AN ABSTRACT OF THE THESIS OF

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Joanne B. Engel

In education today, there is a growing sense of urgency to build the capacity of educators, parents, and community members to work together to solve the complex issues facing schools. The central purpose of this study was to explore how one elementary school site council learned and adopted a set of tools to improve its patterns of communication and ability to work as a team. The communication and inquiry tools introduced to this site council were drawn from learning organization theory and organizations which are seeking to become learning organizations.

A qualitative case study method was used in this research. The analysis focused on (a) how the communication and inquiry tools were used, (b) what results the communication and inquiry tools produced, and (c) the characteristics of the communication and inquiry tools.

Findings indicate that the tools increased the site council members’ individual and collective capacity to listen, engage, trust, and work effectively with each other. These aptitudes were developed through the use of the tools in six areas: (a) becoming aware of one’s own thinking, (b) making one’s thinking visible and transparent to others, (c) understanding the thinking of others, (d) seeing one’s interactions from a systems
perspective, (e) engaging in collaborative decision-making, and (f) capturing and
documenting learning. These aptitudes and activities increased the members’ awareness in
three capacity building dimensions: awareness of self, awareness of others, and awareness
of the system.

The communication and inquiry tools exhibited the following operational
characteristics: (a) they invite mindfulness and focus; (b) their potential comes from their
application and the emerging skills of the users; (c) initial competence in their use can be
gained from instruction, experimentation, ongoing practice, and reflection; (d) and they can
be used to harness collective intelligence.

The findings may have implications for schools and universities that seek to build
the capacity for educators, parents, and community members to engage in systemic school
reform initiatives.
Characteristics and Use of Inquiry and Communication Tools in Planning for Educational Change

by

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I understand that my thesis will become part of the permanent collection of Oregon State University libraries. My signature below authorizes release of my thesis to any reader upon request.

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Micah Fierstein, Author
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If I have seen further... it is by standing upon the shoulders of giants.

- Sir Isaac Newton

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# TABLE OF CONTENTS

## CHAPTER

### I  INTRODUCTION ................................................................. 1  
  Overview ................................................................. 1  
  Purpose of Study ......................................................... 1  
  Research Questions ...................................................... 2  
  Significance of the Study ............................................... 2  
  Rationale for the Study ................................................... 3  
  Methodology ............................................................ 7  
  Limitations of the Study ............................................... 9  
  Definitions of Terms .................................................... 10  
  Origins of Research .................................................... 11  
  Summary and Organization ............................................. 17  

### II  REVIEW OF THE LITERATURE .......................................... 18  
  The Knowledge Economy ................................................ 18  
    Transformation of Data to Knowledge ................................ 20  
    Tacit and Explicit Knowledge ...................................... 21  
    Paradoxes of Knowledge ............................................. 21  
  Newtonian and Quantum Science and Their Influence on Organizations ........................................... 24  
    Newtonian Organizations ............................................ 26  
    Quantum Paradigm .................................................... 27  
    Quantum Organizations ............................................. 28  
  Learning Organizations ................................................ 31  
    Definitions of Learning Organizations ............................ 32  
    Frameworks for Viewing Learning Organizations .................. 33  
    Assumptions Underlying Frameworks ............................... 38
### TABLE OF CONTENTS (Continued)

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adaptive and Generative Learning</td>
<td>39</td>
</tr>
<tr>
<td>Single-Loop, Double-Loop, and Deutero-Learning</td>
<td>39</td>
</tr>
<tr>
<td>Adaptive and Generative Learning</td>
<td>41</td>
</tr>
<tr>
<td>Getting Past Organizational Anxiety</td>
<td>42</td>
</tr>
<tr>
<td>Chapter Summary</td>
<td>46</td>
</tr>
<tr>
<td><strong>III METHODS</strong></td>
<td>49</td>
</tr>
<tr>
<td>Research Design</td>
<td>50</td>
</tr>
<tr>
<td>Validity and Reliability</td>
<td>51</td>
</tr>
<tr>
<td>Site Selection</td>
<td>53</td>
</tr>
<tr>
<td>Topic Relevance</td>
<td>53</td>
</tr>
<tr>
<td>Feasibility</td>
<td>54</td>
</tr>
<tr>
<td>Access</td>
<td>54</td>
</tr>
<tr>
<td>Site and Participants</td>
<td>54</td>
</tr>
<tr>
<td>The Researcher</td>
<td>55</td>
</tr>
<tr>
<td>Researcher’s Role</td>
<td>59</td>
</tr>
<tr>
<td>Data Collection Methods</td>
<td>60</td>
</tr>
<tr>
<td>Data Analysis</td>
<td>61</td>
</tr>
<tr>
<td>Summary</td>
<td>63</td>
</tr>
<tr>
<td><strong>IV FINDINGS AND CONCLUSIONS</strong></td>
<td>64</td>
</tr>
<tr>
<td>Section 1: Use of Tools by Site Council Members</td>
<td>65</td>
</tr>
<tr>
<td>Findings</td>
<td>66</td>
</tr>
<tr>
<td>Becoming Aware of One’s Own Thinking</td>
<td>66</td>
</tr>
<tr>
<td>Making One’s Thinking Visible and Transparent to Others</td>
<td>69</td>
</tr>
<tr>
<td>Understanding the Thinking of Others</td>
<td>70</td>
</tr>
<tr>
<td>Seeing One’s Interactions from a Systems Perspective</td>
<td>71</td>
</tr>
</tbody>
</table>
TABLE OF CONTENTS (Continued)

Engaging in Collaborative Decision-Making ........................................ 73
Capturing and Documenting Learning .............................................. 74

Section 2: Results Produced from Site Council Use of Communication
and Inquiry Tools ................................................................. 76
Listening ............................................................................... 76
Engagement .......................................................................... 78
Trust .................................................................................. 79
Efficacy ................................................................................ 80

Section 3: Characteristics of Communication and Inquiry Tools .......... 81
Capacity Building Dimensions ................................................... 81
Characteristics of Dimensions ................................................... 82
Relation of Capacity Building Dimensions to Previous Research
Findings ............................................................................... 83
Operational Characteristics of Communication and Inquiry Tools ... 87

Summary of Findings ............................................................... 88

V DISCUSSION AND RECOMMENDATIONS .................................. 92

The Perceived Strengths of the Tools ............................................. 97
Building a Foundation .............................................................. 97
Framing Cognitive Vocabulary .................................................. 98
Supplying Connectors .............................................................. 99
Using Problem-Solving Models ............................................... 100
Using Conduits ................................................................. 101

Transferability ................................................................. 102

Implications for Future Study ................................................. 102

Final Remarks ................................................................. 104
# TABLE OF CONTENTS (Continued)

<table>
<thead>
<tr>
<th>REFERENCES</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>REFERENCES</td>
<td>106</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>APPENDICES</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>APPENDICES</td>
<td>113</td>
</tr>
<tr>
<td>A Communication and Inquiry Tools</td>
<td>114</td>
</tr>
<tr>
<td>B Cumulative Learning Journal #1</td>
<td>136</td>
</tr>
<tr>
<td>C Cumulative Learning Journal #2</td>
<td>143</td>
</tr>
</tbody>
</table>
# LIST OF TABLES

<table>
<thead>
<tr>
<th>TABLE</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Newtonian and Quantum Systems Management and Leadership Terms</td>
</tr>
<tr>
<td>2</td>
<td>Newtonian and Quantum Systems Management and Leadership Characteristics</td>
</tr>
<tr>
<td>3</td>
<td>Communication and Inquiry Tools</td>
</tr>
<tr>
<td>4</td>
<td>Matrix: Relationship of Findings to Capacity Building Dimensions</td>
</tr>
<tr>
<td>5</td>
<td>Matrix: Relationship of Capacity Building Dimensions to Senge's Disciplines</td>
</tr>
<tr>
<td>6</td>
<td>Matrix: Relationship of Capacity Building Dimensions to Lipshitz and Popper's Shared Values</td>
</tr>
<tr>
<td>7</td>
<td>Matrix: Relationship of Capacity Building Dimensions to Nevis, DiBella, and Gould's Facilitating Factors</td>
</tr>
<tr>
<td>8</td>
<td>Matrix: Relationship of Capacity Building Dimensions to Watkins and Marsick's Action Imperatives</td>
</tr>
</tbody>
</table>
CHAPTER I

INTRODUCTION

Overview

This study examines how one elementary school site council learned and adopted a set of tools designed to improve patterns of communication and ability to work as a team. During a 19-month period, the site council was introduced to a selected set of communication and inquiry tools drawn from learning organization theory and organizations who are seeking to become learning organizations (see Appendix A). Council members learned the tools, practiced them, reflected on their practice, and then integrated these tools and the learning they generated into their planning and activities. The site council, made up of teachers, support personnel, the school principal, parents, and community members, sought the tools to increase their collective ability to work together as a team and lead school improvement activities.

Purpose of Study

This research had three interrelated purposes. The first was to understand how an elementary school site council used inquiry and communication tools to plan for school change. The second purpose was to investigate and understand the specific characteristics of these inquiry and communication tools. The third purpose was to stimulate research on and interest in using learning organizational tools with school systems.
Research Questions

The following questions guided this research:

1. How are these communication and inquiry tools being used?
2. What results has the use of these communication and inquiry tools produced?
3. What are the characteristics of the communication and inquiry tools introduced to the council?
4. What are the perceived strengths of the communication and inquiry tools?

Significance of the Study

Historically schools have served as the focal points in the debate about how to define the present and shape the future (Tyack & Cuban, 1995). Two critical questions in this debate are: How do organizations learn? and How can they accelerate their learning? (Senge, Kleiner, Roberts, Ross, & Smith, 1994; Stewart, 1997; Watkins & Marsick, 1993). A number of new tools which focus on creating, acquiring, and transferring knowledge are being introduced to organizations. These tools are not the physical tools associated with the industrial era, rather they are mental tools (frameworks or schemas) which focus on conceptual abilities, communication, and collective inquiry (Senge et al., 1994). The economics of supply and demand are placing these leading-edge tools almost exclusively within corporations. A study of these inquiry and communication tools with an elementary school site council will increase the understanding of the effects these tools have in a school setting.
Rationale for the Study

The study presented here is a response to a growing sense of urgency in education. This perception stems from a stream of criticism which condemns schools for failing to prepare students for demanding skills required for employment in the global economy. Among the 4th, 8th, and 12th graders who took the 1996 National Assessment of Educational Progress test in Science, 43% of the 12th graders, 39% of the 8th graders, and 33% of the 4th graders could not demonstrate the basic level of achievement which indicates partial mastery of prerequisite knowledge and skills (Lawton, 1997). A nationwide poll conducted by The Wall Street Journal and the National Broadcasting Corporation (Graham, 1997) reported that 25% of the respondents had taken a child out of an unsatisfactory school. The poll also reported that 58% of the respondents believe that "fundamental changes are needed in the way students are taught" (p. R6).


Though there was a growing consensus for the need for comprehensive school reform, the proposed solutions to meet this desired outcome took two different paths. One direction was "intensification" which took the form of top-down solutions generated at the
Such efforts include "increased definition of curriculum, mandated textbooks, standardized tests tightly aligned with curriculum, specification of teaching and administrative methods backed up by evaluation, and monitoring" (Fullan, 1991, p. 7). The other direction was "restructuring," focusing on school-based management. These efforts included:

- Enhanced roles for teachers in instruction and decision-making, integration of multiple innovations; restructured timetables, supporting collaborative work cultures; radical reorganization of teacher education; new roles such as mentors, coaches, and other teacher leadership arrangements. (Fullan, 1991, p. 7)

Studies examining the effect of intensification and restructuring show that many of these reforms fell short of the expectation of their supporters. Corbett and Wilson (1991) noted several unintended consequences of state-level reform initiatives, including moving attention away from more basic reforms and reduced teacher motivation. Taylor and Teddile's (1992, as cited in Fullan, 1993) study of 33 schools which examined the effectiveness of site-based restructuring programs altering governance procedures found no difference in teaching strategies and student learning in schools that participated in these programs and those that did not. In 1991, Easton examined the effectiveness of local school improvement plans mandated by the Chicago Reform Act of 1989. He reported that the majority of elementary teachers claimed that school reform had not changed their methods of instruction nor were they changed as a result of school improvement plans (as cited in Fullan, 1993). Odden and Marsh reported in their 1988 study that state leadership can have a positive impact on school reforms if it is coordinated with local districts and school development, the key variable being local district capacity (as cited in Fullan, 1993).

In summary, the research evaluating the reforms of intensification and restructuring reinforces the notion that change in schools is far more complex than first anticipated.
Fullan (1991) noted many of the current reform initiatives are systemic in their design. He defines these structures as being "more comprehensive both vertically (across classroom, school district, and state) and horizontally (incorporating more holistic elements of reform)" (Fullan, 1991, p. 16). A systems approach to school reform views assessment, curriculum and instruction, staff development, personnel selection and promotion, and state or district school actions as linked rather than separate elements (Fullan, 1993).

Hargreaves' (1997) research reinforced the importance of viewing school reform from a systems perspective. After his review of the literature on educational reform from the last decade (Berman & McLaughlin, 1997; Fullan, 1991, 1993; Fullan & Hargreaves 1996; Hargreaves, 1994; Hargreaves, Earl, & Ryan, 1996; Louis & Miles, 1990; McLaughlin, 1990; Miles & Huberman, 1984; Newmann & Wehlage, 1995; Rudduck, 1991; Sarason, 1990; Stoll & Fink 1996), Hargreaves (1997) cites the following reasons for educational change initiatives failing or faltering:

1. The reason for the change is poorly conceived or not clearly demonstrated. It is not obvious who will benefit and how. What the change will achieve for students is not spelled out.
2. The change is too broad and ambitious so that teachers have to work on too many fronts, or it is too limited and specific so that little change occurs at all.
3. The change is too fast for people to cope with, or too slow so they become either impatient or bored and move on to something else.
4. The change is poorly resourced or resources are withdrawn once the first phase of innovation is over. Often there is not enough money for materials or time for teachers to plan.
5. There is no long-term commitment to the change that will carry people through the anxiety, frustration, and despair of early experimentation and unavoidable setbacks.
6. Key staff members who can contribute to the change, or might be affected by it, are not committed. Conversely, key staff might become over involved as can administrative or innovative elite, from which other teachers feel excluded.
7. Parents oppose the change because they are kept at a distance from it. Professionals can collaborate enthusiastically, yet isolate themselves that they involve the community too little or too late, and
lose a vital form of support that successful schoolwide change depends.

8. Leaders are either too controlling, use ineffectual tools, or cash in on the early success of the innovation and then move on to higher things.

9. The change is pursued in isolation and gets undermined by other unchanged structures. . . . Conversely, the change may be poorly coordinated with and engulfed by a tidal wave of parallel changes that make it hard for teachers to focus their efforts. (p. viii)

Hargreaves' (1997) reasons for failure of change efforts in schools support Peter Senge's research on learning organizations (Senge, 1990a, 1990b; Senge et al., 1994).

The fourth, seventh, and ninth findings speak of systems problems: inadequate funding, premature withdrawal of resources, the lack of materials and financial resources to supporting planning, the distancing of parents from reforms, the undermining of change efforts by existing structures, and failure to deeply involve the community in change projects. The first finding speaks to the consequences of not understanding how our mental models influence how we understand the world and how we take action, our inability to conceptualize and explain the reason behind reforms and how these will effect students. The fifth and sixth findings note the consequences of not having a shared vision: lack of long-term commitment to the changes, inability to hold the anxiety associated with experimentation, and resentment triggered by reforms lead by isolated leaders. The second and third findings speak to problems associated with team learning: the difficulties of coordinating and implementing ambitious changes across disciplines and the challenges of working with divergent responses to the pace of changes. The eighth finding speaks to the challenges associated with lack of personal mastery: ineffectual leadership skills or the inability to understand how personal needs interact with institutional needs.

Hargreaves' (1997) findings challenge educators to gain skills to better understand how the parts of educational systems relate to the whole (systems thinking), how our internal
beliefs and assumptions (mental models) influence how "we understand the world and how we take action" (Senge, 1990a, p.6), how we can collectively learn together (team learning), and, how we can develop clarity in what is most important to us and master skills to achieve them (personal mastery).

This research examined the transfer of learning organizational tools created and used primarily in corporations to a school setting; it was fundamentally an exploration of a set of tools that seeks to develop the skills that Hargreaves's (1997) research challenges educators to develop.

Methodology

This qualitative case study examined the processes and outcomes of an elementary school site council’s attempt to improve its leadership capacity through the use of communication and inquiry tools. This change process was guided by the Change Institute of Portland, Oregon.

The Change Institute provides educators free training and coaching with learning organization tools developed by researchers, consultants, and corporations. Operating like a cooperative bank, the Change Institute lent the site council intellectual capital in the form of tools designed to build the capacity of its members to work together collectively. These tools are frameworks, theories, and exercises which seek to build relationships that foster inquiry and learning. Through a learning contract, the Change Institute lent this intellectual capital to the site council members, whose obligations were to suspend assumptions, engage in dialogue, practice the tools, and provide feedback on the effectiveness of the tools and the coaching process. The resultant increased understanding of the use, capacity, and applicability of this particular set of tools and strategies represented repayment of the loan.
The intellectual assets of the Change Institute will continue to grow over time through the execution of other learning contracts, as well as through the donation of additional tools by corporations, universities, consultants, and educators.

I began my work with the elementary school site council in the capacity of founder, director, and learning coach of the Change Institute. During the first phase of the work, I was an active participant, engaging in a preliminary discussion with the school principal about the Change Institute, meeting with the site council to discuss the operational premises of the institute, and demonstrating one communication tool, dialogue. After approving their application to become a project site, I taught communication and inquiry tools to the site council members, coaching and guiding their use, and facilitating dialogues among the members.

I met with the site council 23 times over a 19-month period. During these 2-hour sessions, I facilitated group meetings, introduced one or two communication or inquiry tools through interactive exercises, provided feedback to the site council about their application of the tools, and/or observed their use of the tools. After each tool was introduced, the participants chose an area of interest and practiced using that tool in their work or personal contexts. They also were asked to analyze the application of the tools and to articulate any insights gained about themselves and others by their use.

