods/models; and being influenced by “history” in their use of methods/models. The next chapter explores these themes further, including implications for organizational change, professional development, teaching/learning, and future research.
CHAPTER 5
DISCUSSION

As educators respond to the need to support students’ development of “deep thinking” and the use of 21st-century literacies, scholars grounded in a whole-systems approach posit the conditions that must exist in schools to shift negative patterns that have emerged as a result of neoliberal federal and state initiatives. First and foremost, schools must be places in which there is collaboration and a sharing of knowledge and expertise. In order for this to happen, time must be devoted to planning and sharing, in addition to the time needed for teachers to continue their own learning through venues such as professional development. Especially needed is the ability for teachers and administrators to respond to the changing demands placed on them by factors such as evolving literacies. This means educators must not only build capacity, but they also must develop adaptive capacity—the ability to respond to the unknown. While most researchers provide descriptions of the conditions that must exist in order to respond to these needs, few, if any, provide a model that melds theory and practice, offers options for action, and links individual and collective capacity at all scales of the system. Human systems dynamics (HSD) provides such a model (Patterson et al., 2013).

In this exploratory study, the purpose was to examine the stories of participants who engaged in the training and use of HSD methods/models over the course of the 2011–2012 school year—training they underwent with the explicit purpose of shifting patterns across the district in pursuit of improving student achievement. While the goal of the district was to shift patterns of decision making, the purpose of this particular study was to simply examine the experiences of seven target participants since this is
the first time that HSDP training occurred in public education. This chapter provides a review of this study’s findings before closing with a discussion of the implications of this study’s findings for organizational change, professional development, teaching/learning, and future research.

Summary of Findings

Chapter 4 presented six main findings from this study, which focused on the analysis of the initial and subsequent interviews of seven target participants trained in the use of HSD methods/models. These findings focus on target participants’ distinct “patterns of use”:

- Target participants displayed their own distinct “patterns of use” across the school year. More specifically, target participants’ “patterns of use” exhibited one of the following general patterns: continuous use throughout the year, continuous use with a tension between vision and implementation, and hitting a plateau.

- Target participants found the adaptive action and CDE models the most useful; however, they also report using 14 other methods/models across the school year.

- Target participants reported finding broad applicability of HSD methods/models across a broad range of contexts.

- As part of this broad applicability, target participants reported finding HSD methods/models useful in a variety of ways, including as tool, or means to accomplish a goal; as reminder to take an inquiry stance; in helping to bring
about a change in interaction/relationship; and providing a common language or vocabulary among those who have been trained.

In addition to these “patterns of use,” target participants reported contextual factors that seemed to enable and/or constrain their use and learning of HSD methods/models, which include the following:

- Target participants reported the need for consistent support for the learning and implementation of HSD methods/models into their practice.
- In their use of HSD methods/models, target participants reported the influence of individual histories, site histories, and district histories.

In short, findings from this study can be condensed to the following statement: Target participants displayed distinct “patterns of use,” which were seemingly influenced by a number of contextual factors, as shown in Figure 9. In this section, I examine the relationship between these findings and the extant literature, especially as presented in chapter 2. Then I consider the implications this study has for organizational change, professional development, teaching/learning, and future research.
Figure 9. Relationship between “patterns of use” and contextual factors. Target participants reported distinct “patterns of use” of HSD methods/models. These “patterns of use” are nested within several contextual factors.

Discussion of Findings

Since the 1980s, neoliberal tenets have influenced policymaker’s efforts to “reform” education (Mehta, 2013). As a result of the implementation of high-stakes testing accountability measures, negative patterns have emerged in American schools that do not support the types of teaching/learning that must exist if students are to be proficient in the 21st-century literacies. For educators taking a whole-systems approach, the factors needed to support organizational change and “deep learning,” as posited in chapter 2, include the importance of time, the role of accountability, the importance of collaboration and relationships, and the recognition that change happens in phases over time. As an exploratory content analysis, this study illuminates several other factors that are part of one district’s efforts to shift organizational culture in the
pursuit of “deep learning” for all students. These factors include the role of support in 
learning and in implementing HSD methods/models along with the role of individual, 
site-level, and district-level history. In this section, each of these factors is discussed, 
beginning with target participants’ distinct “patterns of use.”

Distinct Patterns of Method/Model Use Across the Year

The central finding around which all others seem to revolve is the distinct 
“patterns of use” participants exhibited in their use of HSD methods/models across the 
school year. (See Figure 9.) Three “patterns of use” emerged from the research data: 
those who engaged with HSD methods/models continuously across the school year; 
those for whom there was a tension between their actual use of HSD methods/models 
and the potential they see in their use; and those who either plateaued or lost interest 
by the end of the year. Related to these “patterns of use,” five target participants 
identified a “sticky issue” during their HSDP training. These were also the same five 
target participants who felt that their use of the methods/models had been integrated 
into their practice.

Due to the use of secondary data, what is unknown are the reasons participants 
used the particular models they reported. One explanation might be the degree of 
knowledge or comfort participants felt with regard to HSD methods/models. For 
example, some participants reported being comfortable with particular methods/models. 
Josh, on the other hand, reported that some methods/models were more intimidating 
than others. However, degree of comfort cannot be the whole explanation because Jen 
reported using methods/models despite being unsure if she was using the models 
correctly.
Another explanation for target participants’ “patterns of use” might be the “learning curve” that occurs when individuals learn and implement something new. According to Adelman and Taylor (2007), substantive systemic change is accomplished in at least four phases: creating readiness, initial implementation, institutionalization, and ongoing evolution and creative renewal. Notably, this learning takes place over years (Lipson et al., 2004). Since this study took place over the initial year of implementation, it is expected that participants would still be in initial stages of learning by the end of the year, meaning there should be a range in ability, level of comfort, and even frequency of HSD method/model use.

A more compelling explanation supported by the data might be that various factors enabled/constrained target participants’ use of HSD methods/model. This view takes Adelman and Taylor’s (2007) phases of change as a reality, but elaborates by assuming movement through the stages is influenced by numerous factors, such as levels of support. Such a view is cognizant that this learning and support must take place throughout the implementation process, as indicated by Correnti and Rowan (2007), who note the need for “numerous supports for teacher learning” (p. 328). In addition, this view acknowledges that there might be other factors beyond amount of support that affect whether and how HSD methods/models are used in educational settings.

The finding that target participants displayed distinct patterns of use, which were seemingly influenced by numerous factors, emphasizes one aspect of complex adaptive systems—namely, that the relationships in these systems are not simple or linear. In traditional views of implementation, especially those espoused by neoliberals, the
assumption that if A is implemented, then B will occur. For example, tying punitive measures to tests motivates teachers to raise test scores. Another example is using a particular professional development program—and implementing it with fidelity—will increase test scores. Professionals who understand complex adaptive systems know that these linear, cause-and-effect relationships are not possible in the complex, nonlinear systems that are schools. Although the target participants in this study received the same training, they used the methods/models in distinct ways because many influences interact in nonlinear ways to generate emergent patterns of HSD application and use.

Broad Applicability and Usefulness of Methods/Models

Related to the “patterns of use” are the ways in which target participants reported using HSD methods/models. Because participants for HSDP training were selected from leadership positions across the district, it is not surprising that all participants reported using HSD methods/models in leadership roles. What is surprising is that participants reported using these methods/models in capacities beyond these leadership roles. Teachers, for example, all reported using HSD methods/models in their work in the classroom—both in planning instruction and in the act of teaching. As teachers used methods/models to think about and plan instruction for students, they were able to tailor instruction to meet the needs of individual students—one of the key factors needed in improved student learning (e.g., Snow, Burns, & Griffin, 1998). In addition, teachers were able to take an inquiry stance that used data to inform decision-making and instructional planning, actions in line with McLaughlin and Talbert’s (2003) analysis of successfully “reforming” districts. It is significant to note that the target
participants were able to take this inquiry stance despite the neoliberal context they work within.

As Bomer et al. (2010) indicate, creating, analyzing, and critiquing are central to the teaching of 21st-century literacies. By using HSD methods/models to engage students in classroom issues and engagement with course material, teachers invited students to use the “deep thinking” that is required of 21st-century literacies. For example, Josh’s students’ involvement in considering What? So What? and Now What? had to analyze and reflect on the patterns they saw in order to determine what they meant and to come up with a plan of action. Examples of teachers’ use of HSD methods/models to support the development of “deep thinking” extends the literature in this area by demonstrating that the same “tools” used in organizational change can also be used in teaching/learning. This is a powerful finding if for no other reason than teachers can focus their learning on fewer “tools” and still accomplish important work in various venues. In thinking about complex adaptive systems, this finding represents the scalability of HSD methods/models: i.e., they help target participants take action, regardless of their position within the system, across any scale in the system—classroom, site-, and district-level.

Target participants also reported using these methods/models in their interactions with colleagues. For example, Josh used HSD methods/models in conversations with teachers to provide another point of view on an issue. Vanessa used HSD methods/models to clarify misunderstandings between her and her supervisor, and Sharon used HSD methods/models in “moments of judgment.” Many of the instances in which HSD methods/models were used in interactions with colleagues
highlight their use in building, repairing, or strengthening relationships, thereby pointing to the often unrecognized need for relationships of trust to exist in order for school teams to work in a coherent matter. While this need is recognized in the research literature (e.g., Sebring & Bryk, 2000), it often goes unaddressed on actual school campuses. As one participant who made this connection reported, “I questioned the whole personal relations part of the job. But I feel comfortable going to [supervisor] about content. If we just said let’s talk about guided reading, you know. But it’s both [content and emotional]” (Vanessa, interview, November 9, 2011). Adelman and Taylor (2007) report that “from the perspective of systemic change, and creating an atmosphere at a school and throughout a district that encourages mutual support, caring, and a sense of community takes on added importance” (pp. 68–69). The use of HSD methods/models in this area provides another example of the powerful nature of these “tools” in supporting organizational change.