It was near the end of the instructional phase of my work with the site council that I decided to use this experience as the focus of my dissertation. A qualitative study would provide a deeper understanding of the use of communication and inquiry tools not yet attempted. In the second phase of this project, I became a researcher, observing how the tools were used by site council members. This phase began in month 15 and lasted until its conclusion.
A qualitative study is the preferred strategy when a contemporary phenomenon is studied in a real-life context (Yin, 1989). Robert Stake (1995) noted that a qualitative case study design provides the researcher with the opportunity to examine both complexity and contextuality of the subject. Maxwell (1996) also stressed the ability of qualitative research to "generate data rich in detail embedded in context" (p. 127). Yin (1989) noted that a qualitative case is the most appropriate method for a researcher who seeks to understand the complexity of organizational phenomena, allowing the researcher to deal with a variety of evidence, documents, interviews, and observations. Borg and Gall (1989) also noted that qualitative research is recognized as an effective means of studying a new phenomena.

Limitations of the Study

Although the qualitative research design was chosen for this study because it best correlated to the nature of the research question, there are inherent limitations to this approach. The first limitation is that it will be difficult to generalize the findings of this study to other schools or educational settings. The difficulty in generalizing findings is an inherent limitation to case studies. Yin (1989) notes that research case studies are like experiments that "generalize to theoretical positions and not to populations or universes" (p. 21). Even with this limitation, case studies have a history of making important contributions to research in the field of education (Stake, 1995).

The second limitation is that the methods of data collection may introduce bias. In qualitative research, the researcher becomes the "instrument" who "collects, sorts, analyzes, and interprets" the data (Winograd, 1990, p. 12). The reliability of the data collected depends on the knowledge and skill of the researcher (Stake, 1995). Measures have been
taken to reduce the possibility of researcher introduced bias; these are discussed in Chapter III.

The third limitation concerns the choice of tools utilized in this study. The researcher recognizes that had a different combination of tools been chosen the results may have been different.

Definitions of Terms

Learning organization. An organization that is continually expanding its capacity to create its future (Senge, 1990a). An organization that "creates continuous learning, promotes inquiry and dialogue, encourages collaboration and team building, establishes systems to capture learning, empowers people toward a collective vision, [and] connects the organization to its environment (Watkins & Marsick, 1993, p. 11).

Mental models. The deeply held beliefs, assumptions, images, or pictures that shape how we understand the world and how we take action (Senge, 1990a).

Paradigm. A conceptual framework of concepts, values, and techniques shared by a community and used by that community to define problems and solutions (Capra, 1996; Kuhn, 1962).

Paradigm shift. A fundamental change in the conceptual framework of how one sees and interprets the world (Capra, 1996).

Personal mastery. The ability to continually clarify and deepen our personal vision of what is really important to us. It requires self-discipline, awareness, and patience to develop the skill needed to move one's personal vision into reality (Senge, 1990a).
Shared vision. The process of creating a collective understanding of what is important to a group of individuals and making a collective commitment to work toward that vision (Senge, 1990a).

Systems thinking. "A way of thinking about, and a language for describing and understanding, the forces and interrelationships that shape the behavior of systems" (Sears, 1998).

Team learning. The ability to suspend individual assumptions, think collectively, and harvest the collective intelligence of the group (Senge, 1990a).

Origins of Research

This research is fundamentally an extension and application of Peter Senge's theory on Learning Organizations (Senge, 1990a, 1990b; Senge et al., 1994). This research resulted from the intersection of four events which led to the creation of the Change Institute and the development of the learning contract with an elementary site council which is the subject of this study. The first event was the passage of Oregon Educational Act of the 21st Century in 1991. This legislation called for:

Dramatically raising student performance standards, enriching classroom learning, overhauling curriculum and instruction, using the community as a learning resource, and forging new working partnerships between schools and communities. (School Transformation Advisory Council Implementation Team, 1997, p. 1)

One of the fundamental premises behind this legislation was the recognition that the current educational system was "forged in another era to fit an agrarian calendar and the employment needs of mass production industry" (School Transformation Advisory Council Implementation Team, 1997, p. 4). Sheer maintenance of the current education system was not sufficient.
The shortage of skilled workers is impairing Oregon’s economic competitiveness by restricting productive capacity and increasing the cost of remedial training. Individuals who lack education and skills are vulnerable to lower income, higher unemployment, and more limited prospects in life. These, in turn, impair family and community stability. None of these outcomes is acceptable. (School Transformation Advisory Council Implementation Team, 1997, p. 4)

The lawmakers believed that Oregon could not keep up with the skills needed in this new knowledge economy unless the educational systems changed dramatically. This legislation challenged students, parents, educators, administrators, school boards, and the community to think differently about education and apply this new thinking to build new academic and career-related standards, design and create new curriculum, align instructional practices to these new standards, and create assessments to test progress toward these goals (School Transformation Advisory Council Implementation Team, 1997).

Moving from the broad goals delineated in the legislation to application would require a shift in behaviors and attitudes among students, parents, teachers, administrators, superintendents, school board members, businesses, and community members. I believe that the unresolved and overlooked question surrounding this legislation is which sets of skills these stakeholders would need to meet the time line for implementation.

The second event that influenced this research was my reading The Fifth Discipline (Senge, 1990a) and hearing Peter Senge speak at a seminar sponsored by Intel. I was intrigued by the connections I saw between his research and the challenges, tensions, paradoxes, and opportunities that I and other educators were facing with the passage of Oregon’s Educational Act for the 21st Century. I believed this research on learning organizations offered a fresh perspective that could benefit Oregon’s schools, and educational systems in general.
The first part of the Senge (1990a) theory that had immediate relevancy for me was the assertion that the capacity of an organization to learn, to be a learning organization, is a critical competency for their survival in the knowledge era. Senge (1990a) defined a learning organization as "an organization that is continually expanding its capacity to create the future" (p. 13). He observed that as the world is becoming more interconnected, complex, and dynamic, the management model of leaders on top of the organization being responsible for solving problems is no longer feasible or appropriate (Senge, 1990a). The expectations connected to Oregon’s Education Act of the 21st Century would require schools at the local level to accelerate their capacity to implement new processes and programs. Insights into how to build the capacity of organizations to collectively ask questions, generate ideas, test solutions and reflect on their actions would have direct applicability to the challenges Oregon schools and school districts will face in implementing new educational standards.

A second area of relevancy to education was Senge’s (1990a) notion that one of the criteria for assessing the health of organizations is their ability to examine existing assumptions and incorporate new behaviors and perspectives. Oregon’s education reform would require a shift in behaviors and attitudes among the students, parents, teachers, administrators, superintendents, school board members, businesses, and community members. Senge’s (1990a) framing organization learning as the ability to examine existing assumptions seemed to me a profound way to engage in conversations about the implications of the recently enacted school reform legislation at the school, district, or community level. What assumptions do we hold about education? What assumptions are embedded in the school reform legislation? Collective conversation at this deeper level is rare but critical if the large scale change envisioned by the legislation would occur.
The third area of relevancy of Senge’s (1990a) theory is his identification of five disciplines (skill sets) that promote organizational learning: personal mastery, mental models, shared vision, systems thinking, and team learning.

- Personal Mastery: Developing the capacity to clarify what is most important to us, and mastering the ability to achieve it.
- Mental Modeling: Developing capacity to reflect on our internal pictures of the world to see how they shape our actions.
- Shared Visioning: Building a sense of commitment in a group, based on what people want to create.
- Systems Thinking: Developing the capacity for putting pieces together and seeing the wholes. (Innovation Associates, Inc., 1995, pp. 2-6)
- Team Learning: Developing the capacity for collective intelligence.

These five disciplines and the cognitive tools referenced in his research provided a framework to begin transforming theory into action. These disciplines became a framework for me to reflect on the following questions:

1. Was the Junior High, in which I was working, a learning organization?
2. Did the students, teachers, parents, and administrators hold a shared vision?
3. In my role as Assistant Principal, do I think systemically?
4. What might be the consequences if our school had a shared vision or if I looked for underlying causes rather than focusing on symptoms of problems?

Senge’s (1990a) disciplines seemed to have the potential to act as a filter for self-reflection and a template for professional development.

The fourth area of relevancy to education was Senge’s (1990a) emphasis of generative learning and the importance it plays in learning organizations. Adaptive learning denotes the ability of the individual or organization to respond or adapt to changing environments. Generative learning requires the organizations to use feedback and continuous experimentation to challenge goals, norms, and assumptions. The distinction
between adaptive learning and generative learning is significant because adaptive learning is about coping, while generative learning is about creating (Senge, 1990b). The scale and scope of the changes required by the education system envisioned by Oregon’s school reform legislation would require generative learning. New curriculums, new assessments, and new relationships between secondary and post-secondary education would need to be created. Senge’s (1990a) thoughts about how to encourage generative learning in organizations seemed very relevant to the challenges that faced educators.

The third event that provided the underpinning of this research was my participation in the redesign of a junior high school. Using the recent passage of the Oregon Educational Act of the 21st Century as a leverage point with our superintendent and school board, the principal and I facilitated the design of a school structure which created four learning communities, each pairing teacher teams with groups of 100 students. The schedule permitted each of the teams to meet daily with a designated time for planning. The critical question that I pondered was: What skills would teachers need to maximize this planning time and did they have those skills? Upon reflection, it was apparent that both teachers and administrators needed a new set of tools. I began to research processes used by high-performance work teams in the business world. Working with a consultant, I began to modify and teach these tools to the teacher teams. As a consequence, the teams became more focused and productive in meeting the emotional, social, and intellectual needs of the students.

Reading about how large scale changes were being instituted at General Electric Corporation was the fourth event (Stewart, 1991). Their program, called "Work Out," focused on breaking hierarchical barriers to solicit, hear, and act on ideas for improving the company, based on input from employees (Tichy & Sherman, 1993). Work Out’s design
and operational principals were conceived at Crontonville, General Electric's corporate management training center. Crontonville is a virtual university, operating with a small staff who contract with professors and consultants from around the world to design and teach courses to General Electric employees. Crontonville's mission is to build quality leadership empowering talented people to excel (General Electric Crontonville, 1991).

The adoption of a systemic school reform plan in Oregon, my exposure to Peter Senge's (1990a) theory on learning organizations, the successful transfer and use of business tools by teacher teams at the junior high school where I worked, and my awareness of Crontonville, a depository of expertise, tools and processes targeted towards implementing large scale change initiatives became the genesis of the plan to create the Change Institute, a program which gives educators free training and coaching with learning organization tools.

Ultimately, through a series of conversations and meetings which took place over several months, General Electric became the first organization to lend their sponsorship to the Change Institute, granting free access to tools and curriculums valued at half a million dollars. The Massachusetts Institute of Technology Center for Organizational Learning lent its support by providing me a scholarship to attend its core course on learning organizations taught by Peter Senge, Bill Isaacs, and Daniel Kim.

In October 1994, 38 months after the concept was envisioned, Portland General Electric agreed to fund a pilot project establishing four learning contracts with schools. The success of these contracts encouraged them to become the major sponsor of the Change Institute. The focus of this research is in-depth study of one learning contract.
Summary and Organization

This study examines how one elementary school site council used inquiry and communication tools in planning for educational change. Chapter II reviews the literature related to the research questions. Chapter III describes the methodology used in this research. Chapter IV presents the findings. Chapter V discusses the findings, and identifies and discusses implications and recommendations for further research.
CHAPTER II

REVIEW OF THE LITERATURE

Every few hundred years throughout Western history, a sharp transformation has occurred. In a matter of decades, society altogether rearranges itself - its world view, its basic values, its social and political structures, its arts, its key institutions. Fifty years later a new world exists.

. . . Our age is such a period of transformation. Only this time transformation is not confined to Western society and Western history. (Drucker as cited in Howard, 1993, p. 3)

This chapter, a selected review of the literature, is divided into four sections. The first section examines the knowledge economy, the forces behind it, and the paradoxes that accompany it. The second section examines how scientific thought and discovery influence how we see and interact with the world. The third section examines the notion of learning organizations, an emerging concept which responds to the question of how we build an organization that sustains the nonstop learning required by the knowledge economy and the quantum paradigm. The fourth section examines generative or double loop learning, a type of learning congruent with the challenges and needs of learning organizations, and the quantum paradigm.

The Knowledge Economy

We are living in a time of profound change when the world economy is creating shifts in how organizations provide value for their members, stakeholders, employees, customers, suppliers, shareholders, and owners. (Belasco, 1990; Gorey & Dobat, 1996; Peters, 1992). Beckhard and Pritchard (1992) observe that "basic institutions of society and
the relationships between them are being reevaluated and redesigned" (p. 93). Handy (1995) observes that change is becoming increasingly discontinuous and that such change results in unintended consequences. Toffler (1991), Savage (1996), Drucker (1992), and Nesbitt (1992), note that today's turbulence is a result of tremors from our shift from the Industrial Era to the Knowledge Era.

Savage's (1996) research provides a valuable framework for understanding how the shifting economic base has influenced our organizational structures, their foci, and the tools we have created to assist us in our work. In the Agricultural Era, the main sources for wealth creation were land and labor. Organizations were primarily designed around the production, movement, and storage of agricultural products. Many of the tools that were created (i.e., farming implements) focused on the interaction of land and labor.

In the Industrial Era, a new engine of wealth creation was added: capital (Savage, 1996). Capital was used to finance the construction of factories, the purchase of equipment, and investment in research and development. Much of the tool development focused on the interaction between capital and its relationship to land and labor. "Hierarchical structures, financial markets, production techniques (such as mass production), and scientific management philosophies were created to maximize the return on invested capital" (Gory & Dobat, 1996, p. 2). Though land and labor were important, capital became the most influential engine of wealth creation during this era (Gory & Dobat, 1996; Savage, 1996).

In the Knowledge Era, the traditional engines of commerce, capital, land, and labor are being eclipsed by intellect (Gory & Dobat, 1996). Knowledge is becoming the dominant force (Drucker, 1993a, 1993b; Leonard-Barton, 1995). Savage (1996) has identified six forms of knowledge creation:
Know-how – procedures that get things done
Know-who – key resources to call upon
Know-what – the ability to discern key patterns based on knowledge
Know-why – understanding the larger context, the vision
Know-where – where things can and should happen
Know-when – a sense of rhythm, timing, and realism (p. 256)

The tools being developed in the knowledge era focus on cognitive frameworks, schemas, and models which explore how individuals and teams build meaning, communicate that meaning to others, create a shared vision, and then engage in actions to move toward their visions (Innovation Associates, Inc., 1995; Interaction Associates, 1995; Senge, 1990a; Senge et al., 1994).

Transformation of Data to Knowledge

Data are a set of discrete, objective facts – numbers, words, sounds, or images (Davenport & Prusak, 1998; Davis & Botkin, 1994). Data have no value until they are "processed, stored, or manipulated" (Davis & Botkin, 1994, p. 166). Information is data that has been rearranged into meaningful patterns (Davis & Botkin, 1994). Peter Drucker once described information as "data endowed with relevance and purpose" (as cited in Davenport & Prusak, 1998, p. 2).

Knowledge is the application and productive use of information (Davenport & Prusak, 1998). "It originates and is applied in the minds of knowers" (p. 5). Davenport and Prusak (1998) define it as "a fluid mix of framed experience, values, contextual information, and expert insights that provides a framework for evaluating and incorporating new experiences and information" (p. 3). Knowledge is never neat or simple (Davenport & Prusak, 1998).
Tacit and Explicit Knowledge

Knowledge creating companies possess two different types of knowledge: explicit and tacit (Nonaka, 1991; Nonaka & Takeuchi, 1995). Explicit knowledge is visible, easily articulated, and codifiable and, communicated to others (Gorey & Dobat, 1996; Nonaka, 1991). It is formal and systematic. Tacit knowledge is highly personal, hard to formalize, and difficult to communicate (Nonaka & Takeuchi, 1995). Often craftsmen possess tacit knowledge at their fingertips. Craftsmen and others often act on knowledge but cannot communicate the reasons or principals behind their actions (Nonaka, 1991). Nonaka and Takeuchi’s (1995) research highlights the importance of being conscience of visible knowledge as well as knowledge that is below the surface.

Paradoxes of Knowledge

Knowledge is a slippery substance, difficult to track and hard to hold on to (Stewart, 1997). The value of knowledge is dependent on the value given to it by the receiver; one person may view as worthless information what another deems invaluable (Stewart, 1997). Knowledge can be shared yet the person giving it away still possesses it (Handy, 1994; Stewart, 1997); it is more about capability than possession, thus its very nature creates paradoxes. The origins of these paradoxes are the shift to a new economic model:

The Industrial Era gave us an economy of scarcity, where we had to protect and control. The Knowledge Era is providing a platform to create the economy of abundance, based on non-scarce ideas, which through dynamic collaboration, can grow into inspirational arteries which nurturer even more creativity. (Burrus, 1996, p. 286)

The capacity of knowledge to create a platform of abundance changes everything, not only the rules of the game but the game itself (Bennis & Biederman, 1997).

The paradox of ownership. Knowledge has multiple owners. Stewart (1997) cites the following example. Fortune magazine holds the copyright to articles it publishes. The
authors who write the articles own the knowledge held in their stories. The readers also own the knowledge they gain from reading the articles. Handy (1994) observes that it is impossible to redistribute knowledge, but it is also impossible to stop people from getting it.

The paradox of organizational governance. Stewart (1997) observes, "the industrial worker, unlike the craftsman or the farmer, no longer owned the tools of his trade or the product of his labor" (p. 105). Today, knowledge workers carry the tools of their trade and the results of their labor between their ears. Ownership of intellectual capital cannot be mandated, rather it has to be voluntary (Stewart, 1997). Conversations about how to create community and belonging are occurring in boardrooms. The practice of providing stock options and/or stock to all employees is increasing. Microsoft's actions exemplify this trend (Stewart, 1997). Most companies become a publicly traded company to raise money; Microsoft's incorporation was a vehicle to share ownership with its most valuable assets, the people who write the code for its software. "Ownership of Microsoft is split roughly fifty-fifty between people who invested financial capital (the company's outside shareholders) and people who invested human capital (employees and founders)" (Stewart, 1997, p. 110.).