Finally, participants even reported the use of HSD methods/models in their home relationships—although how and to what extent was not discussed. The fact that this use is even mentioned points to the usefulness participants find in the methods/models. It is also another powerful example of the scalability of HSD methods/models previously mentioned. Findings in this area, however, are out of the purview of research on organizational change.

To emphasize points made in this section, the broad applicability of HSD methods/models reported by target participants indicates that educators are finding ways to use inquiry and systems thinking to “make things work”—even in the current neoliberal context. In addition, these findings highlight the “scalability” of HSD
methods/models—that they provide ways to think, understand, and act regardless of one’s position in a complex adaptive system.

Contextual Factors Influencing HSD Method/Model Use

One way this study extends the literature on organizational change and teaching/learning is by offering insight into the experiences of undergoing this change process in the pursuit of “deep learning” for all students. Target participants’ “patterns of use” were seemingly nested within, and therefore possibly influenced by, a number of contextual factors, including the need for consistent support and “history.” According to Eoyang (2001), there are three conditions that interact in nonlinear ways to set the conditions for the self-organization of the system: “containers”, significant “differences,” and transformative “exchanges” (CDE). These contextual factors represent some of the CDE conditions requisite for the system to shift toward the desired patterns of student-centered decision making and supporting instruction that focuses on “deep learning.”

Containers

In considering whether and how target participants used HSD methods/models, one factor seems to be the frequency and types of support they received in learning and implementing these methods/models. The ways in which target participants were supported can be considered “containers” because containers “bound the system until patterns can form” (Holladay & Quade, 2008). In other words, supports, such as professional development, serve as a “bound space” (Eoyang & Holladay, 2013) for learners. In looking at target participants’ interviews, data suggest that not all participants had access to similar containers, or supports, during the school year. For
example, district administrators were involved in weekly meetings in which they shared and received feedback on their use of HSD methods/models. This container, or type of support, also carried with it a level of personal accountability since administrators were expected to have something to share at these meetings. Notably, Denise recognized and credited the role her weekly meetings with other district administrators played in her successful use of HSD methods/models. Teachers and literacy coaches, on the other hand, did not seem to have this amount of support or accountability. This “lack of a container” may have hindered the self-organization process, possibly influencing why Vanessa, a literacy coach, felt a tension between her vision of HSD methods/models and her actual implementation of them. Likewise, this might be why Josh “hit a plateau” in his use of HSD methods/models.

Another container that should be considered in setting the conditions for self-organization appears to be the ways in which district administration supports teaching/learning throughout the district, especially for its teachers. This container aligns with Tye et al.’s (2000) concept that district administration has unique responsibilities for supporting teaching/learning within a district. This sentiment is echoed by David and Vanessa, teacher and literacy coach respectively, who both commented that administration has a responsibility in supporting the learning and implementation process. Unfortunately, David felt like district administrators had backed off from their commitment by the end of the year. The literature on organizational change reminds us that teachers are an integral part of any innovation implementation (Datnow & Stringfield, 2000). That teachers are noting a lack of support
may not bode well for the use of HSD methods/models in supporting organizational change.

In looking at additional types of support, or containers, participants might need, beyond the role the district administration plays, there is not a clear consensus in the data. A common thread in participants' reports, however, is the need to talk with one another, the need to network, and the need to receive feedback. The need for “local” support, i.e., having others who share the same training and language in close proximity, is also apparent in the data. Thinking about whether and how to support learners positioned at the district, site, and classroom levels may very well be a “context-specific” decision (Lipson et al., 2004). Paramount to successful implementation, however, is that this support exists in abundance at the early stages of implementation (Adelman & Taylor, 2007). In other words, success seems to hinge on the amounts and types of containers available to target participants throughout the learning and implementation of HSD methods/models.

*Transformative Exchanges*

While the data suggest not everyone was supported in the same way, it also suggests that perhaps not everyone needs the same amount of support. The HSD methods/models are not ends in themselves, but are intended to set conditions for self-organization across the district so that the desired shifts regarding instructional decision-making can occur. One idea to consider in the types and amount of support individuals are provided is the type of exchanges they might need to feel successful in learning HSD methods/models. “Exchanges” are one of the three conditions for self-organization according to Eoyang (2001), and tightly coupled exchanges allow for
“close, fast exchanges of information and resources” while loose couples allow for exchanges of information and resources over longer spaces of time (HSD, n.d.). To support self-organization in the form of learning, some individuals might need more “loosely” coupled exchanges. Rob, in particular, already had considerable experience with the concepts he learned in HSDP training. He and David both seemed to be able to integrate the use of HSD methods/models into their practice with the amount of support they received throughout the year—although to what extent and kind of support they received is unclear due to the nature of the secondary data. On the other hand, some individuals might need more “tightly-coupled” exchanges in order to support this learning. Denise is one example of someone who credits her frequent support from the district superintendent as part of her “success” in integrated HSD methods/models into her practice. Vanessa, too, provides an example of someone who might have benefitted from more “tightly-coupled” exchanges.