The paradox of seeing. Knowledge is easily hidden. Some would argue that the knowledge age has not arrived, asking: Where is it? Why can't I see it? Stewart's (1997) research refutes that argument and highlights how integral knowledge has become to our economy. Knowledge is embedded in all products. The cost of a car's electronics is greater that the cost of its steel. More than half the cost of finding and extracting oil is attributable to information costs. Of the five dollars it costs Levi Strauss to make a pair of jeans, about one dollar goes to materials and labor, the rest to information. Farmers using high-yielding
grain produce five times more per acre than they did in the 1920s; thus one could argue that
cost of an ear of corn is 80% knowledge. Stewart (1997) calls today's economy, "the
economy of the intangible" (p. 5).

The paradox of knowledge acceleration. Knowledge accelerates the discovery of new knowledge. This reinforcing and accelerating pattern of knowledge discovery can increase value and innovation while at the same time decreasing costs and use of raw materials. The computer industry illustrates this concept. Stewart (1997) reports the original IBM personal computer introduced in 1981 weighed 44.3 pounds and had a user memory of 15 kilobytes. A Macintosh Powerbook computer purchased 14 years later, in 1995, weighed 6.2 pounds with a data processing capacity 500 times greater than its predecessor. The ratio of information to materials increased 3500-fold (Stewart, 1997). The application of knowledge acceleration has caused the cost of computing to decrease 10 million-fold since 1971 (Gates, 1998). To put that in perspective, Gates (1998) compares this to "the equivalent of getting a Boeing 747 for the price of a pizza" (p. B1).

The capacity of knowledge to accelerate the creation of new knowledge increases change and institutionalizes uncertainty (Argyris & Schon, 1978; Drucker, 1993a; Handy, 1994; Stewart, 1997). Organizations that cannot develop the capacity to function with uncertainty and the changes it triggers threaten their own survival. Stewart (1997) reports that two-thirds of United States companies listed in the 1954 Fortune 500 disappeared from the list by 1994. DeGues (1997) cites a study by Ellen de Rooij which notes the average life expectancy of firms in Japan and in much of Europe is 12.5 years, regardless of their size. The institutionalization of uncertainty resulting from the acceleration of knowledge may be why Handy (1990) describes the Knowledge Age as the "age of unreason" and Bergquist (1993) describes it as the "age of edginess."
The paradox of boundryness and increasing meaning. Zohar (1997) states that "the wider the context in which knowledge operates the more meaning it takes on and the more leverage it affords" (p. 54). Prahal and Hamel's (1990) research in core competencies also reinforces this notion that knowledge is not limiting but generative. "Unlike physical assets, competencies do not deteriorate as they are applied and shared. They grow" (p. 82.).

The telecommunication industry highlights the capacity of knowledge to enlarge its meaning as its context grows. The increasing capacity of communication networks has dramatically reduced the cost of communication (Malone, 1997). "Distance will no longer determine the cost of communicating electronically" (Cairncross, 1997, p. xi). Cairncross articulates how this shift is redefining the rules of commerce. Location is no longer as critical to making business decisions. Small companies are offering the same services as larger companies because new ideas can attract global capital. Communities of practice are being fostered because individuals with shared passions can cheaply communicate with each other around the world. Markets are being established with less friction. With customers and organizations having access or accurate price information, there can be a decreasing need for intermediates or middlemen. Networks are increasing individuals’ access to information and their ability to communicate their thoughts and ideas to government leaders and representatives.

Newtonian and Quantum Science and Their Influence on Organizations

Organizational theory is based on a culture’s answer to questions about the self. The success or failure of organizational practice depends upon how closely these answers fit the reality. If we think people are constituted in a certain way, we will create law, expectations and organizational structure accordingly. If people are not in fact like our concept of them, the structures may well fail. (Zohar, 1997, p. 96).
Reality is constructed by personal paradigms made up of beliefs, values, assumptions, and expectations of how we operate in the world and how the world itself operates (Roger & Tough, 1992). During this century, there has been a shift in our understanding of how the world operates. We have moved from a Newtonian perspective to a Quantum perspective. The Newtonian paradigm sees the world with a beliefs, values, and grounded in the discoveries in physics, astronomy, and mathematics by Copernicus, Galileo, Descartes, Bacon and Newton (Capra, 1996). The Newtonian paradigm sees nature as "law abiding, simple and ultimately controllable" (Zohar, 1997, p. 43).

The new sciences of relativity, quantum mechanics, chaos theory, and complexity theory have introduced new levels of complexity to our understanding of how the world works (Zohar, 1997). Relativity examines the relationships between distance and speed. Quantum mechanics looks at the operations that occur with the atom. Chaos theory and complexity theory apply to systems and how components of the systems organize themselves (Zohar, 1997). All four of these new sciences share a paradigm of the world that breaks the rules of the past. This paradigm views nature as "complex, chaotic, and uncertain" (Zohar, 1997, p. 43).

The viewpoints represent by the Newtonian and Quantum perspective are dramatically different. Capra (1996) describes the tension between these two paradigms as the tension between the parts and the whole: the Newtonian paradigm emphasizes an understanding of the parts; its focus is mechanistic, reductionist, and atomistic (Zohar, 1997). The Quantum perspective emphasizes the whole and the relationships among parts; its focus is holistic, organic, ecological, and systemic (Capra, 1996; Wheatley, 1994; Zohar, 1997).
Newtonian Organizations

Paradigms function as lenses and dramatically influence what we see and create in the world (Kuhn, 1962). All paradigms bring with them values that are associated with their distinct perspectives. These values then shape the creation of organization structures and the behaviors within those organizations. Zohar (1997) reports that the Newtonian focus on understanding the world through the understanding of parts is closely related to the atomistic philosophy of the Greeks. The Greeks believed that matter could be broken down into its smallest parts—elements they identified as earth, air, fire and water. Newtonian physics kept the idea of atoms, and linked atoms to forces of action and reaction. Actions in the universe could therefore be determined through a set of universal laws. Certainty, predictability, and control were possible. Emphasis on parts fostered fragmentation.

These values deeply influenced the development of western management philosophy. Zohar (1997) observes that:

We live largely in a world of Newtonian organizations. These are organizations that thrive on certainty and predictability. They are hierarchical; power emanates from the top, and control is vital at every level. . . . They are heavily bureaucratic and rule-bound, and hence inflexible. They stress the single point of view, the one best way forward. They are managed as though the part organizes the whole. (p. 5)

Frederick Taylor's scientific management theory grew from the mechanist perspective embodied in the Newtonian paradigm (Huse, 1985; Zohar, 1997). The reductionist way of thinking was prevalent in Taylor's time, exemplified in motion studies of workers in the 1920s. Taylor concluded from his studies that efficiency was linked to specialization of work; repetition of an activity with little or no variety, setting definite tasks each day, removal of discretion (Huse, 1985). Bureaucracy theory, articulated by Max
Weber, championed the benefits of hierarchical relationships, the need for a clear set of rules and procedures, and the belief that technical competence should be the basis for promotion (Huse, 1985).

Quantum Paradigm

The quantum paradigm reflects a different view of the world. Zohar’s (1997) research identifies eight principles central to this paradigm. These are (a) holism, (b) indeterminate, (c) self-organization, (d) both-and, (e) Heisenberg’s uncertainty principle, (f) potentiality, (g) participatory universe, and (h) quantum vacuum.

Holism. Quantum physics teaches us that the world is not made up of separated solid things, but rather of dynamic patterns of energy (Zohar, 1997). Each of the these dynamic patterns of energy, labeled "quantum bits," has both a particle-like aspect and a wave-like aspect. The unique condition of the wave-like aspect is that "future possibilities are even the future identity . . . are internally bound up with the possibilities of and identities of all others" (Zohar, 1997, p. 46). The quantum organizations are ones that emphasize relations and integration.

Indeterminate. Quantum physics is utterly indeterminate. Quantum bits appear and disappear mysteriously. They have no "fully fixed identity until they are in relationship" (Zohar, 1997, p. 50). Quantum systems "maximize flexibility and define themselves as they go along (Zohar, 1997, p. 50).

Self-organization. Because quantum bits have the capacity to behave like particles and like waves, their system properties emerge or self-organize within the context in which they operate (Wheatley, 1994; Zohar, 1997).
Both-and. Quantum systems are nonlinear. They hold paradoxes and do not demand either-or choice points. Quantum bits hold two different characteristics at the same time: particle-like and wave-like. Two distinct capabilities exist together in the same moment. In linear systems, "larger efforts require a large cause" (Zohar, 1997, p. 58). In quantum systems, "no disturbance is so small that it can be safely overlooked" (Zohar, 1997, p. 58).

Heisenberg's uncertainty principle. This principle acknowledges the impossibility for "observers to separate themselves from what they observe" (Zohar, 1997, p. 68). We are partners of an evolving reality (Wheatley, 1994; Zohar, 1997).

Potentiality. In quantum systems, the potentiality is linked to the relationships which represent unfolding possibilities (Wheatley, 1994; Zohar, 1997).

Participatory universe. Because "it is impossible for observers to distance themselves from what they observe... [they] are codified parts of the same holistic system" (Zohar, 1997, p. 68). Individuals play a "cocreative role" in the world (Zohar, 1997, p. 68).

Quantum vacuum. The Newtonian sciences see the universe as empty space between visible objects. Quantum scientists see the universe as, "a vast pool of seething potentiality and interwoven pattern of dynamic energies" (Zohar, 1997, p. 70).

Quantum Organizations

Just as the Newtonian paradigm deeply influenced the shape of organizations, the Quantum paradigm is doing the same today (Zohar, 1997).

Holism. Many organizations are reducing layers of control and emphasizing integration and collaboration between departments and individuals (Malone, 1997; Moore, 1996).
Self-organization. Teams are being constituted within organizations to pursue specific goals. Often these teams retain the responsibility to organize themselves in the way they feel will maximize their effectiveness (Bennis & Biederman, 1997; Katzenbach, 1994).

Both-and. Thinking organizations are identifying core competencies and using them to cross boundaries to enter new markets (Hamel, 1996; Prahalad & Hamel, 1990). The structure and beliefs connected to supervision are being revamped to include 360 degree evaluations (Atwater & Waldman, 1998). The lines of demarcation between owners and employees is becoming blurred with employees becoming owners through stock options (Stewart, 1997).

Heisenberg uncertainty principle. Organizations are having conversations about strategic innovation, seeking to unlock their existing assumptions so they can reconceptualize what their business is about. Such conversation can lead to dramatically different ways of operating (Markides, 1997, 1998).

Potentiality. There is an increasing interest in understanding and maximizing intellectual capital, the unfolding possibilities that reside within people (Stewart, 1997).

Participatory universe. Organizations are investing in technology that connects members together internally and externally. Data bases and processing power are becoming more distributed (Benjamin & Blunt, 1992). Boundaries between competitor, supplier, and consumer are blurring (Davis & Meyer, 1998; Moore, 1996; Tichy & Sherman, 1993). Organizations are actively seeking to enlist employees as significant contributors in addressing new challenges (Browne, 1997; Pascale, Millemann, & Gioja, 1997).

Quantum vacuum. Organizations are seeing the world with fresh eyes. The distance between activities or objects once considered empty space is being redefined as potentiality.
National and cultural boundaries that were once seen as hindrances to mergers or alliances are no longer perceived as limitations (White, 1998). Cities are transforming abandoned railroad right-of-ways into bicycle paths. William's Corporation, a natural gas company, is laying fiber optics alongside its gas pipelines for a telecommunication network.

In summary, the Newtonian and Quantum paradigms represent two distinct ways of seeing the world. Newtonian sciences treat matter in isolation as part of a closed system (Olsen, 1994; Wheatley, 1994; Zohar, 1997). Quantum sciences view matter as part of an open system: dynamic, always in relationship, self-organizing (Wheatley, 1994; Zohar, 1997). Table 1 summarizes the differences in values expressed by Newtonian (closed) and Quantum (open) systems (Olsen, 1994, p. 19). Table 2 contrasts the differences between the two paradigms in management and leadership terms (Zohar, 1997, p. 87).

### Table 1

**Newtonian and Quantum Systems Management and Leadership Terms**

<table>
<thead>
<tr>
<th>Newtonian (Closed)</th>
<th>Quantum (Open)</th>
</tr>
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<tbody>
<tr>
<td>reduction</td>
<td>expansion</td>
</tr>
<tr>
<td>analysis</td>
<td>synthesis</td>
</tr>
<tr>
<td>pieces</td>
<td>patterns</td>
</tr>
<tr>
<td>cause and effect</td>
<td>interaction</td>
</tr>
<tr>
<td>linear</td>
<td>non-linear</td>
</tr>
<tr>
<td>stability</td>
<td>resilience</td>
</tr>
<tr>
<td>structure</td>
<td>process</td>
</tr>
<tr>
<td>independent</td>
<td>interdependence</td>
</tr>
<tr>
<td>mechanistic</td>
<td>living</td>
</tr>
<tr>
<td>attributes</td>
<td>relations</td>
</tr>
<tr>
<td>hierarchical</td>
<td>decentralized</td>
</tr>
<tr>
<td>determined</td>
<td>self-organizing</td>
</tr>
<tr>
<td>static</td>
<td>dynamic</td>
</tr>
<tr>
<td>environment-free</td>
<td>environment-full</td>
</tr>
</tbody>
</table>
**TABLE 2**

**NEWTONIAN AND QUANTUM SYSTEMS MANAGEMENT AND LEADERSHIP CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Newtonian Management Stresses</th>
<th>Quantum Management Stresses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certainty</td>
<td>Uncertainty</td>
</tr>
<tr>
<td>Predictability</td>
<td>Rapid change: unpredictability</td>
</tr>
<tr>
<td>Hierarchy</td>
<td>Non hierarchical networks</td>
</tr>
<tr>
<td>Division of labor or function fragmentation</td>
<td>Multifunctional and holistic (integrated) effort</td>
</tr>
<tr>
<td>Power emanates from top or center</td>
<td>Power emanates from many interactive centers</td>
</tr>
<tr>
<td>Employees are passive units of production</td>
<td>Employees are cocreative partners</td>
</tr>
<tr>
<td>Single viewpoint; one best way</td>
<td>Many viewpoints/ways of getting things done</td>
</tr>
<tr>
<td>Competition</td>
<td>Cooperation</td>
</tr>
<tr>
<td>Inflexible structures; heavy on bureaucratic control</td>
<td>Responsive and flexible structures; hands-off supervision</td>
</tr>
<tr>
<td>Efficiency</td>
<td>Meaningful service and relationships</td>
</tr>
<tr>
<td>Top-down (reactive operation)</td>
<td>Bottom-up (experimental) operation</td>
</tr>
</tbody>
</table>

**Learning Organizations**

The knowledge age has thrust upon organizations the challenge to develop skills that can interface with a world transforming at a faster and faster rate (Schein, 1993).

Markets continually change. Customers continually change. Technology continually changes. Competitors continually change. Each change triggers the need to create a new tomorrow (Belasco, 1990, p. 6).

Change can create unlimited possibilities and unlimited unknowns. Learning has become the container that holds the tension created by the changes, uncertainties, and possibilities inherent to the knowledge age and quantum paradigm. Beckhard and Pritchard (1992) capture the symbiotic relationship learning and change have with each other when they say, "change is a learning process and learning is a change process" (p. 14).
Learning has become an imperative for survival in the knowledge era (Argyris & Schon, 1978; Bennis & Biederman, 1997; Hays, Wheelwright, & Clark, 1998; Morgan, 1988; Nonaka & Takeuchi, 1995). Stata (1989) reports that "the rate at which individuals and organizations learn may become the only sustainable competitive advantage" (p. 64). Schein (1993) states it quite simply: "learning is no longer a choice but a necessity" (p. 85).

One question an organization faces today is how to "build the management of change into its very structure" (Drucker, 1993a, p. 6). The theoretical constructs proposed in the literature about learning organizations seek to embed the ability to respond to continuous change through learning. Continuous learning becomes the fuel to create "new tomorrows" (Belasco, 1990, p. 6).

Definitions of Learning Organizations

A review of the literature on learning organizations finds numerous definitions of what such an organization might be, and how it might operate. Many researchers are using the terms learning organizations and organizational learning interchangeably. When a distinction is made, it usually denotes learning organizations as a systems level concept, and organizational learning as a term to describe learning within the organization (DiBella & Nevis, 1998). Senge (1990a) defines them as follows:

Organizations where people continually expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspirations are set free, and where people are continually learning how to learn together (p. 1).

However, others define them differently: "A learning organization is an organization skilled at creating, acquiring, and transferring knowledge, and at modifying its behavior to reflect new knowledge and insights" (Garvin, 1993, p. 80). "A learning organization constantly reinvents itself (Handy, 1995, p. 33). "Organizational learning occurs when the organization
detects and corrects errors" (Argyris & Schon, 1978, p. 29). Organizational learning is the "capacity or processes within an organization to maintain or improve performance based on experience" (Nevis, DiBella, & Gould, 1995, p. 73). Although there is not a consensus definition for a learning organization, a common thread in the literature is the requirement for a learning organization to continually adapt to change.

Frameworks for Viewing Learning Organizations

One of the paradoxes inherent in responding to the question of how to build a learning organization lay in the assumption that when one builds something there is an end state. Learning is a continuous process; thus, to think of a learning organization as an end state of destination is an oxymoron (DiBella & Nevis, 1998; Redding & Catalanello, 1995; Senge, 1990a). The researcher resolves this dilemma by identifying frameworks that contain attributes they see as critical in creating organizations with cultures that promote learning. The words researchers use to describe these frameworks include: disciplines (Senge, 1990a), shared values (Lipshitz & Popper, 1996), activities or stages (Garvin, 1993), learning orientations, facilitating factors (DiBella, Nevis, & Gould, 1995, 1998), characteristics (Redding & Catalanello, 1994), activities (Gorey & Dobat, 1996), and action imperatives (Watkins & Marsick, 1993).

Disciplines. Senge’s (1990a) framework for creating a learning organization consists of five disciplines: personal mastery, mental models, shared vision, team learning, and system thinking. Sears (1998) defines them as follows:

Personal mastery: learning to expand our personal capacity to create the results we most desire, and creating an organizational environment which encourages all its members to develop themselves toward the goals and purposes they choose. . . .
Mental models: reflecting upon, continually clarifying, and improving our internal pictures of the world, and seeing how they shape our actions and decisions.

Shared vision: Building a sense of commitment in a group by developing shared images of the future we seek to create, and the principles and guiding practices by which we hope to get there.

Team learning: Transforming conversational and collective thinking skills, so that groups of people can reliably develop intelligence and ability greater than the sum of individual members talents.

Systems thinking: A way of thinking about, and a language for describing and understanding, the forces and interrelationships that shape the behavior of systems. This discipline helps us see how to change systems more effectively, and to act more in tune with the larger processes of the natural and economic world.

Shared values. Lipshitz and Popper (1996) framework promotes organizational learning through a cultural lens of shared values: continuous learning; valid information; transparency, egalitarianism, and accountability. The apex of the hierarchy of values is continuous learning, from which all other values follow. Lipshitz and Popper (1996) define these values as follows:

Continuous learning – showing appreciation for and willingness to invest resource in learning activities.
Valid information – showing appreciation for and willingness to incur losses to obtain valid information.
Transparency – willingness to expose one’s operations to inspection.
Egalitarianism – judging the actions and opinions of organization members on their merit and not according to the members’ rank, prestige, or any other personal attribute.
Accountability – taking personal responsibility for implementing lesson learned.

Activities and stages. Garvin’s (1993) research notes five activities that are important in fostering organizational learning. These include "systemic problem solving, experimentation with new approaches, learning from their own experience and past history, learning from the experiences and best practices of others, and transferring knowledge" (p. 81). He reports that organization learning can usually be traced to three overlapping stages:
1. Cognitive – the exposure to new ideas.

2. Behavior – the process of internalizing and experimenting with new behaviors.

3. Performance improvement – behavioral changes that can be measured and which increase performance.

Garvin’s (1993) contribution to research on learning organizations is his observation that learning organizations "are the products of carefully cultivated attitudes, commitments, and management processes" (p. 91). He advocates for creating activities that stimulate the exchange of ideas which require "employees to wrestle with new knowledge and consider its implications" (p. 91).

Learning orientations. Four core findings emerged from the research on organizational learning by DiBella and Nevis (1998), and Nevis et al. (1995). The first is that "all organization are learning systems" (Nevis et al., 1995, p. 75). They observe that organizations have "informal and formal processes and structures for acquisition, sharing, and utilization of knowledge and skills" (p. 75). The second is that learning conforms to culture. The organization’s norms, beliefs, and ways of operating influences how it learns. The third is that stylistic variations exist in organization learning. Each organization makes conscience or unconscience decisions about how it will learn. These choices reflect cultural values about learning, which DiBella and Nevis (1998) call learning orientations. They have identified seven such orientations with bipolar continuum.

1. Knowledge source. Preference for developing knowledge internally versus preference for acquiring knowledge developed externally.

2. Content-process focus. Emphasis on knowledge about what product or services are as compared to emphasis on knowledge about how those products or services are developed or delivered.

3. Knowledge reserve. Knowledge processed by individuals as compared to knowledge that is publicly available.
4. *Dissemination mode.* Knowledge shared in formal prescribed methods as compared to knowledge share through informal methods.

5. *Learning scope.* Preference for knowledge related to improvement of existing capabilities, as compared to preference for knowledge related to the development of new ones.

6. *Value-chain focus.* Emphasis on learning investment in engineering or production activities versus sales or service.

7. *Learning focus.* Development of knowledge pertaining to individual performance as compared to the development of knowledge pertaining to group performance. (p. 41)

Facilitating factors. The fourth finding from DiBella and Nevis's (1998) research is the identification of 10 generic processes that facilitate learning:

1. *Scanning imperative.* People gather information and seek out information about the external environment.
3. *Concern for measurement.* Considerable effort is spent defining and measuring key factors.
4. *Organizational curiosity.* Curiosity about conditions and practices, interest in creative ideas and new technologies.
5. *Climate of openness.* Organizational members communicate openly, problems, errors, or lessons are shared, not hidden.
6. *Continuous education.* The organization is committed to providing high-quality resources for learning.
7. *Operational variety.* Members value different methods, procedures, and competencies.
8. *Multiple advocates.* New ideas and methods can be advanced by employees at all organizational levels.
9. *Involves leadership.* Leaders are personally actively involved in learning initiatives and in ensuring that a learning environment is maintained.
10. *Systems perspective.* Recognition of interdependence among organizational units and groups; awareness of time delay between actions and their outcomes. (pp. 62-63)

From these four findings, Nevis et al. (1995) constructs a two-part model to describe an organization as a learning system. The first part consists of its learning orientation, "values and practices that reflect where learning takes place and the nature of what is learned" (p. 76). The second part consists of facilitating factors, "structures and
processes that affect how easy or hard it is for learning to occur and the amount of effective learning that takes place" (p. 76). Taken together, the learning orientation and the facilitating factors create a picture of the organization as a learning system.

The significance of Nevis et al.'s (1995) and DiBella and Gould's (1995) research is that their models provide a framework to diagnose and improve the learning capacity of an organization. As a diagnostic tool, it can be used to create a learning profile of an organization. This profile then can be used to develop a learning strategy to improve the learning capability of an organization.

Learning characteristics. Redding and Catalanello (1994) citing Karl Weick (1977) identify the following characteristics of learning organizations:

They continuously experiment rather than search for final solutions.
They respect improvisation more than forecasts.
They devise new actions rather than defend past actions.
They cultivate impermanence rather than permanence.
They strive for argument rather than serenity
They encourage doubt rather than remove it.
They seek contradictions rather than discourage them. (p. 5)

Experimenting, improvising, cultivating impermanence, striving for argument, encouraging doubt, and seeking contradiction all echo the theme that there is a healthy connection between organizational learning and tension. Tension is to be acknowledged and explored rather than feared or avoided. Tension represents life's new possibilities, new opportunities to learn versus a sign of illness or death.

Disseminating explicit knowledge. Gorey and Dobat (1996) have identified four activities organizations should use to foster the creation and diffusion of explicit knowledge throughout organizational layers. The first is to articulate to members why organizational knowledge is important to the organization and how it fits into the mission or purpose of the
organization. The second is to develop explicit knowledge and strategies that identify how it will achieve its learning objectives. The third is to build organizational learning and knowledge structures that drive concrete actions which decrease the gap between organizational vision and performance. The fourth activity is to create feedback systems to monitor progress.

Assumptions Underlying Frameworks

The review of the literature on learning organization frameworks reveals a number of assumptions cutting across research and time. These themes, implicit in all the frameworks examined, are articulated by Watkins and Marsick (1993):

1. "Learning organizations seek a connection to their environment" (p. 11). This connection acknowledges the interdependence of individuals and their organizations, as well as the external connections organizations have to other organizations, the communities they reside in, and the trends and patterns in their particular markets.

2. "Learning organizations must engage members of the organization in working toward a collective vision" (p. 11). Learning organizations are built around purpose.

3. "Learning organizations establish systems to capture and share learning" (p. 11). Learning organizations have cultures with rituals and practices that establish the value of learning and the exploration of learning with others.

4. "Learning organizations engage in collaboration and team learning" (p. 11). The process of working with others supports the examination of existing beliefs which can create new possibilities.
"Learning organizations engage in inquiry and dialogue" (p. 11). Using inquiry helps demystify the process of how one selects data, adds meaning to that data, makes assumptions, draws conclusions, adopts beliefs, and takes action (Senge et al., 1994). Engaging in dialogue (collective conversations) using inquiry and deep listening builds a more honest understanding of the current reality and the learning disabilities that hinder progress toward meeting organizational goals.

"Learning organizations create continuous opportunities for learning" (p. 11). Learning organizations invest in learning. This investment is both in discovering tools and processes that support learning, and in building the capacity of others to use these tools and processes. General Electric exemplifies this belief by spending up to $800 million a year on leadership development and training, half of its research and development budget (Stewart, 1998).

Adaptive and Generative Learning

Single-Loop, Double-Loop, and Deutero-Learning

For organizations to learn they must continually challenge the assumptions on which they operate (Schein, 1996; Senge, 1990a, 1990b). Developing the capacity for such behavior is difficult because it can challenge the identity of individuals and their organizations. Argyris and Schon's (1978) research focuses on the social and psychological consequences of such endeavors. They identify three types of learning: single-loop, double-loop, and deutero-learning. Single-loop learning comes from asking one dimensional questions, such as: "How can we increase test scores?" Single-loop learning causes
individuals or organizations to modify existing strategies and assumptions within their personal or organization norms. Such learning often addresses the symptom of problems. Double-loop learning comes from inquiring into the reasons and motives behind the facts with questions such as: "What is it about our school that causes low test scores?" Double-loop learning requires inquiry into the underlying assumptions, often creating new norms, practices, objectives, policies, and structures (Argyris, 1993a, 1993b, 1994; Argyris & Schon, 1978; Beckhard & Pritchard, 1992; Redding & Catalanello, 1994). Argyris and Schon (1978) report that deutero-learning comes from asking questions "about episodes of organization learning, or failure to learn" (p. 27). Such learning causes deep insight into routines that debilitate learning, and often breaks down anti-learning behavior.

Argyris (1994) examines why organizations are reluctant to engage in double-loop learning. Questions that probe into assumptions and motives are avoided because people are fearful of opening Pandora's box, or being perceived as negative or hindering morale. Thus managers and individuals often censor what needs to be said and heard. Argyris (1994) calls this sidestepping behavior "defensive reasoning." The unintended consequences of this avoidance are managers and employees depriving themselves "of the opportunity to take responsibility for their own behavior and learn from it" (Argyris, 1994, p. 79). Strategies to avoid, which may seem benevolent on the surface, can be "anti learning" (Argyris, 1994, p. 79).

Double-loop learning requires questioning one's assumptions and behaviors. Reflecting on the double-loop question, "What is it about our school that causes low test scores?", I might find out that my "espoused theory in action" (students need honest and direct feedback) might not be my "theory-in-use" (my feedback to students is sporadic, and filtered). Often the contradiction between "exposed theory in action" and "theory-in-use" is
not apparent and during times of stress the contradiction grows (Argyris, 1994). Argyris (1993a, 1994, 1996) has identified four governing values connected to "theories in use": the need (a) to remain in control, (b) the need to maximize winning and minimize losing, (c) to suppress negative feeling, and (d) to be as rational as possible. These governing values drive defensive strategies whose purpose is to "avoid vulnerability, risk, embarrassment, and the appearance of incompetence" (Argyris, 1994, p. 80). Such strategies threaten the learning process because they "help us avoid reflecting on the counterproductive consequences of our own behavior" (Argyris, 1994, p. 80).

Argyris (1993a, 1993b, 1994, 1996), and Argyris and Schon (1978) underscore the difficulty in achieving the individually and collective capacity to engage in conversation that examines underlying assumptions. Their research also has produced several cognitive tools (left-hand column and ladder of inference) which can build the capacity to lead and engage in conversations that examine assumptions and surface defensive routines.

Adaptive and Generative Learning

Schein’s (1996) research on learning cultures examines the effects anxiety has on learning. Schein (1996) defines adaptive learning as the process of closing the gap between "where we are and where we want to be," and generative learning is discovering "that the identification of the problem or gap is contingent on learning new ways of perceiving and thinking about our problems (i.e., rethinking cultural assumptions and norms)" (p. 2). Schein reports that there are different levels of anxiety associated with adaptive learning (single-loop) and generative learning (double-loop). Generative learning produces a deep anxiety because it calls into question the stability and predictability of the organization by "asking us to question our mental models, our personal ways of thinking and acting, and our relationships with each other" (Schein, 1996, p. 2). The anxiety triggered by adaptive
learning (single-loop) is less because it moves the organization toward stability by modifying existing norms.

**Getting Past Organizational Anxiety**

Schein's (1966) research reemphasizes the challenge of building an organization that supports generative learning. His research identifies two options to deepen the capacity for an organization to engage in generative learning. The first is to be cognizant of the relationship of cultural anxiety to learning and seek ways to reduce change anxiety. The second is to be cognizant of the power of organizational myths (shared assumptions) and their ability to inhibit learning. His research also suggests the importance of engaging into collective conversation because culture is about shared notion of perceiving and acting.

Schein (1996) has identified two types of anxiety: "change anxiety . . . is triggered by the fear of something new," and "survival anxiety . . . the uncomfortable realization that in order to survive and thrive, we must change" (p. 2). Anxiety is paradoxical for organizations. On one hand it can motivate individuals to learn, and on the other if "survive anxiety" is too high, individuals can "become defensive, misperceive the situation, deny reality, or rationalize his or her current behavior" (p. 3). In response to this possible negative consequences of anxiety, Schein (1996) identifies eight cultural elements to support generative learning through the reduction of anxiety:

1. Provide psychological safety, a sense that something new will not cause loss of identity or of our sense of competence.
2. Provide a vision of a better future that makes it worthwhile to experience risk and tolerate pain.
3. Provide a practice field where it is acceptable to make mistakes and learn from them.
4. Provide direction and guidance for learning, to help the learner get started.
5. Start the learning process in groups so learners can share their feelings of anxiety and help each other cope.
6. Provide coaching by teaching basic skills and giving feedback during practice periods.
7. Reward even the smallest steps toward learning.
8. Provide a climate in which making mistakes or errors is seen as being in the interest of learning. (p. 3)

In addition to identifying ways to reduce learning-inhibiting anxiety, Schein (1996) provides insight into cultural inhibitors that prevent us from creating learning cultures that support generative learning. He defines culture as "shared ways of perceiving the world, sorting out that information, reacting to it, and ultimately understanding it" (Schein, 1996, p. 4). Schein’s (1996, p. 5) research on western organizational and managerial cultures cites myths (shared assumptions) that inhibit learning. These include:

- "Leaders have to be in control, decisive, and dominant."
- "'Rugged individualism' works."
- "The 'divine rights of managers.'"
- "Power is 'the ability not to have to learn anything.'"
- "Achievement is the primary source of status in society."
- "Work should be compartmentalized away from personal life."
- "Task issues should override relationship concerns."
- "Management is about 'hard' things (money, data, 'the bottom line') versus 'soft' issues (people, groups, and relationships)."
- "Linear, short-term thinking is better than systemic, long-term thinking."

Heifetz and Laurie’s (1997) research focuses on the learning capacity of leaders and how they lead their organizations to address two types of challenges: technical/routine (single loop/adaptive) and adaptive (double-loop generative). Their research adds additional knowledge to the question of how organizations gain the capacity to examine existing assumptions. A technical or routine challenge exists within a domain of expertise. Heifetz
and Laurie (1997) describe the leadership solving process for technical problems as matching expertise to the issue.

The second type of challenge identified by Heifetz and Laurie (1997) is adaptive. These issues require the organization to address changes in "markets, customers, competition and technology" (Heifetz & Laurie, 1997, p. 124). This requires leaders to rethink deeply held beliefs, develop new strategies and learn new ways of operating. Adaptive challenges are often "systemic problems with no ready answers" (Heifetz & Laurie, 1997, p. 124). Argyris and Schon (1978) would refer to such learning as double-loop and Schein (1996) would describe it as generative learning.

Heifetz and Laurie (1997) identify five areas where leaders can act differently to build the organization's capacity to examine deeply held beliefs. These areas are direction, protection, orientation, managing conflict, and shaping norms. Rather than defining problems and providing solutions, the leader identifies the challenge and frames key questions and issues. Rather than protecting the organization from pressures and threats, the leader lets the organization feel the outside pressures with a range which does not debilitate it. Rather than clarifying roles and responsibilities, the leader challenges old roles and resists pressures to define the new roles too quickly. The goal is to encourage new relationship building. Rather than seeking to restore order, the leader "exposes conflict and lets it emerge" (Heifetz & Laurie, 1997, p. 128). Rather than maintaining norms, the leader challenges the organization to discard unproductive norms and operate from new perspectives (Heifetz & Laurie, 1997).

Heifetz and Laurie (1997) identify six principles for leading adaptive work: get on the balcony, identify adaptive challenge, regulate distress, maintain disciplined attention, giving the work back to the people, and protecting voices from below.
1. *Get on the balcony*. Leaders must purposefully step back and look at issues from a distance, seeking to identify patterns and trends.

2. *Identify the adaptive challenge*. Leaders must scan the landscape and seek to understand the underlying causes rather than looking at symptoms.

3. *Regulating distress*. The leader must be able to hold the tension which accompanies adaptive challenges. Leaders must model that it is okay to be outside one's comfort zone.

4. *Maintain disciplined attention*. Identifying distraction and bringing people back to issues that may be difficult but are critical for building new perspectives.

5. *Giving work back to the people*. Adaptive work requires that the organization be sensitive to external shifts that may have great influence on the success or failure of the organization. Awareness and the capacity to act needs to be the responsibility of all members and fostered by leaders.

6. *Protecting voices of leadership from below*. Individuals that bring to the surface contradictions between what is said and what is done are often viewed as non-team players. They can be routinely smashed or silenced. Their ideas can possess great possibilities. The leader who seeks to work with adaptive problems encourages these types of contributions.

This section examined the question: How do organizations gain the capacity to examine existing assumptions? This capacity requires a specific type of learning identified as generative or double-loop learning. This type of learning produces a great deal of anxiety. The danger that this anxiety presents to the organization is its capacity to shut down learning through defensive routines (Argyris, 1993). Two strategies were discussed to keep
this anxiety from blocking the examination of assumptions. The first is the promotion of
cultural elements that decrease the anxiety to a range that supports learning. The second is
to increase the awareness of cultural myths that inhibit generative learning. Lastly, research
was highlighted which examined how leaders could build the capacity of their organizations
to deal with challenges that require the examination of existing assumptions.

Chapter Summary

The present chapter provided research and theory on four interlocking themes
related to learning organizations. The first section examined the knowledge economy, the
forces behind it, and the paradoxes that accompany it. The literature suggests the knowledge
economy represents a fundamental shift in our economic model (Brown & Eisenhardt, 1998;
Davis & Botkin, 1994; Drucker, 1993a, 1993b; Stewart, 1997). The Industrial Era
bestowed upon us an economy of scarcity placing a high value on protection and control
(Burrus, 1996). The Knowledge Era is creating an "economy of abundance based on non-
scarce ideas" (Burrus, 1996, p. 286). The knowledge economy has thrust upon
organizations the challenge to develop skills that can interface with a world that is
transforming itself at a faster and faster rate (Schein, 1993).