Significant Differences

Another factor that target participants’ use of HSD methods/models is nested within is the “history” at the individual, site, and district levels, which represents significant differences in the self-organization of new patterns. Individual history, as related to Rob’s prior experience with similar concepts, is one factor that can affect the “learning curve” for individuals or groups. Similarly, participants’ lack of experience with similar concepts can also affect the “learning curve.” This type of history has direct implications for the type and frequency of supports, or containers, needed, as mentioned in the previous section. For example, persons with more experience with inquiry models and/or understanding of complex systems might need less support or
less frequent support. In fact, they might be able to serve as mentors to others in their learning of HSD methods/models.

In addition, data suggest that systemic history, at the site and district levels, impacts the use of HSD methods/models as well. Examples from target participants’ stories indicate ways in which “history” may work as “negative” or “positive” feedback. Negative feedback acts to keep the system “near equilibrium” (Prigogine & Stengers, 1984)—or near the status quo; while positive feedback acts to move the system far-from-equilibrium (Prigogine & Stengers, 1984)—or to a place where new patterns can emerge. For instance, several participants referenced receiving “pushback” from staff around HSD method/model use—mostly related to staff perception that HSD use was the “new flavor of the month” for the district (Denise, interview, November 9, 2011), which was going to “go away in two years” (Vanessa, interview, May 10, 2012). In this case, a history of innovation adoptions that seem to “come and go” seems to have interfered with the use of HSD methods/models in contexts beyond those who have been trained. In addition, people participating in training might also feel a lack of commitment to the process if they view this training as the “latest fad”—although this was not exhibited in the small subsample of those who participated in the HSDP training. Vanessa’s report that her school had had five administrators in the last 10 years also suggests reasons why staff may have felt reluctant to hear about and/or learn about a new innovation: with new administrators usually comes new innovations, or at least new ways of implementing old innovations. This type of site-level history is something to consider in using HSD to set the conditions for self-organization at different scales of the system.
In the case of this district, the examples given provide instances in which the influence of “history” works as negative feedback, or works to keep the system near equilibrium—i.e., near the status quo (Davis & Sumara, 2006; Prigogine & Stengers, 1984). In other words, they illustrate the manner in “history” seemed to work against the self-organization of the system with regard to the shifts leaders were seeking. Davis et al. (2012) report that districts have a “coherent and stable” core narrative that “informs discussions and orients decisions” (p. 395). In other words, the ways in which agents within the system interact constrains or enables the possibilities of future actions, as this core narrative serves can serve as negative or positive feedback within the system.

Ultimately these histories are about coherence in a system. Coherence, as defined by Holladay and Quade (2008), is “self-similarity across the system that has the following impacts on the system itself: reduced internal tension, shared goals, shared meaning, repeated patterns, complementary functions, conserved energy, and internal and external adaptation” (p. 94). In other words, histories, or “core narratives,” in which agents share the same goals are coherent. There is a focus within the system on the same “differences that make a difference” in supporting “deep learning.” On the other hand, less supportive histories are fragmented, meaning they do not have a focus on these “differences” that are directly related to “deep learning.” Certainly, the success or failure of an initiative relates to whether and how this “core narrative” is attended to during the implementation process, including the history of innovation implementation and the history of administration rotation. One question is how do HSD methods/models help attend to this “core narrative” in a way that supports shifting patterns so that student achievement increases?
Conclusion

This study extends the literature around organizational change and teaching/learning in a number of important ways. First, target participants’ display of distinct “patterns of use” provides a glimpse not only into the implementation of HSD methods/models across the school year, but the contextual factors that these “patterns of use” were nested within. Second, target participants’ distinct “patterns of use” also highlight the nonlinear relationship among myriad factors that influence the emergence of these patterns. This perhaps is one of the most important take-aways from this study. In the current neoliberal climate, reductionist approaches to organizational change are seen as the panacea. Studies such as this one point to the complex, adaptive nature of organizational change—part of which is the length of time it takes for such change to occur. This study took place over one year, and while there is evidence of smaller shifts in teaching and leadership practices, there is no evidence that larger shifts occurred across the district. Third, this study highlights the ways the interdependent nature of factors in learning. Target participants each had similar types of support in the form of an HSD mentor and cohort reunions. Beyond that, the distinct “patterns of use” point to the need for consistent support in the learning process and the role that “history”—at the individual, site, and district levels—has on the implementation of innovations. Furthermore, these “patterns of use” highlight the apparent need for different amounts of support, or coupling, throughout the learning process. Finally, this study highlights professional educators who were able to take an inquiry stance within the constraints of the current neoliberal context. HSD methods/models not only helped...
target participants do this in leadership roles, but in roles across the various scales of the system.