The second section examined scientific thought and discovery and how they
influence the way we see and interact with the world. The Industrial Era was anchored by
the Newtonian paradigm, which viewed the world as "fragmented into separate parts
circumscribed by rigid boundaries, and isolated from its environment" (Zohar, 1997, p.
119). Newtonian organizations stress certainty, predictability, hierarchy, and the division of
labor or function. Power emanates from the top or center and employees are passive units of
production (Zohar, 1997).
The Knowledge Era is anchored by the quantum paradigm which views the world as having "no hard limits, no set, definable boundaries," and potentially comes from relationships which are always reinventing themselves. (Zohar, 1997, p. 121) Quantum organizations stress uncertainty, rapid change, non-hierarchical networks, multifunctional and integrated efforts. Power comes from many interacting centers, employees are co-creative partners, and structures are designed to be responsive and flexible (Zohar, 1997).

The third section examined the concept of learning organizations, which respond to the question: "How do we build an organization that sustains the nonstop learning required by the knowledge economy and the quantum paradigm?" The literature on learning organizations finds numerous definitions and operational frameworks, from which several common themes emerge. A learning organization is skillful in "creating, acquiring, and transferring knowledge, and modifying its behavior to reflect new knowledge and insights" (Garvin, 1993, p. 80). It also is "continually expanding its capacity to create the future" (Gauche, 1997, p. 2). Learning organizations value inquiry, dialogue, system thinking, risk taking, curiosity, openness, team learning, and relationships.

The fourth section examined generative learning, a type of learning congruent with the challenges and needs of learning organizations. Learning organizations require an internal capacity to continuously reinvent themselves. To create such a capacity requires that an organization go beyond adaptive learning (single-loop) which causes the modification of existing strategies and behaviors within their norms, to generative learning (double-loop) which often creates new norms, practices, policies, and structures (Argyris, 1993; Argyris & Schon, 1978; Beckhard & Pritchard, 1992; Redding & Catalanello, 1994). Generative learning is extremely difficult to achieve because it produces a great deal of anxiety and challenges the identity of individuals and their organizations (Argyris, 1993; Argyris &
Schon, 1978). Several strategies drawn from research were highlighted to facilitate this type of learning. Three strategies that assist organizations in building the capacity for generative learning were discussed.
CHAPTER III

METHODS

This researcher studied an elementary school site council’s use of a specific set of communication and inquiry tools designed to improve patterns of communication and ability to work as a team. The tools were brought to the site council through a learning contract with the Change Institute, which brings learning organizational tools to schools, non-profit organizations, and communities. The elementary school site council initiated the contract, identified the areas of learning, and concluded the contract when it felt members had achieved the skills desired. The Change Institute, an experimental program directed by the researcher, had used a variety of tools in other learning contracts with public schools and non-profit organizations. Based on previous experience, the researcher unilaterally chose an initial set of tools to use in the site council’s learning sessions. As the site council’s needs developed, additional tools were selected and introduced. The tools were introduced to the site council in 2-hour sessions over a 12 month period. During each session, participants were either introduced to new tools or reviewed tools through interaction exercises. Between sessions, participants practiced using the communication and inquiry tools in the context of their responsibilities and analyzed their application. The following research questions guided the inquiry:

1. How are these communication and inquiry tools being used?
2. What results has the use of these communication and inquiry tools produced?
3. What are the characteristics of the communication and inquiry tools introduced to the council?
4. What are the perceived strengths of the communication and inquiry tools?
This chapter describes the research design, selection of site, site and participants, researcher’s role, data collection methods, data analysis, and validity and reliability of the research.

Research Design

The qualitative case study method was employed for four reasons. First, the use of a case study provides a means to investigate a contemporary phenomenon (Yin, 1989). This study explored the contemporary issue of the use of selected inquiry and communication tools by an elementary school council as it fulfilled its responsibilities of guiding school improvement.

Second, the use of a case study creates an opportunity to investigate and understand individuals and events in their natural surroundings (Borg & Gall, 1989). This study examined how parents, teachers, administrators, and community members built their capacity to inquire into assumptions, made their beliefs known to each other, and collectively made decisions.

Third, the use of a case study provides an avenue to examine complexity and contextuality (Stake, 1995). The use of site councils alters the governance structure of schools, expanding the decision-making to more shareholders (David, 1995). There is great complexity and contextuality in bringing together educators, parents, and community members to work together.

Fourth, the use of a case study provides a path to examine a phenomenon from a systemic viewpoint, probing how various components of a situation interrelate (Merriam, 1988). The communications, inquiry, and decision-making activities of a site council are complex interactive processes. Studying such complexity requires a methodology with the
capacity to look at a system of interactions rather than just individual actions. Qualitative methods give the researcher this capacity.

A qualitative case study method was employed because such a design is congruent with the research questions this study explores. Merriam (1988) concluded that a case study "offers the greatest promise of making significant contributions to the knowledge base and practice of education" (p. 3).

Validity and Reliability

Yin (1989) cites four tests for judging the soundness of qualitative case study data: construct validity, internal validity, external validity, and reliability. Construct validity refers to "establishing correct operational measures for the subject being studied" (Yin, 1989, p. 40). In qualitative study, the human being is the instrument of study.

Construct validity requires that the researcher use a variety of sources for data and provide a document path to account for how he came to his conclusion (Yin, 1989). To establish construct validity in this study, the researcher has used the following strategies (Yin, 1989):

1. Use multiple sources of evidence.
2. Establish a chain of evidence through the establishment of a detailed collection of evidence and the process of data analysis.
3. Review of the emerging findings by key informants. Key informants are individuals who have deep understanding of the organization being studied.

Internal validity focuses on the question, "Does the researcher's findings match reality?" (Merriam, 1988). Merriam (1988) summaries the challenge of internal validity with the question, "Are investigators observing or measuring what they think they are
measuring?" (pp. 166-167). To establish internal validity, the researcher has used: (a) triangulation, to confirm data in more than one way (Merriam, 1988); (b) member checks, to enable some participants to review materials for accuracy and plausibility (Stake, 1995); (c) peer examination, to ask colleagues to review the emerging findings for comment (Merriam, 1988); and (d) memos to himself to document assumptions and theoretical orientations the researcher holds (Merriam, 1988).

The notion of external validity in a qualitative case study is different than in a quantitative study. In a quantitative study, generalizability is based on the ability of the researcher to correlate the finding from a representative sample of data to a population in similar settings (Merriam, 1988). The validity of the findings in a qualitative case study is linked to "how data collection and analysis [is] guided by concepts and models" (Marshal & Rossman, 1994, p. 144). The transferability of the findings in a case study is connected to the theoretical parameters of the research and how this is interpreted by individual researchers and policymakers (Marshal & Rossman, 1994).

Those who make policy or design research studies within [the] same parameters [of the original research] . . . determine whether or not the cases described can be generalized for new research policy and transferred to other settings, while the reader or user of specific research can see how research ties into a body of theory. (Marshal & Rossman, 1994, p. 144)

Reliability is determined by the extent to which the findings can be replicated (Maxwell, 1996; Merriam, 1988). Qualitative studies seek to describe, explain, and understand the world from the vantage point of the participant (Merriam, 1988; Stake, 1995). Since human beings are dynamic, defining reliability in terms of replication is problematic for qualitative research (Merriam, 1988). Lincoln and Guba (1981) acknowledge this dilemma and seek to address it by "sidestepping reliability in favor of internal validity" (as cited in Merriam, 1988, p.171). They recommend that the
"consistency" and "dependability" be used to assess the reliability of qualitative research. To ensure the consistency and dependability of this study's result, the researcher has:

1. Explained his relationship with the site council, the theory behind the study and the basis for choosing the informants, and the assumptions the researcher has about the subject (Goetz & LeCompte, 1984, as cited in Merriam, 1988).

2. Gathered a diverse range of data from many sources (triangulation) (Maxwell, 1996).

3. Provided an audit trail giving a clear description of how the data were collected and the process used to analyze the data (Merriam, 1988).

Site Selection

Unlike quantitative research, the sampling procedure for qualitative research is based on non-probability sampling (Merriam, 1988). This research used the case study criteria recommended by Yin (1993): topic relevance, feasibility, and access.

Topic Relevance

The elementary school site council selected for this study had been engaged in a learning contract with the Change Institute since January 1996. The focus of the contract was the desire of the site council members to learn a new set of tools that would help them to work together in a more productive and effective manner. Site councils have become a centerpiece of many education reforms growing out of the research which associates school autonomy with school effectiveness (Purkey & Smith 1985). The use of site councils (site-based management) to broaden representation and bring decision-making closer to the individuals affected by the decisions is one of the most significant educational reforms of the
decade (David, 1995). One of the unique aspects of this site council was the diversity and active participation of its members. This site council consisted of parents, community members, teachers, support staff, and the school principal.

Feasibility

The administrator and site council members welcomed the opportunity to participate in the study. The site council chosen for this study completed its contract with the Change Institute in April 1997, which provided an opportunity to assess the independent use of, and changes associated with, the introduction and practice of inquiry and communication tools.

Access

The close proximity of this site to the researcher provided the opportunity for frequent observations and in-depth conversations with participants.

The site chosen for this study provided a rich environment congruent with the issues the researcher wanted to study. The site provided unencumbered frequent access and individuals who were participating.

Site and Participants

The John Henry Elementary School, the name used for the school in this study, is located in a suburban community outside a city in the northwest. The community is supported by high technology industries. In the first year of the study, John Henry Elementary School was one of only two schools in a small school district. During the second year of the study, John Henry's district was incorporated into a large school district consisting of 29 schools. One of the significant issues that concerned the site council was the fear of being part of a larger district.
The population of John Henry is predominantly upper middle class and white. In 1995-1996 there were 420 students and 25 teachers in kindergarten through sixth grade. Site council membership consisted of 13 individuals: 7 teachers, 4 parents, 1 classified, and 1 principal. In 1996-1997, there were 450 students and 24 teachers in kindergarten through sixth grade. Site council membership in 1996-1997 consisted of 14 individuals: 6 teachers, 5 parents, 1 community member, 1 classified, and 1 principal. In the second year, there were four new members who cut across all categories. In order to assimilate them into the group, three training sessions were held. Attendance was voluntary and the majority attended most sessions. Their transition into the group went smoothly. Attendance at site council sessions was sustained. When members were absent, it was due to illness, or family or personal emergencies.

The Researcher

The skills and beliefs I brought to this research were shaped by 24 years in the field of education. I began my career as an elementary school teacher in a public alternative school in Boise, Idaho. I was deeply committed to the notion of creating a vibrant, purposeful, engaging environment which maximized student potential. This passion was driven by the frustrations and exhilaration of my own K-12 education. For 17 years, I viewed myself as an okay student struggling to meet the expectations of teachers and my parents, and constantly falling short. This view of myself as a learner was forever changed as a result of taking a social studies elective class entitled "Social Issues" by a dynamic, gifted teacher named Eric Rothschild. Learning became an adventure, a daily interactive journey between the known and the unknown with me as connection maker. Eric was eager to hear my thinking; when I spoke my ideas were valued and appreciated. I began to see
myself as a thinker, a learner, a contributor, a person whose thoughts and actions could make a difference in the world. I also came away from that class with a deep appreciation of the transformative power that a great teacher can have on his students. The pain I felt for years was not necessary. I decided that I wanted to be a teacher, to create vibrant, purposeful environments where students would not feel the isolating pain that I all too often felt in my classrooms.

During my 6 years as an elementary teacher, I became deeply involved with curriculum development, teacher development, teacher education, and district-wide issues. I developed curriculum units in economics, science, creative writing, and career education. I became a poet intern gaining release time to teach poetry to students across the district. I supervised a student teacher, became a member of the negotiation team for the teachers association, and a board member of the Teachers Resource Center. I began to observe that dynamic teaching could be achieved in individual classrooms, yet I and other teachers often felt isolated. I was intrigued by the question of how one builds a school culture that creates alignment of purpose.

I enrolled in a Master's program at Harvard University to pursue this question and attain certification to be an elementary school principal. My first administrative position was a teaching principalship in Vermont. Randolph Center Elementary School had 86 students and 4 teachers each teaching combination grades. I taught trades five and six, as well as being responsible for all administrative duties. This was the first of four elementary school principalships I held in Vermont, Idaho, and Oregon over the next 9 years. During these years, I experimented with leading school improvement initiatives the purpose of which was to create vibrant and purposeful classrooms maximizing student potential. These initiatives varied. Some focused on curricular development like the adoption of new science and
reading curricula, or implementation of innovative reading and mathematics programs funded by grants. Others focused on initiatives that fostered better communication by establishing faculty and student councils; creating parent handbooks; initiating a curriculum fair; or establishing in-service training on AIDS for teachers, parents, and community members concerned about the enrollment of a student with AIDS. Still other initiatives addressed cultural issues: establishing a wall of excellence recognizing academic excellence, starting a school store, initiating a sixth grade graduation ceremony, creating an after school child care program, and starting an endowment fund for professional development. These initiatives focused on creating school environments that recognized academic excellence, created hands-on learning experiences for students, celebrated accomplishments through rituals, fostered teacher development, and enlarged relationships with parents.

Throughout this period of working on social improvement initiatives in various settings with different players, an over-arching theme began to emerge. Although each of these initiatives had merit, they never did have the profound effect I hoped for of creating schools with teachers who worked together to establish dynamic learning environments that maximized student potential. Each school had isolated pockets of outstanding teachers. I could influence change around the edges, but I never did effectively build comprehensive school cultures that feature outstanding teaching at all grade levels.

A difference of opinion with a superintendent led to being transferred from an elementary school to an assistant principalship at a junior high school. I found myself, for the first time in my educational career, working in a partnership. The principal, Charles, shared my belief that schools urgently needed to change to meet the profound and too often unanswered needs of students. Charles brought to the partnership an understanding of politics and a set of communication skills that I did not have. We built a safe, trusting
relationship where we tested emerging ideas, debriefed our mistakes, and learned from each other. Our goal was to create a school which met the social, emotional, intellectual, and physical needs of adolescents. Using the recent passage of the Oregon Educational Act of the 21st Century as a leverage point with our superintendent and school board, the principal and I worked with staff members, designing a school structure that created four learning communities, each pairing a teacher team with a group of 100 students. The schedule provided teamed teachers with daily common planning time. The critical questions I pondered were: what skills would teachers need to productively use this time together to move theory into reality, and what behaviors (skills, actions) would Charles and I need to exhibit to support team learning? Upon reflection, it was apparent that both teachers and administrators needed a new set of tools. I began to research processes used by high performance teams in the business world and practices used in outstanding middle schools. Working with a consultant, I began to adapt, integrate, and teach these tools to teacher teams. Consequently, the teams became more focused and productive in addressing the emerging needs of students.

As I watched, participated in, and discussed the growing success of the learning communities at the junior high school with Charles, I began to reflect on the differences between this experience and the ones I had had previously. Several insights began to emerge for me regarding my passion of creating a school culture where students could maximize their potential. The first insight was that I was part of the problem. The skill set that I had used at the elementary schools were not capable of producing the results I desired. Rather than looking at the inadequacy of the skill sets I brought to the issue, I had been unknowingly projecting the inability of school improvement activities to foster deep changes onto other people, including superintendents, teachers, and parents. I began to see that the
skill set I possessed did not fit the complex issues before me, and theorized that the difficulties in achieving more vibrant, purposeful learning environments resulted on myself and other teachers collectively developing new skills through the use of new tools.

I became deeply interested in understanding the tools concept of best practices, learning organizations, large scale change efforts, and transformation. As I continued to learn, adapt, integrate, and support team learning through the use of best practices from middle schools and concepts associated with leading edge organizations, I started to search for tools and funding for the Change Institute. I envisioned the Change Institute as a depository of the most current thinking about large scale change initiatives, a place where educators could have access to and free training with leading edge change tools, where the learning generated from one school’s experience with the tools would be shared with others. Participants of the Change Institute would be continuously generating new insights into and application for existing tools and creating new ones.

My skills have grown throughout the planning and implementation stages of the Change Institute and the learning contracts that preceded and followed this research study. My skills of observation, reflection, inquiry, and listening with a beginner’s mind drastically increased my awareness of others. This in turn led to improvement in my ability to take actions based on values, work collectively with others, teach, write, and think systemically.

Researcher’s Role

I began my work with John Henry’s site council in the capacity of Change Institute founder, director, and learning coach. After the work commenced, I decided to use this experience as the focus of my dissertation. A qualitative case study would provide a deeper understanding of the use of the communication and inquiry tools not yet attempted.
During the course of the study, I had two roles: participant and participant-observer. In phase one, I was an active participant, teaching the tools to the site council members, coaching and guiding their use, and facilitating dialogues among members. Eighteen learning sessions took place over a 15-month period. I designed and facilitated the 2-hour sessions which introduced communication or inquiry tools through interactive exercises and/or provided feedback to the site council about their application of tools. After being introduced to the tools, the participants chose an area of interest and practiced using the session's tools within their personal or work contexts. Members were also asked to analyze the application of the tools and to articulate any insights gained about themselves and others by using them. In the second phase of the study I observed how the tools were used independently by members at site council meetings. Five 2-hour observations occurred over 4 months. Both roles, the participant and participant-observer, have an established history in educational research (Borg & Gall, 1989).

Data Collection Methods

The collection of data from multiple sources is central to a qualitative approach to research. Patton (1980) defines qualitative data as:

"Detailed descriptions of situations, events, people interaction and observed behaviors; direct quotations from people about their experiences, attitudes, beliefs, and thoughts; and excerpts or entire passages from documents, correspondence, records, and case histories. (as cited in Merriam, 1988, pp. 67-68)"

The collection of qualitative data for this study occurred in two phases. Phase one consisted of the introduction of the communication and inquiry tools to the site council. During this phase agendas, curriculum handouts, instruction notes made during and after training sessions, participant generated lists of insights about tools, participant learning journals
completed after each session, composite learning journals, and participants' cumulative learning journals completed after 7 months were collected. Phase two of the project consisted of the researcher observing the independent use of the tools by members at site council meetings. During this phase, the researcher completed field notes, and gathered site council agendas and members' cumulative learning journals completed after 19 months.

Field notes are a critical component of qualitative research (Merriam, 1988; Patton, 1990; Stake, 1995). Olsen's (1994) definition of field note was used as a guide for recording observations during this research. These include:

- A running description (concrete and as verbatim as possible) of events, people, things heard and overhead, conversations among people.
- Remembered items of information not previously entered into the notes, triggered by a concurrent incident or situation.
- Analytic ideas and inferences triggered by the observations.
- The researcher's impressions and feelings.
- Questions raised by current observations, and the call for notes for further information. (Eisenhardt, 1989; Lofland & Lofland, 1984; Merriam, 1988; Taylor & Bogdan, 1984; as cited in Olson, 1994, pp. 84-85)

Interviews with key participants were used to help establish the validity of emerging themes. The principal and 1996-97 chairperson of the site council were chosen based on their ability to be respected by peers, their knowledge level of the school and site council, and their willingness to share in-depth knowledge of the situation with the researcher (Merriam, 1988).

The multiple sources of data collected provided a rich documentation of the ways site council members conceptualized, used, and assigned meaning to the tools introduced.

Data Analysis

In qualitative research it is difficult to separate the data analysis and data collection, for they are a continuous process (Merriam, 1988; Stake, 1995). The examination of data
informs an emerging understanding which in turn helps guide the collection of new data (Maxwell, 1996; Merriam, 1988). Glasser and Strauss (1967) described this process as "grounded theory." Insights that emerge from the analysis of the data are grounded in and pulled from observations and data (Stake, 1995).

Analyzing data to find meaning is a recursive process. Easterby-Smith, Thore, and Lowe (1991) identify familiarization, reflection, conceptualization, cataloging concepts, recoding, linking, and re-evaluation as important stages in analyzing data. These stages were used in the data analysis.

**Familiarization** – By reviewing the transcripts as well as notes taken during the interview and other materials the researcher begins to establish some first ideas. The stage, however, is essentially exploratory, where questions begin to be framed.

**Reflection** – A process of evaluation and critique becomes more evident as the data is [sic] evaluated in the light of previous research, academic texts and common sense explanations.

**Conceptualization** – At this stage there is usually a set of concepts or variables which seem to be important for understanding what is going on. However, at this stage the researcher will not be sure just how reliable or valid these concepts are. . . . What is needed, therefore, is for the researcher to go back to the data and search for them, methodically highlighting them when they appear. . . .

**Cataloging concepts** – Once it is established that the concepts identified do seem to occur in people's explanations, then they can be transferred onto cards as a quick reference guide.

**Recoding** – Now that all the references to particular concepts are known, it will be possible to go back quickly and easily to those places in the data to see what was actually said. . . . So, at this stage, concepts are beginning to be redefined and recoded. . . .

**Linking** – By now the analytical framework and explanations should be becoming clearer, with patterns emerging and concepts spotted that could be fitted together.

**Re-evaluation** – In light of the comments of others, the researcher may feel that more work is needed in some areas. . . . This stage may go on for a considerable period of time, and as with the other stages it may have to be undertaken more than once. (Fletcher, 1993, pp. 83-84)

The following questions guided this research and the analysis of the data.

Emphasizing discovery and interpretation, the questions posed were: (a) How are the
communication and inquiry tools being used? (b) What results have the use of these tools produced? (c) What are the characteristics of these tools? and (d) What are the perceived strengths of these tools? To address these questions, data were collected from each session, including agendas, handouts, instruction notes made during and after training sessions, and learning journals. Two cumulative learning journals were completed by the participants: one after 7 months (Appendix B) and the second after 19 months (Appendix C). Three months after the instructional phase was completed, the researcher attended five site council meetings to observe the independent use of the tools.

I began the process of analysis by reading through the data, making extensive notes, and forming questions related to the materials. Responses from the daily learning journals and the two cumulative learning journals were coded and catalogued. In reflecting, conceptualizing, and cataloguing, some concepts became less important and others emerged as more significant. Through the process of linking – rereading, reflecting, sorting, and resorting – an analytical framework began to emerge. I then reevaluated this framework looking for data that may have been omitted or overemphasized, and tested the emerging framework with key members of the site council. Colleagues were invited to review my findings and provide feedback.

Summary

A qualitative methodology was chosen for the study because it correlated with the nature of the research questions which seek to understand a phenomenon in a contextual setting. This initial decision then purposefully shaped the choices made in research design, the selection of the case, the researcher role in data collection, data collection methods, data analysis, and the reporting of the findings.
CHAPTER IV

FINDINGS AND CONCLUSIONS

The findings are organized in three sections. The first section reports how the communication and inquiry tools were used. The second section reports the results of using the tools. The final section discusses the capacity building dimensions and operational characteristics of the tools. The first two sections contain participant comments from learning journals and cumulative learning journals. Since some of these comments reference specific communication and inquiry tools, a brief description of these tools is presented in Table 3.

<table>
<thead>
<tr>
<th>Tool</th>
<th>Associated Behaviors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advocacy</td>
<td>To create an auditory map for others so they can understand how you have come to your conclusions, beliefs, or actions.</td>
</tr>
<tr>
<td>Balancing Inquiry and Advocacy</td>
<td>To be conscious of the balance between making one’s reasoning explicit and asking others to make their thinking explicit.</td>
</tr>
<tr>
<td>Check-in</td>
<td>To share with others where you are at the moment so you can be mindful, engaged, and present at meetings.</td>
</tr>
<tr>
<td>Composite Learning Journal</td>
<td>A verbatim transcript of a set of learning journals from a session. It invites members to see and explore the collective learnings of a team, looking for trends and patterns.</td>
</tr>
<tr>
<td>Cumulative Learning Journal</td>
<td>To invite individual members of a team to reflect on their personal learning, and the shifts that they are observing in their team members over time.</td>
</tr>
<tr>
<td>Dialogue</td>
<td>To engage in conversations with a beginner’s mind searching for the flow of meaning.</td>
</tr>
<tr>
<td>Group Guidelines</td>
<td>To collectively create and commit to a set of behavioral expectations for the purpose of maximizing the team’s effectiveness.</td>
</tr>
</tbody>
</table>
### Table 3 (Continued)

<table>
<thead>
<tr>
<th>Tool</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Illusions</td>
<td>To be conscious of what you are trying to keep others from knowing about you (which is already apparent to them) and then acting on this awareness.</td>
</tr>
<tr>
<td>Inquiry</td>
<td>To ask questions when other individual's verbal statements or actions are confusing or vague.</td>
</tr>
<tr>
<td>Ladder of Inference</td>
<td>To trace one's thinking process through six questions: What data did I select? What meaning did I ascribe to the data? What assumptions did I make based on the meaning I added? What conclusions did I draw? What beliefs did I adopt from my conclusions? What action did I take based on my beliefs? This tool creates a window for one to understand the processes one uses to build beliefs and take actions.</td>
</tr>
<tr>
<td>Learning Journal</td>
<td>To invite individual members of a team to reflect on their learning and to inquire into how they can increase their learning in future meetings.</td>
</tr>
<tr>
<td>Left-Hand Column</td>
<td>To be conscious of how one's unsaid thoughts can influence the outcome of conversations, and to act on this awareness either by verbalizing these thoughts or reflecting on them internally.</td>
</tr>
<tr>
<td>Pathways to Action</td>
<td>To gain clarity and agreement on the problem-solving pathway the team will use prior to its implementing a solution.</td>
</tr>
<tr>
<td>Polling</td>
<td>To be curious about what others are thinking.</td>
</tr>
</tbody>
</table>

### Section 1: Use of Tools by Site Council Members

The communication and inquiry tools were introduced to the site council sequentially. The learning cycle for the tools included two levels of exposure and practice. The first level included an introduction to a specific tool, personal practice, written reflection, sharing of individual practice, and a dialogue about the tool’s capacity and the learning it triggered about oneself and others. The second level consisted of continued practice with colleagues inside and outside site council sessions, the sharing of questions and
insights generated from this additional practice, and ongoing coaching and modeling in the use of the tools during sessions.

The learning journals (Table 3 or Appendix A) and cumulative learning journals (Appendix B and C) served as the primary source of data to evaluate and understand tool usage. The learning journal filled out after each session became the lens to view initial usage and the cumulative learning journals became the lens to view usage over time.

Findings

An analysis of the data identified six categories of tool use by the members of the site council: (a) becoming aware of one’s own thinking; (b) making one’s thinking visible and transparent to others; (c) understanding the thinking of others; (d) seeing one’s interactions from a systems perspective; and (e) engaging in collaborative decision-making; and (f) capturing and documenting learning. Each of these categories of tool usage is discussed below.

**Becoming Aware of One’s Own Thinking**

Members of the council used the tools in an integrated manner to increase their awareness of their personal thinking process. This awareness of their own thinking crystallized in five areas: articulation, construction of meaning, self-examination, enunciation of discoveries, and consideration of new potentiality.

**Articulation**. The articulation of one’s thinking process was triggered through speaking and writing. The tools check-in, advocacy, group guidelines, illusion, left-hand column, and learning journals (see Table 3 and Appendix A) invited participants to identify and share their ideas, feelings, assumptions, conclusions, and beliefs with each other orally.
or in writing. These acts of verbalization became windows through which members could hear and then see ideas, feeling, and thoughts held inside themselves. These acts of sharing and writing, triggered by the use of the tools, increased members' awareness of their own thinking processes. Members report becoming more aware of their own thought processes by using the tools, saying things such as, "[the] ladder of inference has helped me better see how I get myself into trouble by misunderstanding others," "I have been able to express and explore my thinking more effectively," and "sharing what I'm thinking can improve the quality of my assumptions."

**Construction of meaning.** Participants developed a deeper understanding of how they personally build meaning from the activities of the site council by using ladder of inference, advocacy, and left-hand column (see Table 3 and Appendix A). These tools invited them to examine and observe their internal processes of drawing meaning from words and actions. Site council members used the tools differently. Members reported becoming more aware of how they construct meaning by using the tools, saying such things as:

- I tend to jump up my ladder very quickly. Learning about the ladder of inference has helped me understand this tendency.
- I have become more aware of my own thinking process by using the tools.
- I can monitor the way in which I am coming to some of my conclusions in dealing with children, colleagues, and parents.
- Having a greater understanding of my own thinking processes helps me to clear up the "illusions" I have about myself.

Examining their own construction of meaning allowed them to understand how and when they tend to "jump up the ladder of inference," helping them to examine their own assumptions as well as their interaction with others.
**Self-examination.** New awareness of their thinking triggered site council members to reexamine and question their current beliefs and personal capacity. "It's difficult to listen and it takes practice. It's an effort to listen. It's difficult not to judge or rate," is the insight one member drew from his self-examination. Another member's self-reflection led him to question the certainty of his belief about how he communicates: "I thought I usually say what I am thinking, but now I know I don't." The journey of self-reflection led another member to experiment with new behaviors: "I tried to ask myself what is being communicated? What is the person saying? It is easy to react before getting the facts, also easy to lose interest. . . . I am going to be aware of listening."

**Enunciation of discoveries.** The fourth area that emerged under the category *awareness of one's own thinking* is the articulation of new discoveries about the self. The tools encouraged site council members to examine the complexity of communication. Seeing the world with fresh eyes triggered new connection making – personal discoveries about learning and new understandings of others. The illusions tool invited site council members to re-envision their liabilities as assets. One member observed, "I'm kind of hard on myself. . . . I often get a sinking feeling about imperfections." She turned this propensity to be critical into "a positive: I am reflective and care about my quality as a teacher and a person." Another member's discovery focused on the difference between facts and assumptions. "I need facts to base my ideas and ways [sic] and not to make assumptions." The capacity of a question to surface new ideas and change the dynamics of a discussion was another member's discovery: "Asking the right question opens great ways of thinking."

**Consideration of possibilities.** The process of making new connections and coming to new clarity about their own thinking patterns triggered some site council members to
entertain the possibility of personal changes. These new potentialities were noted in the learning journals and in the cumulative evaluations. The site council members had various insights leading to change. One said, "I often took mis-action. Maybe I need to work on slowing down my progress (and speed) up the ladder." Another decided that "recognizing and verbalizing my weakness made me think I can change [those weaknesses]." One member sums it up best by saying, "learning about the ladder of inference has helped me to understand this tendency [jumping to conclusions without checking the data], and work on not doing it in other interactions."

Making One's Thinking Visible and Transparent to Others

The site council members brought their own personal histories to the site council meetings. These histories included personal experiences with schools, teachers, learning, and the system of education. The values, assumptions, and beliefs developed from such experiences remain hidden unless they are exposed through action or conversation. The use of check-in, polling, group guidelines, advocacy, and left-hand column (see Table 3 and Appendix A) by site council members created the mixture of awareness, confidence, trust, and courage needed to articulate and share values, assumptions, and beliefs. The site council members felt that using the tools helped make their thinking more visible and transparent to others.

In discussing the critical learning gained from the tool check-in, council members said it helped them "better express [themselves]," "feel more at ease with the group," "articulate feelings," and "allow issues to surface." They felt polling was, "a vehicle for expression" that "brings up viewpoints never considered before," and "leads to wanting more information," in addition to "creating a safe environment – no right or wrong answers." With the tool group guidelines, site council members developed a list of
community behaviors to maximize their effectiveness. This tool helped foster an environment of respect and participation where "common expectations can be identified and agreed upon," and "people want to contribute their vision to the gathering."

Site council members observed that advocacy assisted them to "express beliefs without feeling attacked," "clarify wants and desires," help "all members to make their thoughts or ideas very clear to others," "introduce an interactive process so more information is shared," and "help others understand your views."

In discussing the critical learning gained from the tool left-hand column (previously unspoken thoughts), council members cited its ability to clarify their ideas to others and increase the quality of communication. One member said it "gives the other person a clear understanding of your actual position on the issue." Another noted that by learning how to transfer his left-hand thinking, "people accept my faults and it increases dialogue with others." A member of the site council summed up the tool's capacity to make his thinking visible and transparent to others by saying, it has "given me the knowledge to reach outside my comfort zone and share my beliefs and concerns."

Understanding the Thinking of Others

All members of the site council came to meetings holding assumptions and beliefs about issues connected to education – learning, discipline, curriculum, school mission, etc. The tools inquiry, advocacy, and left-hand column (see Table 3 and Appendix A) invited members to explore their own and each other's beliefs. The tools were used by members to demystify the thinking process of others so they could understand their assumptions, conclusions, beliefs, and actions.

In discussing the learning gained from the tool inquiry, members noted it helped them, "see other viewpoints and the reason for them," "listen and conscientiously try to
understand the beliefs of others," "uncover values or underlying opinions," and "build understanding and trust." The tool advocacy was cited as "introduc[ing] an interactive process so more information was shared," and "help[ing] others understand your views."

Using left-hand column, another member noted it, "increase[s] dialogue with others and [facilitates] coming to greater understanding of their viewpoint," rather than ending up in "a situation where you might have a stalemate."

In discussing how the tools collectively influenced them, one member stated, "I have learned more about our faculty . . . [by] observing, listening for assumptions, inquiring, [and] asking for data." Another member echoed this by observing. "I've really gotten to know the site council members better . . . sharing learning tools for in-depth, honest interactions." A third member noted, "when I disagree with someone, having the tools helps me to see their point of view. I find myself saying, 'help me to understand why you have this opinion, etc.' It is non-threatening and builds better dialogue." Another member observed that the tools helped her appreciate the linkage between questions and the intentions behind the inquiries. She observed it was critical to have a "wanting to know point of view" which expressed "concern and honesty."

Seeing One's Interactions from a Systems Perspective

The site council is a system composed of individuals working to provide leadership for school improvement activities. Through the utilization of the tools, members began to view themselves as a system, "an integrated whole whose essential properties arise from the relationships between parts [members]" (Capra, 1996, p. 27). The tools triggered development of three skills associated with systems thinking: (a) wide angle vision; (b) recognition and articulation of patterns of operation; and (c) identification of participants with each other.
**Wide angle vision.** The first skill developed was the ability to view the working of the council from a wide-angle vantage point. Rather than viewing the activities of the council from a narrow egocentric perspective characterized by thoughts that they are being ignored, the perspective shifts to the expansive whole characterized by attempts to understand what about group interactions keeps members from hearing each other. Members demonstrated the skill of wide-angle vision with the following expressions:

- Today's meeting had a very different feel from the last meeting – yet both were very productive.
- It was interesting to see how quickly we make assumptions.
- Seeing the previous learning journal responses made it clear to me that we are operating from different perspectives.

**Recognition and articulation of the patterns of operation.** Members began to articulate their understanding of the current reality of site council operations without defensiveness or blame. The site council comments that follow illustrate the recognition of patterns of operation:

- The technique of providing closure by asking "is that a proposal?" really helped me see that we don't get closure always, and need to.
- I am becoming aware of how much we need to make assumptions.
- The closing discussion helped me see that we did accomplish something.

**Identification of individuals with each other.** Characterized by thoughts recognizing that they are not alone, but in relation with others in a system, site members illustrated this skill when they said things such as, "recognizing my own weaknesses and strengths [and] also recognizing strengths and weaknesses in others helps me to learn or see how to interact and react to them to get the best possible dynamics," and "I am aware that my input is useful. Everyone can learn from each other."
Engaging in Collaborative Decision-Making

Site council members used the tools to engage in dialogues that resulted in the formation of shared decisions. Various tools, together with dialogue-triggered behaviors and thinking, supported members' engagement in this process. The use of these tools facilitated trust, deep listening, understanding, sharing of ideas, commitment to outcomes, and ownership for decisions, as evidenced by their comments about the tools:

- **Check-in** "builds trust," "increases understanding," "builds community and compassion," and "allows issues to surface and be addressed."
- **Establishing group guidelines** "creates commitment" and "builds community by creating common expectations."
- **Ladder of inference** helps to "keep people from jumping to conclusions," creates awareness that "assumptions are common and can block communication so they need to be surfaced and explored," and encourages members to "come in with an open mind willing to listen, learn, and share."
- **Balancing inquiry and advocacy** "gets ideas and feeling out so they can be examined," "allows you to learn what others feel [and] think," "help[s] others understand your views," "increase[s] the meaningfulness and the effectiveness of conversations/communications," "increase[s] active participation which increases learning and buy-in," and "helps bring the group into agreement."
- **Dialogue** aiding them to "become a better listener," "hear and learn more," and to suspend "judgments," "preconceptions," and "assumptions" as they enter into conversations.
Capturing and Documenting Learning

The learning journal and the composite learning journal were the tools members used to capture and document individual and collective learning (see Table 3). The learning journal was completed at the end of each session and invited members to reflect on eight areas of their learning. The composite learning journal, an exact transcript of the individual journals, was distributed to members several days after each session and was discussed by the members when they gathered for their next session. Three levels of learning were captured by the these learning journals: (a) learning about the tools’ capabilities, (b) exploring possible applications for tools, and (c) learning to increase learning in the sessions.