Implications

In general, findings from this study, although limited in scope, highlight the experiences of educators who used complexity thinking, in the form of HSD methods/models, to work within a neoliberal context to support “deep learning” for all students. As such, this study has implications for those involved with organizational change, professional development, and teaching/learning in the classroom. More specifically, there are implications for those involved with HSDP training in schools and for future researchers.

Implications for Organizational Change

In this 21st century, educators realize the need for building a collaborative culture as one way to support “deep learning” for their students. First and foremost, findings from this study indicate the role that HSD methods/models have in working toward that collaborative culture and in shifting patterns within the system. Beyond this, HSD methods/models have the following characteristics. First, HSD methods/models are “scalable.” This means they help users at all scales in the system—classroom, site- and district-level, and even beyond, as indicated by the reports of home use. In other trainings, educators are asked to learn a set of tools or procedures that apply to only one context—for example, protocols for teaching comprehension. In this study, educators learned methods/models that helped them not only in their leadership roles but also in other avenues of their work and home lives. What makes this impressive is
that this was accomplished with one set of HSD methods/models. Second, HSD methods/models provide powerful options for action, providing ways to “see, understand, and influence the patterns” in complex human relationships (Patterson et al., 2013). This accomplished through the melding of theory and practice in both the HSDP training and in the methods/models themselves.

One caveat emerged from the findings that has implications for organizational change. That is, the influence of site- and district-level history, as part of the district’s “core narrative” may act as “negative” or “positive” feedback as participants seek to shift patterns across a district. More specifically, whether there is already coherence around common goals and a shared vision may impact whether and how HSD methods/models help move patterns “far from equilibrium” in the pursuit of deep learning.

Implications for Professional Development

Educators are busy people with a lot of demands on their time. This study highlights how important having the “right” amount of support is in the learning and implementation process of HSD methods/models. Of course, many of these findings make sense in other professional development offerings as well. Specifically, findings from this study point to implications for containers and exchanges as the amounts and types of supports for learning/implementation are considered.

Containers

One important finding from this study indicates the need for frequent and consistent support during the learning and implementation stages of HSD methods/models. This finding points to the need for multiple containers, or types of
support, as participants learn and implement HSD methods/models into their practice. Whether these containers are virtual or in person, whether they are weekly or bimonthly, whether they take the form of book clubs or other venues, the overriding principle is that the support is frequent. It is entirely possible that several types of support are offered so that participants at all levels of the district—district administration, site-level administration, and teachers/literacy coaches—have opportunities for frequent support. Important to note is that this support should be a priority and not an “additional thing” that participants are required to do.

Another container indicated is the need to be held accountable in some way for individual learning. This aspect can be built in to the other containers mentioned previously. Additionally, data suggests that target participants who identified a “sticky issue” were able to integrate HSD methods/models into the practice. While this relationship certainly is not causal, there might be an element of accountability, even at the person level, which aids participants in implementing methods/models into their practice when they have identified a “sticky issue” to work on.

Exchanges

Another implication for professional development highlighted by this study is the need individuals have for differing amounts of support during the learning and implementation stages of HSD methods/models. Some will need “tight-couples” or more frequent exchanges; others will be successful with “loose-couples” or less frequent exchanges. Target participants reported finding value in being able to share a common language with others regarding their work especially at their local sites. Thinking about the need by some for “tightly-coupled” exchanges, it makes sense that
one way for this to occur is to have more people at each site participate in the initial trainings. This is absolutely in line with Adelman and Taylor’s (2007) suggestion that during initial stages of implementation that there is a “critical mass” involved in the work.

Implications for Teaching/Learning

In another example of the “scalability” of HSD methods/models, this study suggests implications for teaching/learning at the classroom level, especially for educators in pursuit of helping support the development of the “deep thinking” and “deep learning” that are requisite in the development of 21st-century literacies. First and foremost, this study points to the applicability of HSD methods/models for use in planning instruction and making moment-by-moment instructional decisions. Teachers in this study reported using HSD methods/models in instructional planning, lesson delivery, and in-the-moment decision making—all of which points to ways in which these methods/models support the type of teaching/learning needed to create “deep thinking.” As teachers used methods/models to think about and plan instruction for students, they were able to tailor instruction to meet the needs of individual students—one of the key factors needed in improved student learning (e.g., Snow, Burns, & Griffin, 1998). In addition, teachers were able to take an inquiry stance that used data to inform decision making and instructional planning, actions in line with McLaughlin and Talbert’s (2003) analysis of successfully “reforming” districts.

This study also points to the applicability that HSD methods/models have for engaging students in “deep thinking.” By using methods/models to engage students in classroom issues and engagement with course material, teachers invited students to use the “deep thinking” that is required of 21st-century literacies. As Bomer et al. (2010)
point out, most relevant in the teaching of 21st-century literacies is the thought processes that underlie technological use and required practices, such as creating, analyzing, and critiquing. For example, Josh’s students’ involvement in considering What? So What? and Now What? had to analyze and reflect on the patterns they saw in order to determine what they meant and to come up with a plan of action. Rob’s inquiry units built around notions of truth, same/different, and the like also invite students to consider at deeper levels the concepts they are introduced to in social studies.