Learning the tools’ capabilities. The first level of learning captured by the learning journals focused on questions about the tools, insights (ah-hahs), and puzzlements resulting from personal practice, collective conversations, and action exercises. The following excerpts from personal learning journals illustrate site council member striving to understand the tools’ capacities:

- I have a clearer understanding of how recognizing advocacy/inquiry positions can re-direct a meeting or conversation and get things moving to closure [ah-hah].

- Inquiry helps see where the other person is coming from!! [ah-hah].

- Some steps of the ladder seem unclear [puzzlement].

- Not always clear how I can use [the tools] in daily life [puzzlement].

- Are there instances when traveling up the ladder [of inference] that we skip a step or blend two steps into one? [question].

- Is the pathway to action tool mostly used for complex problems? Seems like a complicated process if it isn’t [question].
Exploring possible applications for tools. The second level of learning captured by the learning journal focused on members exploring points of application for the tools. The learning journal excerpts that follow illustrate how the members began to seek applicability of the tools:

- Will definitely use left-hand column in discussions with staff to uncover need for more information or action.
- Will use [left-hand column] in student teacher/supervisor meeting.
- I especially think inquiry would be effective for discipline problems - or problems children have getting along with each other.
- [Check-In] should help me be more in tune with others' feelings.
- I think pathways [to action] will help us to arrive at a better solution by understanding the process.

Learning to increase learning in the sessions. The third level of learning captured by the learning journals focused on members becoming co-designers of the learning process. After each session participants responded to the question, "How can we increase learning in future sessions?" The responses generated from this question were used to design the next session. Feedback from the members fell into three categories: instruction, procedures, and personal learning strategies. In the category of instruction, members suggested that I "continue to be responsive to [their] rate of learning," "continue the small group sessions with time to share [and] debrief afterward," and "give enough time for understanding the tool before" giving homework. In relation to procedures, requests were received that I: "receive learning journals [back] more promptly so we may have more time to read and think of responses," and "make sure to go over the different tools briefly [at the beginning of class]." Comments from participants on personal learning focused on members assuming responsibility for their own learning by identifying behavior changes that would increase
their learning. The site council members felt that the following attitude/behavior changes would best facilitate more learning:

- Being as involved as I can and practicing what I learn.
- Becoming a better listener.
- Being honest, asking questions, having a learning attitude.

This section on findings has discussed the usage of each of the following categories of tools: (a) becoming aware of one's own thinking; (b) making one's thinking visible and transparent to others; (c) understanding the thinking of others; (d) seeing one's interactions from a systems perspective; and (e) engaging in collaborative decision-making; and (f) capturing and documenting learning.

Section 2: Results Produced from Site Council Use of Communication and Inquiry Tools

The introduction of the communication and inquiry tools to the site council resulted in council members' increased capacity "to think differently and choose new behaviors for working together more effectively." An analysis of the data has identified four process areas of growth: listening, engagement, trust, and efficacy. Each of these areas is discussed below. As in the previous section of this chapter, participants' comments illustrate both their insights about individual tools, as well as their general observations about the project.

Listening

Participants said the communication and inquiry tools assisted them in building their capacity to become better listeners. The analysis of the data found three types of skill development in relationship to listening: focus, openness, curiosity.
Focus. Site council members reported that they entered into conversation with more attentiveness to the words spoken by fellow site council members, colleagues, and friends. Members reported that they began "to really listen"; "trying to hear/get all the facts before taking actions." They saw the other members of the site council as making an "effort to hear each member's opinion on an issue," and "actually listen to what the other person was saying."

Openness. Site council members reported that they entered into conversation with less judgment, less jumping to conclusions, more candor, and fewer assumptions. Members saw the site council make shifts as a result of being more open. These included "being more open and encouraging to others," "more willingness to hear other viewpoints," "being more tolerant," "not jumping to conclusions right away," and "being more honest with each other." Members saw themselves as making individual shifts, including "listening in silence before asking or interjecting for information/opinions," "really listen and recognizing that there are other ways than my own," "suspending assumptions," and "not jumping to conclusions."

Curiosity. Through the use of the tools, site council members entered into conversations with a deepening interest in understanding the content of what was being said and the processes people were using to construct their conclusions and beliefs. When members heard something that was confusing or troubling they would ask questions. If members sensed they were jumping to conclusions with limited data, they would seek more information. This deepening curiosity manifested itself through inquiry. They reported seeing themselves as a council "asking members to clarify statements," being "more
inquiring during discussions," seeking "information without judgment," and having a greater "willingness to say what's on their mind."

Engagement

The second area of growth stemming from the site council members' use of the tools was engagement. As discussed in section 1 of this chapter, members used the tools to become aware of their thinking, make their thinking visible and transparent to others, understand the thinking of others, capture and document learning, see their interactions from a systems perspective, and engage in collaborative decision-making. These tools each fostered deeper engagement in specific ways.

Becoming aware of their thinking connected members to their own interests, beliefs, and purposes, which became touchstones for conversations. These conversations fostered "clearer understanding, more compassion, and better rapport with others."

Making their thinking visible and transparent to others, and trying to understand how others think cultivated an exchange enabling council members to be more comfortable expressing their opinions and ideas. "We are learning from each other [and] respecting each other's opinion," said one member.

Capturing and documenting learning nurtured community building. "I ask the group for guidance more. I look for collective intelligence and attempt to capture our learning."

Making collaborative decisions encouraged alignment of purpose, helping "everyone on the site council develop respect for each other and established better listening and involvement. "[It] helped us become more team members - not Lone Rangers."

The tools and processes described here fostered engagement by creating "a focus for the site council and a direction for growth and priority setting."
Trust

The third area of growth resulting from the site council's use of the tools was a deepening mutual trust. The increase in trust was closely linked to the increased capacity for listening and the deeper engagement and sharing of ideas.

Increased capacity for listening created the opportunity for site council members to observe the processes other members used to make meaning from the selection of data. This resulted in members experiencing the complexity of diversity. Through the use of inquiry, members encouraged others to share their thinking and make it more understandable. "I ask questions when I don't quite understand," said one member. This more fully engaged listening encouraged more sharing, and from this process grew an environment that encouraged relationship building. A member reported feeling that she had "really gotten to know the site council members well," and another observed he had a "better understanding of everyone."

The site council became a safe place to risk sharing their thinking. Council members expressed this in many ways: "I have gained more confidence by being comfortable in the group. I know my ideas and opinions are appreciated"; "mutual respect, patience, and listening [create] openness to other points of view"; "I think colleagues have increased communication, been able to take on some serious differences, and been able to trust each other at a higher level"; "as we used the tools we had a better idea of why we each felt the way we did. When the understanding and communication grew, so did the trust." One member observed a causal relationship between the tools fostering trust and the site council commitment to devote time for their work: "Tools helped build trust faster but time was essential."
Efficacy

The fourth area of growth resulting from the site council's use of the tools was an increase in efficacy, especially an increase in the quality of communication. Efficacy is defined in this study as increase in the site council's ability to stay on task, work through difficult issues, communicate more directly with each other, and respect differences of opinions. The site council members became more comfortable and confident in their ability to use their time together wisely and accomplish their responsibilities. "Wow! Our use of the tools, group empathy, and quality of communication has improved 200%. It's amazing," was one enthusiastic response. Participants reported an increase in their capacity to be focused as an increase in efficacy with statements like, "by using the tools we are able to stay on task and complete goals that we have set for ourselves," and "running meetings with the tools ... keeps us focused on goals and objectives." Members also saw site council meetings as "more efficient and effective" after they began using the tools.

This sense of efficacy did not come at the expense of limiting input from members. One participant reported the value of hearing "input from all members to get [the] best possible solutions." Another member noted the council's "better use of time because we check-in to see where people are." The perceived capacity of the site council to be deliberative was captured by a member observing that the "meetings are more thoughtful." The site council did not avoid difficult issues as a means of improving efficacy. One member cited the ability of the site council to get "through difficult issues and still be able to respect points of view." The site council as a committee reacted to problems with the mindset that they were part of the landscape and not to be feared or avoided. "I feel proud of our site council to be able to discuss openly when we have problems arise. We try to
reach an understanding of the minds." A member gave an example of this capacity by describing the council's ability to cooperatively "capture learning."

The use of communication and inquiry tools helped the council to embrace the diversity of its members: administrators, teachers, parents, community members, and support personnel. This capacity was articulated by a member when he observed: the tools "have made me think about the ways we communicate our ideas, and made me more aware of how the differences of opinion can be overcome." Another member saw the tools as "giv[ing] me the feeling that I can work with anyone on issues."

Section 3: Characteristics of Communication and Inquiry Tools

Two themes will be discussed in this section: capacity building dimensions and operational characteristics of the tools. The section also explores how capacity building dimensions relate to existing theory.

Capacity Building Dimensions

Site council members used the tools to become aware of their thinking, to understand the thinking of others, to make their thinking visible and transparent to others, to see their interactions with others from a systems perspective, to engage in collaborative decision-making, and to capture and document learning. These activities resulted in site council members growing in their ability to listen, engage, trust, and to work effectively with each other.

These six activities and four outcomes represent ten findings which increase the awareness of site council members in three capacity-building dimensions: (a) awareness of
self, (b) awareness of others, and (c) awareness of the system. Table 4 presents a matrix showing the relationship between building capacities and the findings.

### TABLE 4

**MATRIX: RELATIONSHIP OF FINDINGS TO CAPACITY BUILDING DIMENSIONS**

<table>
<thead>
<tr>
<th>Awareness of Self</th>
<th>Awareness of Others</th>
<th>Awareness of the System</th>
</tr>
</thead>
<tbody>
<tr>
<td>Becoming aware of one’s own thinking</td>
<td>Understanding the thinking of others</td>
<td></td>
</tr>
<tr>
<td>Seeing interactions from a systems perspective</td>
<td>See interactions from a systems perspective</td>
<td>See interactions from a systems perspective</td>
</tr>
<tr>
<td>Making thinking visible and transparent to others</td>
<td>Capturing and documenting learning</td>
<td>Capturing and documenting learning</td>
</tr>
<tr>
<td>Capturing and documenting learning</td>
<td>Capturing and documenting learning</td>
<td>Capturing and documenting learning</td>
</tr>
<tr>
<td>Engaging in collaborative decision-making</td>
<td>Engaging in collaborative decision-making</td>
<td>Engaging in collaborative decision-making</td>
</tr>
<tr>
<td>Engage</td>
<td>Engage</td>
<td></td>
</tr>
<tr>
<td>Listen</td>
<td>Listen</td>
<td></td>
</tr>
<tr>
<td>Trust</td>
<td>Trust</td>
<td>Efficacy</td>
</tr>
</tbody>
</table>

**Characteristics of Dimensions**

**Awareness of self.** An increase in the capacity to be self-aware centered around members becoming more aware of their own thinking, mindful of their assumptions, attentive to how they constructed meaning, reflective about personal beliefs, observant of new discoveries, and exhibiting a willingness to step outside their comfort zone.
Awareness of others. An increase in the capacity to be aware of others was centered around members becoming more conscious of their tendency to jump to conclusions, and developing the ability to suspend assumptions and listen with a beginner’s mind. Deeper listening stimulated inquiry into statements that were confusing or unclear.

Awareness of the system. An increase in the capacity to see themselves as part of a system centered around members’ ability to build deeper relationships with each other. Deeper relationships cultivated safety, enabling members to make statements or ask questions that in the past would have gone unspoken because they would have been deemed too threatening. These honest interactions nurtured the testing of ideas, leading participants to better understand the consequences of actions and the interdependence of members. Ultimately, they began to see that the potential of the council was embedded in members’ relationships with each other.

There was a synergistic relationship between capacity building in each of the dimensions. Awareness in one dimension deeply influenced the capacity for awareness in the other dimensions. Awareness of self was often triggered by questions posed by others; the desire to ask a question was frequently motivated by new connections seen from increased personal awareness; awareness of others was often triggered by members reaching beyond their comfort zones and sharing thoughts that in the past would have remained unsaid; awareness of the system was frequently triggered by deep listening which is centered in personal awareness.

Relation of Capacity Building Dimensions to Previous Research Findings

The three capacity building dimensions do not stand still; they are always interacting with each other. Each interaction holds the potential to bring council members a new level
of understanding of themselves, others, and the system. This dynamic interplay between the members and their capacity building in three dimensions is consistent with Zohar’s (1997) research on quantum physics. Quantum particles are not separate solid things but rather dynamic patterns of energy which are "bound up with all the possibilities of and identities of all others" (Zohar, 1997, p. 46).

A comparison of these dimensions with Senge’s (1990a) disciplines, Lipshitz and Popper’s (1996) shared values, DiBella and Nevis’s (1998) facilitating factors, and Watkins and Marsick’s (1993) action imperatives (Tables 5, 6, 7, and 8) reveal the embodiment of the capacity building dimension within these researchers’ general frameworks. There are many instances where capacity building dimensions are not embodied in individual elements of the researchers’ frameworks. Awareness of self is the building capacity that is the least represented in Lipshitz and Popper’s (1996), DiBella and Nevis’s (1998) and Watkins and Marsick’s (1993) frameworks.

**TABLE 5**

**MATRIX: RELATIONSHIP OF CAPACITY BUILDING DIMENSIONS TO SENGÉ’S DISCIPLINES**

<table>
<thead>
<tr>
<th>Researcher</th>
<th>Awareness of Self</th>
<th>Awareness of Others</th>
<th>Awareness of System</th>
</tr>
</thead>
<tbody>
<tr>
<td>Senge’s Disciplines</td>
<td>Personal Mastery</td>
<td>Mental Modes</td>
<td>Mental Modes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Shared Vision</td>
<td>Shared Vision</td>
</tr>
<tr>
<td></td>
<td>Team Learning</td>
<td>Team Learning</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Systems Thinking</td>
<td>Systems</td>
<td>Thinking</td>
</tr>
</tbody>
</table>
### Table 6

**Matrix: Relationship of Capacity Building Dimensions to Lipshitz and Popper's Shared Values**

<table>
<thead>
<tr>
<th>Researcher</th>
<th>Awareness of Self</th>
<th>Awareness of Others</th>
<th>Awareness of System</th>
</tr>
</thead>
<tbody>
<tr>
<td>Popper and Lipshitz's Shared Values</td>
<td>Continuous Learning</td>
<td>Continuous Learning</td>
<td>Continuous Learning</td>
</tr>
<tr>
<td></td>
<td>Valid Information</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Egalitarianism</td>
<td>Egalitarianism</td>
<td>Accountability</td>
</tr>
</tbody>
</table>

### Table 7

**Matrix: Relationship of Capacity Building Dimensions to Nevis, DiBella, and Gould's Facilitating Factors**

<table>
<thead>
<tr>
<th>Researcher</th>
<th>Awareness of Self</th>
<th>Awareness of Others</th>
<th>Awareness of System</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nevis, DiBella, &amp; Gould's Facilitating Factors</td>
<td>Scanning Imperative</td>
<td>Scanning Imperative</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Performance Gap</td>
<td>Performance Gap</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Concern for Measurement</td>
<td>Concern for Measurement</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Organizational Curiosity</td>
<td>Organizational Curiosity</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Climate of Openness</td>
<td>Climate of Openness</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Continuous Education</td>
<td>Continuous Education</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Operational Variety</td>
<td>Operational Variety</td>
<td>Multiple Advocates</td>
</tr>
<tr>
<td>Involve Leadership</td>
<td>Involve Leadership</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Systems Perspective</td>
<td>Systems Perspective</td>
<td>Systems Perspective</td>
<td></td>
</tr>
</tbody>
</table>
The significance of the capacity building dimensions *awareness of self, awareness of others, and awareness of system* lies in their potential to be used as frameworks to evaluate tools and plans connected with systemic school reform initiatives. As one designs and implements educational change initiatives, one might ask: In what way do these tools, activities, exercises, and information connected to our change initiative promote the staff members' awareness of their own viewpoints (mental models), questions, capabilities, and learning needs? In what way does this plan encourage staff members to hear, see, and understand the viewpoints, questions, capabilities, and learning needs of their colleagues?

<table>
<thead>
<tr>
<th>Researcher</th>
<th>Awareness of Self</th>
<th>Awareness of Others</th>
<th>Awareness of System</th>
</tr>
</thead>
<tbody>
<tr>
<td>Watkins and Marsick's Action Imperatives</td>
<td>Create Continuous Learning Opportunities</td>
<td>Create Continuous Learning Opportunities</td>
<td></td>
</tr>
<tr>
<td>Promote Inquiry and Dialogue</td>
<td>Promote Inquiry and Dialogue</td>
<td>Encourage Collaboration and Team Learning</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Establish Systems to Capture/share Learning</td>
<td></td>
</tr>
<tr>
<td>Empower People Toward a Collective Vision</td>
<td>Empower People Toward a Collective Vision</td>
<td>Empower People Toward a Collective Vision</td>
<td></td>
</tr>
<tr>
<td>Connect the Organization to its Environment</td>
<td>Connect the Organization to its Environment</td>
<td>Connect the Organization to its Environment</td>
<td></td>
</tr>
</tbody>
</table>
And lastly, how does this plan encourage awareness of the system; what are the viewpoints capabilities, questions, and learning needs of parents, community members, and business? The capacity building dimensions, driven by the use of the communication and inquiry tools, holds the potential to enlarge and deepen the conversations regarding the designing, planning, and implementation of systemic school reform initiatives.