Inquiry models are ubiquitous on the education landscape. What makes HSD methods/models unique and important is their applicability at all scales of the system. They help set conditions for organizational change and for deep learning. Put simply, they offer a way to see, understand, and act in complex human systems (Patterson, et al., 2013). What is needed is more data on whether the use of HSD methods/models does indeed increase student achievement over time.

In short, this study has implications for organizational change and professional development as well as teaching/learning. First, structures need to exist so that learners across roles in the district are supported consistently in their learning and implementation of HSD methods/models. While this support might be different according to context, this support should be a priority for district administration. Next, HSD methods/models use should not be another layer in the accretion of innovations. Additionally, participants in HSDP training need to be accountable in some way for their learning and use of HSD methods/models. Finally, HSD methods/models have a significant role to play in classrooms as well.
Implications for Future Research

This content analysis using secondary data provided information on some of the What? regarding target participants’ use of HSD methods/models. Unfortunately, this type of study is not able to probe into the Why? and How? thereby pointing to several implications for future research. In the tradition of Lemke and Sabelli (2008), I provide several questions under each recommendation to “jump-start” the thinking around some of these implications. Lemke and Sabelli state in their chapter on complex systems and change that

much of this sketch [their chapter] . . . will be presented in the form of questions because we believe that the primary contribution that complex systems theory can make to such an enterprise right now is to guide what questions we ask and how we frame them in relation to one another and to prospective data sources. Questions matter: they are the seeds from which new theories grow, and like all seeds they carry forward the prior theories from which they come. (p. 114)

In this spirit, I offer the following “seeds” for future research.

First, there is a need for a primary study to be completed. The same research question could be kept-- What patterns did target participants report in their use of HSD methods/models?—but one participant from the different scales in the system could be studied in a case-study format. This type of study would use multiple interviews and observation as primary sources of information. One of the benefits of the case study approach is that contextual factors can be explored in more depth.

Second, there is a need for a longitudinal study. This study provided a glimpse at the change process as individuals and teams used HSD methods/models in their work across the school year. What is lacking is what this change looked like in a second (or later) year. Included in this type of study, one could ask: How are participants supported in their learning and implementation of HSD methods/models
across time? How long does it take for that “tipping point” to occur in which there is a shift of culture across the district?

Third, there is a need to delve deeper into the patterns that emerge as a result of HSD method/model applications to classrooms. For example, how can teachers use these methods/models to guide their own instructional decision making and instructional planning? How can HSD methods/models be used in the classroom to support “deep thinking” and “deep learning”? And what, if any, effect does the use of HSD methods/models in the pursuit of “deep learning have on student learning and achievement?

Answers to some of these questions can provide more information in how to support educators in various contexts in their use of HSD methods/models, not only in the training but also in the implementation and continued learning over time. Most importantly, answers to some of these questions can hopefully offer options for educators seeking to support “deep learning” within the current neoliberal context.

Summary

This study examined seven participants’ reports of their use of HSD methods/models in their work in schools across the 2011–2012 school year. Although the study is exploratory in nature, findings indicate that target participants displayed distinct patterns of HSD method/models use, there is broad applicability of HSD methods/models, the need for consistent support in learning and implementing HSD methods/models, and the influence of history and agency on the use of HSD methods/models. These findings have several implications for organizational change, professional development, and for teaching/learning, which include the applicability of
HSD methods/models in building collaborative cultures and in helping students develop the kinds of thinking required in the use of 21st-century literacies. Implications also indicate the need for focused, consistent support for learners as they implement HSD methods/models in their work.
APPENDIX A

CRITERIA FOR USE IN A SECONDARY ANALYSIS OF QUALITATIVE DATA
Criteria for determining general quality of primary study data set

(adapted from Heaton, 2004; Hinds et al., 1997)

Accessibility:

1. What data do you have access to?
   
   1. Interviews
      I have transcripts from fall and spring interviews; however, I only have audio recordings for fall interviews. Spring interview recordings were deleted by member of primary study team.

   2. Surveys
      I have copies of the survey questions and results, except as noted—I do not have the data from Associates-in-training survey #5; I do not have qualitative data from Agents-in-training survey #1 & #3

Meeting Notes

2. Can primary investigator(s) be consulted in necessary? Yes.

Quality of primary study:

1. What is the training/credentials of primary team members?
   All members of the HSDI and EF teams are trained as researchers; many of whom have their PhDs. Transcriptionists and external evaluators are professionally trained for their respective roles as well.

2. How complete is the data set?
   Documents that I have access to are complete. Missing data from set is noted above.

   Available document(s) are complete (i.e. no missing papers/tapes)

   Accuracy of transcription

   Accurately transcribed. Did not use “ums” and “you knows” but this does not interfere with analysis

3. What is the quality of interviews?
   Interviewing format allows responses of descriptive depth. Interviewers probe appropriately to also provide depth of answers. Clarity of topics is also discernible.
Criteria for determining fit of secondary research question (Suitability)

1. To what extent are the concepts of interest reflected in the data set?
3.
4. Concepts of interest are reflected in enough depth to be useful for analysis in this current study.

2. Is the type, and format, of the data compatible with current study?

5. Most of the information for this study comes from participants own words about their understanding of the HSD models and methods used in their training. Additionally, surveys and other data address climate of the district. All data available for use in this study are appropriate for the research questions asked.

3. Is the age of the data set appropriate?
6.
7. Yes, the data set is current.

Aggregate Impression:

Data accessibility, quality, and suitability are appropriate for use in this secondary analysis.
APPENDIX B

TOP 5 HSD METHODS AND MODELS REPORTEDLY USED
Adaptive Action Planning is an iterative planning process involving three questions.

1. **What?** – We gather pertinent data from across the environment to develop a picture of the underlying dynamics of our current status. What are the patterns we see and what do we know about their impact on the system?

2. **So What?** – We examine data to make sense of it. We come to understand what the “picture” of our current status means and begin to explore and plan next steps. We explore the impact of the system patterns on the whole, part, and greater whole; the conditions (CDE) that generated those patterns; and options for action that can shift the patterns to make the system more adaptable, more sustainable, more fit.

3. **Now What?** – We take action and then pause for a second check to measure our impact. By following up and asking where we are now and what is to be done next, we start the next cycle in the iterative process.

Progressing through the three steps to collect and analyze data that informs next steps becomes an ongoing cycle that can be carried out at all levels of the system. This sounds and looks much like the “Plan-Do-Check-Act”-type models that are used in a number of approaches to change. There are, however, fundamental differences that set Adaptive Action apart.

— It is assumed that the questions are based in the dynamics, examining patterns of decision making and interaction.
— Analysis of those patterns focuses on understanding the conditions that generate those patterns.
— Some options for action can emerge from decisions to amplify or damp current patterns by influencing environmental conditions.
— Other options for action can emerge from decisions to shape new patterns by shifting environmental conditions toward greater sustainability and fitness.
— This approach to planning is intended to be iterative or nonlinear, meaning the cycle never ends. Each “Now What?” returns to a new “What?” to launch a new cycle.
— This constant cycling through means it can happen as in the span of a heartbeat or across the arc or a longitudinal study.
— The constant cycling through also requires that we remain in a stance of inquiry, always watching and remaining open to what we can learn from the dynamics that swirl around us.

In a human system, long-range change can happen as individuals and groups use multiple and connected cycles of Adaptive Action to shape their own patterns of productivity and performance to support the overall, agreed-upon goals of the system. This shared direction and action is what we refer to as coherence in the system.

*information taken from http://wiki.hsdinstitue.org*
In HSD we consider the alignment among what we believe, how we work together, and the ways we support that work. This model is useful whether we need to explore new ways of working together and when we want to examine what currently exists. In building a home or office space, the purpose a room is to serve (its function) sets the parameters for the structures that create that space. Form (structure) follows purpose (function). There should be a similar alignment in organizations. Operational and functional structures and constructs that dictate the work should align with what we believe and how we function to live out those beliefs.

Complex systems require organizational structures that allow us to function in adaptive and responsive ways, according to the work we have to do and according to what we believe about the work we have to do. So we take the “Form follows function” saying to the next level: “Form follows function, which flows from what we believe to be important.” The model invites us to dialogue about the following questions:

1. **What do we believe about our work?** Beliefs can be tricky to talk about. Using this model does not call for extended word-smithing about flowery belief statements. It’s just asking us to get clear about the basic beliefs or assumptions we carry about our work. What do we believe or value about customer service? What do we know from research about what constitutes effective practice? What do we consider to be important about how we treat people and get our work done?

2. **How do we need to function to live out our beliefs?** Belief statements are only of value if they lead to action. So it’s important to move from the discussion of what we believe about our work to a discussion of what that means about how we function together to live out those beliefs. This is one reason we work with groups to identify their simple rules. Those are the brief, generalizable action statements that inform interactions and decision making to build coherent patterns across the whole.

3. **What organizational structures, constructs, and connections will allow us to function in those ways?** A functioning system is made up of different types of structures that work interdependently to as we do our work. When thinking about structures in a system, think about 1) the content of the work we do; 2) the ways we share resources and information; 3) how and by whom decisions get made; and 4) who is accountable for what and how we hold each other accountable.

Step into the Architectural Model; use it to examine the structures in your system. What alignment do you find? Where might you shift your current structures or establish new ones that help you function in ways that let you live out what you believe about the work you have committed to do.

information taken from http://wiki.hsdinstitute.org
The Eoyang CDE describes the three conditions that determine speed, direction, and path of a system as it self-organizes. These conditions shape and express options and interactions of agents as they self-organize. The conditions bind them together such that they will connect across the differences in the system and generate patterns of behavior and thought. Glenda Eoyang discovered these conditions in her research in organizations. They are elegantly simple in their brevity and power.

**Container** bounds the system until patterns can begin to form. The container forms the boundary between one system and another (see **Boundaries**). **Differences** represent significant diversities in the system, and are the points of emergence and change in a system. **Exchanges** allow for movement of information and other resources across a system and between the system and its environment (see **Designing Exchanges**). Because we understand the dynamics at work when these conditions shape the self-organization that generates patterns in a system, we can take informed action to shift the conditions and shape the emergence of new patterns.

**Containers** can be concrete realities in the system, such as the physical location or space. They can also be concepts and ideas that draw people together. Meeting agendas, for example, create a boundary that shapes the patterns of flow and productivity in the meeting. Short agendas force quicker decision making and less discussion. Longer agendas allow for greater exploration of the differences in a system. Smaller containers generally speed up the emergence of patterns, larger containers allow more richness in those patterns. Rock stars or powerful political leaders are “conceptual” containers in that people are drawn to and influenced by them. Political or social ideology are also conceptual containers. Finally there are psychological or affinity containers—age, gender, personal bias, shared history, family ties, or background—that serve to bind individuals into identifiable groups.

**Difference** in the system allows for change as the agents negotiate and accommodate the diversities that separate them. While a highly diverse system may have too many differences to count, the important shifts will happen around those differences that are most critical to the system’s overall functioning. For instance there may be 10 people in a training; each one a unique and special human being. If you tried to deal with all the differences inside that training container, you would not be able to name them, much less consider their impact on the whole. On the other hand, in that training session, the degree of skill, understanding and difference in role (teacher or student) will establish patterns of interaction that will dominate the learning session. Difference may be represented by the kind of diversity that’s present: leadership skills vs accounting skills; or it may be represented by degree of diversity: more or less experience in a given job. Increasing, decreasing, or introducing new differences will shift the conditions and change the emergent patterns in a system.

The third condition, **exchanges**, refers to how agents in a system connect among themselves and/or how it connects to the greater environment. Exchanges can be accomplished through typical, traditional human interaction; they can be the rules and regulations that inform decisions; resources such as money, goods, and time that represent value in a system; or what happens in the times we share, such as play, relationships, or work. Any of these provide connections that shape the patterns or our existence, and shifting exchanges will bring about change in the system.
We use this model to help us understand different perspectives in our work with individuals, groups, teams, and organizations. It describes 4 ways people see their “truth” in the world.

- **Objective Truth** is what exists and can be proved in this physicality.
  (A round ball of fire appears to cross the sky each day.)
- **Normative Truth** is what we, as a group, agree is true.
  (Our culture has agreed to use the word “day” to name that time when the sky is lit.)
- **Subjective Truth** is how the individual sees or experiences the world.
  (Today is a good day for me.)
- **Complex Truth** recognizes the validity of all those and chooses which one is most useful at any given time.
  (If today is a good day for MOM, then let’s take advantage of that and ask for ice cream for dinner.)

As a model, the 4 Truths represents the various perspectives or ways we claim truth. As a method, it becomes the basis for inquiry and questioning as individuals and groups seek to accomplish such tasks as
—identifying their similarities and differences,
—finding common ground for problem solving and decision making, and
—understanding others’ perspectives and actions.
Simple rules guide behaviors and interactions of members of a CAS. Whether by conscious agreement or by unspoken assent, members of a CAS appear to engage with each other according to a short list of simple rules. One group that we worked with has re-named the simple rules as “seed behaviors” to reflect their generative nature.

Simple rules establish the conditions that give rise to patterns in the system by shaping the conditions. These can be the covert agreements that emerge over time in a system, creating its culture. Often new leaders come into a system and state their intention to change the culture and “create a new world” for the workers, stakeholders, and customers. The problem is that unless intentional steps are taken to uncover and change the existing simple rules that hold those patterns in place, no amount of leadership command will change the system wide patterns. Simple rules can be used retrospectively to understand what shaped the conditions to generate whatever patterns are currently in the system.

On the other hand, simple rules can be used prospectively to shape a desired future. In HSD we believe that groups can identify patterns they want to generate and define simple rules that seem most likely to help them generate those patterns. What is critical in establishing system-wide patterns is that everyone has to use a shared set of simple rules at all levels of decision making and action. This requires a shared understanding of what the rules mean and agreements to use the rules to make decisions.

Effective simple rules:

- are few in number (never more than about 5-9),
- are general statements that apply in any situation,
- are always stated in the positive, and
- start with action verbs.

Simple rules are different from the norms we name for meetings and short-term interactions because they are intended to be more generally applied and not time bound. They are also different from values and beliefs because they are about action. They start with a verb, so they inform action.

information taken from http://wiki.hsdinstitue.org
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