Operational Characteristics of Communication and Inquiry Tools

In addition to the tools assisting members in building capacity in the dimensions of awareness of self, awareness of others, and awareness of the system, the tools exhibit an identifiable set of operational characteristics.

- The tools invite mindfulness and focus.
- The tools are inherently passive, their potentiality come from their application through the emerging skills of the user.
- Initial competence with the tools can be gained from instruction, experimentation, ongoing practice, and reflection.
- The tools can be used with other team members to make decisions and build solutions which no single council member could come to alone.

These characteristics have much in common with the operational characteristics of musical instruments. Each type of musical instrument has its own unique sound and range of notes. However, an instrument is passive and only becomes capable of filling the air with sounds when the musician uses it. The sounds emanating from an instrument reflect the emerging skills and gifts of the person playing it, and that learning comes about through practice, experimentation, and reflection. Musicians and their instruments can be brought
together to blend their talents to fill the air with overlapping sounds to create what no single instrument could achieve by itself.

The communication and inquiry tools introduced to the site council share many of the operational characteristics of musical instruments. The tools as stand-alone concepts do not result in the growth of individual capacity. Unused, they engender no awareness of one’s thinking, no ability to make one’s thinking visible to others, no understanding of the thinking of others, no ability to see one’s interactions from a system perspective, no ability to document learning, and no ability to engage in collaborative decision-making. The awareness and understanding the tools engendered comes from their use. Each tool has a particular focus inviting attention to a particular purpose. The awareness, insights, and learning fostered by each tool reflect the emerging skills of the user. Developing initial competency with the tools takes instruction, experimentation, ongoing practice, and reflection. Like musical instruments, the communication and inquiry tools have the capacity to be used in conjunction with each other to create complex compositions - cognitive symphonies which result in collaborative and shared decision-making.

Summary of Findings

The communication and inquiry tools introduced to the site council increased members’ individual and collective capacity to (a) listen (participants entered into conversations with deeper attentiveness, openness, and curiosity), (b) engage (participants actively exchanged and explored ideas, concerns, beliefs, and questions with each other), (c) trust (participants’ listening, inquiry, sharing, mutual respect, patience, understanding, and learning – all developed through use of the tools – fostered a more trusting environment), and (d) work effectively with each other (participants became focused, stayed on track,
engaged in open discussions, reached understandings, completed goals, respected points of view, and captured learning).

These aptitudes were developed through the use of the communication and inquiry tools in six areas:

1. *Becoming aware of one's own thinking.* Members became mindful of their assumptions, attentive to how they constructed meaning, reflective about personal beliefs, and observant of new discoveries.

2. *Making one's thinking visible and transparent to others.* Members shared ideas, stated beliefs, articulated feelings, noted assumptions, requested information, identified data, and illustrated their thinking processes.

3. *Understanding the thinking of others.* Members began to listen with greater attentiveness, "uncover values," ask for data, "engage in honest interactions," and "see other viewpoints."

4. *Seeing one's interactions from a systems perspective.* Members developed relationships with each other, began to see the intricate interactions among themselves from a wide-angle perspective, and started to observe patterns of operation.

5. *Engaging in collaborative decision-making.* Members used the communication and inquiry tools to build "understanding," "compassion," "commitment," "ownership," "common expectations," "trust," and "community." From these values grew an attitude and atmosphere of people working together to make shared decisions.
6. *Capturing and documenting learning*. Members recorded, shared, and reflected on their emerging insights about the tools, their applications, and what they were learning about learning.

The four aptitudes (increased capacity to listen, engage, trust, and work effectively together) were developed through the use of tools in six areas: (a) becoming aware of one's thinking, (b) making one's thinking visible and transparent to others, (c) understanding the thinking of others, (d) seeing one's interactions from a systems perspective, (e) engaging in collaborative decision-making, and (f) capturing and documenting learning. These outcomes increased the members' awareness in three capacity building dimensions:

1. **Awareness of self.** Members became more aware of their thinking, attentive to how they constructed meaning, reflective about personal beliefs, and observant of new discoveries.

2. **Awareness of others.** Members became more cognizant of their tendency to jump to conclusions, more skilled at suspending assumptions, more proficient at listening with a beginner's mind, and more inquiring into statements by others.

3. **Awareness of the system.** Members built deeper relationships with each other, thereby cultivating safety and enabling members to make statements or ask questions that in the past might have gone unspoken. These honest interactions nurtured the testing of ideas, leading participants to see, examine, and understand the potential consequences of actions. Through these new behaviors and understandings, members began to see that the potential of the council was embedded in members' relationships with each other.
Collectively, the communication and inquiry tools exhibited four identifiable operational characteristics:

1. They invite mindfulness and focus.

2. Their potential comes from their application and the emerging skills of the users.

3. Initial competence in their use can be gained from instruction, experimentation, ongoing practice, and reflection.

4. They can be used to harness collective intelligence. Collectively, members can use the tools to make decisions and build solutions which one single member could not come to alone.
CHAPTER V

DISCUSSION AND RECOMMENDATIONS

This study investigated the use of communication and inquiry tools by an elementary school site council. The selected set of tools was drawn from learning organization theory and organizations seeking to become learning organizations. This chapter discusses how the findings relate to prior research regarding the importance of being able to engage in deep collective conversations and the perceived strengths of the tools. This chapter also discusses transferability and presents implications for future study.

The present research suggests that teachers, parents, community members, support personnel, and administrators can increase their capacity to listen to each other; actively explore and exchange questions, concerns, and ideas; build a trustful environment; and work together more efficiently. The critical impact of the communication tools is their ability to create an opportunity for participants to examine, share, and explore their own thinking and the thinking of others.

The primary vehicle for this engagement is the conversation. Through conversations members first articulated what they learned about how to use the tools, and then what they learned through the use of the tools. The collective use of the tools resulted in organizational learning centered around three dimensions of awareness: awareness of the self, of others, and of the system.

Weber (1993) states that the conversation is the intersection where knowledge is created. "Conversations are the way knowledge workers discover what they know, share it with their colleagues and in the process create new knowledge for the organization. . . . [Conversations] are the chief mechanism for making change and renewal an ongoing part"

Fullan’s (1998) research identifies the importance of educators developing a learning mindset and letting go of the search for the silver bullet – packaged external solutions. He acknowledges that “times of uncertainty and relentless pressure promote an understandable tendency to want to know what to do,” yet the first step to break the dependency of looking for prepackaged solutions is to understand that “there is no definitive answer to the ‘how’ question” (Fullan, 1998, p. 8). Fullan (1998) observes that simple awareness of Newmann and Wehlage’s (1995) research that “student achievement increases substantially in schools with collaborative work cultures that foster a professional learning community . . . does not tell educators how to change their own situation to produce greater collaboration” (p. 8). Fullan’s (1998) guidelines for action – "respect those you want to silence"; "move toward the danger in forming new alliances"; "manage emotionally as well as rationally"; "fight for lost causes" – all necessitate the need to engage in thoughtful and probing conversations (p. 8).

Tyack and Cuban’s (1995) historical research on public school reform further supports Fullan’s (1998) contention that relying on magical external solutions is unsound. Because the debate about education has always been about “defining the present and shaping the future,” Tyack and Cuban (1995) state there is no certain or stable pathway. Their research also exposes the paradoxes inherent in the divergent roles that Americans have wanted schools to play in the lives of their children:
• To socialize them to be obedient, yet to teach them to be critical thinkers;
• To pass on the academic knowledge the past has to offer, yet also teach
  marketable and practical skills;
• To cultivate cooperation, yet teach students to compete with one another in
  school and later in life;
• To stress basic skills but also encourage creativity and higher-order
  thinking;
• To focus on academic ‘basics’ yet to permit a wider range of choice of
  sources. (Tyack & Cuban, 1995, p. 43)

The complexity which accompanies the different and often contradictory purposes of
education highlights the dilemma of looking for definitive answers. If there are no definitive
answers, standards and strategies must be negotiated through conversation among the
educational shareholders.

Collins and Porras (1997), in their research on organizational effectiveness, identify
the importance of developing the capacity to manage paradoxes. They define such capacity
as "the ability to embrace both extremes of a number of dimensions at the same time" (p.
44). The skill of dialogue can play an important role in building the capacity to hold
paradoxes (Senge, 1990a). Ramsey (1997) notes that this capacity to hold paradoxes helps
the team harness the "vigor and variety" of diversity (p. 5). Not having the learning tools
which enable us to hold paradoxes accelerates the desire to choose between two opposing
values and miss the opportunity to identify a solution with the "greatest gains and highest
leverage" (Ramsey, 1997, pp. 4-5). It is difficult for an organization to do so without
honoring multiple voices.
Sweeney (1996) states that "attitudes of curiosity and mindfulness" are the most important skills in practicing systems thinking (p. 8). Such attitudes, fostered by a focus on clear communication, minimize lapses into defensive behaviors which limit learning.

Caine and Caine (1997) observe that "some of the deep beliefs about how children actually learn have never been examined by many of those embroiled in the debate around improving the academic performance of students" (p. 8). Their research focuses on the powerful impact schools can have on student learning when educators keep a learning attitude: that is, examining their current mental models of learning and becoming exposed to current research on how people learn. Examining their own assumptions in conjunction with learning theories requires interactive and reflective conversations.

Lambert's (1998) research articulates the importance of developing strategies to help schools sustain improvements over time. School improvements are often triggered by a visionary, energetic principal, superintendent, or school board. All too often, when leadership changes the improvements fail to sustain themselves. The unintended consequences of starting over again and again is loss of purpose, vigor, and community and staff commitment. Lambert (1998) maintains that if schools are to sustain improvements over time, the desire for continuous improvement must be embedded in the culture of the school. She advocates re-envisioning leadership as a "reciprocal learning process that enables participants in a community to construct meaning toward a shared process" (p. 18). The sustainability of shared commitments rests firmly on the quality of the communication among stakeholders.

conversations where curiosity is encouraged, beliefs are shared, assumptions are examined, paradoxes are held, common understandings are generated, shared decisions are made, and collective learning is promoted and harvested. The six capabilities generated by the use of the tools (becoming aware of one's own thinking, making one's thinking visible and transparent to others, understanding the thinking of others, seeing one's interaction form a systems perspective, engaging in collaborative decision-making, and capturing and documenting learning) support deep collective conversations.

The tools' capacity to help educators engage in deep conversations speaks directly to many of the concerns raised by Hargreaves' (1997) research into the reasons educational change initiatives are failing or faltering. Some of the reasons Hargreaves (1997) cites include: inability to conceptualize and explain the reasons behind reforms and how these will effect students, the inability to understand how personal needs interact with institutional needs, the difficulties of coordinating and implementing ambitious changes across disciplines, and the inability to hold the anxiety associated with experimentation. One of the common denominators behind this list is the critical roles that open thinking and quality communication plays in change initiatives. The parents, educators, and community members' use of the tools to listen to each other, actively explore ideas, build a trusting environment, and work together more effectively all focus on elements of open thinking and quality communication. The ability to engage in deep conversation for the purpose of learning and acting on that new learning is not by itself sufficient to address all the complex issues surrounding systemic school reform initiatives. It is my hope that the communication and inquiry tools used in this study might hold the potential to address some of the communication and thinking blocks that have limited educational change initiatives in the past.
The Perceived Strengths of the Tools

The strength of the tools detailed in this study lie in their ability to encourage the development of new skills to narrow the gap between the site councils' current reality and its vision. The catalytic potential of the tools is based on building personal and collective learning which is directed towards areas of concern. Though each tool was different, they can be seen as linked together in five recursive stages. These include building a foundational stage, framing cognitive vocabulary, supplying connectors, using problem-solving frameworks, and using conduits. Each stage will be discussed in terms of the strengths of each tool introduced.

Building a Foundation

The tools group guidelines, check-in, and dialogue focus on the foundational skills of building trust, self-expression, and community building. Every other stage rests upon this foundation.

Group guidelines. Through the tool group guidelines, the site council members discussed, built, and then committed themselves to a set of ground rules within which to operate. This tool encourages self-expression, and models a decision-making and communication process that stresses respect. The end results are a product and process that celebrate the notion of community.

Check-in. Check-in reinforced the community building gained from group guidelines by allowing members continuing glimpses into others' perceptions. Doing so modeled and reinforced the notion of acceptance.
Dialogue. Dialogue reframed the notion of communication. What was once a linear cause and effect model - you speak, and the words you choose define my meaning - became a nonlinear model - you speak and I bring meaning to your words through a set of personal filters that influence the meaning I build into your words. Dialogue builds a culture which supports the hearing and understanding of new ideas.

Framing Cognitive Vocabulary

Ladder of inference, inquiry, advocacy, and left-hand column provided members a new cognitive vocabulary to process and reflect on their internal thinking and their reactions to others' ideas or actions. The strengths of the tools ladder of inference, inquiry, advocacy, and left-hand column are imbedded in their interconnections.

Ladder of inference. Ladder of inference is a conceptual framework that increases members' awareness of the incredible speed with which they moved from collecting data to drawing conclusions. If we don't share with others how we have come to our conclusions, others will naturally fill in the gaps, correctly or incorrectly, with their own assumptions. By exposing the steps of meaning making, the ladder creates a shared vocabulary the members used as a passport to enter into conversation about the complexity of communication.

Inquiry. Inquiry encouraged members to test any assumptions that might lead to misunderstanding instead of allowing those assumptions to create havoc within the group.

 Advocacy. Advocacy helped members acknowledge the dynamic complexity of communication and provided them with strategies to make their thinking clear to others.
**Left-hand column.** Left-hand column brought team members’ privately held assumptions into the public conversations. Untested or unacknowledged private assumptions, based on internal reasoning which may or may not be correct, can warp reality. Assumptions about others’ motivations and ideas can create skewed perceptions. If this occurs, proposals can be discarded without due consideration. This tool is predicated on great personal awareness and trust among members.

**Supplying Connectors**

A third set of tools acted as connectors, creating awareness of and sensitivity to group dynamics. These included balancing inquiry and advocacy, energies of the field, polling, and illusions.

**Balancing inquiry and advocacy.** Balancing inquiry and advocacy increased members’ awareness of the importance of mutual learning in conversations. Conversations that promote skillful discussion have a balance between inquiry (asking questions to determine what others are thinking) and advocacy (explaining your thinking to others). This tool helped members engage in conversations in a purposeful manner that promoted understanding and mutual learning.

**Energies of the field.** Energies of the field promoted members’ use of dialogue inquiry, advocacy, and left-hand column in their discussions. The strength of this tool was its ability to help members better understand how their contributions enable or disable the productivity of meetings. Although the members used the constituent tools noted above, they did not mention energies of the field in their learning journals.
Polling. Polling provided a quick reality check on how the team was thinking in the moment. It provided the opportunity to challenge preconceived assumptions, identify areas of agreement and disagreement, and establish a picture of the current thinking of the team.

Illusions. Illusions engaged the team members in a conversation regarding concealment. Through this tool, members become aware that the time and energy they spend in covering up their weaknesses is often unproductive because often team members may be already aware of these weaknesses. Illusions was the tool most difficult for members to understand. It was rarely referred to and failed to be used on a regular basis. Its value was in providing exposure to the idea that team members try to prevent others from seeking their weaknesses.

Using Problem-Solving Models

The tools five step process and pathways to action functioned as problem-solving models. Both tools were designed to provide members a deeper understanding of why collective decision-making is difficult and to promote behaviors that foster collective problem-solving.

Five step process. Five step process encouraged site members to use dialogue, inquiry, advocacy, left-hand column, and energies of the field as they processed issues and made decisions. The strength of this process was its ability to provide an integrating context for the use of the tools. The site council incorporated this framework into their decision-making process but members did not reflect on this tool in their learning journals.

Pathways to action. Pathways to action provided the team with alternative solution building processes. This tool prompted members to reflect deeply on the different problem-
solving mental models individuals hold and the complexity of reaching collective solutions.

The team did not adapt this tool to their decision-making processes.

Using Conduits

Three types of learning journals – initial, composite, and cumulative – operated as conduits inviting members to process both individual and collective learning. These types of journals allowed members to surface and display their emerging learning, and then act as forums to reflect on, discuss, and use insights. The tool group agreements provided the team with a framework to chronicle understandings.

Learning journal. The initial learning journal completed after each session gave members an opportunity to reflect on and integrate the learning triggered by the session. Members recorded questions, puzzlements, and suggestions for increasing learning in future sessions. The strength of this tool was its ability to give participants time to make meaning through personal connections to the activities and to provide feedback which guided the next sessions.

Composite learning journal. The composite learning journal provided members with the ability to see into the collective thinking of the site council. The ability to read all team members’ responses to each session evidenced the fact that each member brings his or her own insights and interpretations to conversations and experiences. Members were often surprised by others’ viewpoints.

Cumulative learning journal. The cumulative learning journal provided members insight in long range shifts, insights, and discoveries that they and other team members were experiencing as a result of their learning contract with the Change Institute. The strength of
this tool was its ability to give the site council members the ability to trace their collective learning of the team over time.

**Group agreements.** Group agreements provided the team with a tool to record collective agreements and delegated tasks – who is responsible and when the task will be completed. It visually documents accomplishments, cultivates personal as well as collective responsibility and accountability. Members did not refer to this tool in their learning journals.

**Transferability**

The significance of the research is twofold: It identifies specific patterns of use of learning tools by the subject site council, and it develops a template for assessing existing tools and instructional strategies.

The transferability of the tools used in this study to other situations is bounded by the limitations inherent in all qualitative research. Maxwell (1996) states that the transferability of qualitative research is connected to the theoretical parameters of the research. Those "who make policy or design research studies within the parameters of the [original] research can determine whether or not the case described can be generalized to new research or other settings" (Maxwell, 1996, p. 144). Future policymakers and researchers will evaluate the transferability of the findings of this research on a case-by-case basis based on their unique circumstances.

**Implications for Future Study**

The persistence of calls for school reform, along with the ambitious yet uncertain nature of that reform, has prompted growing support for

To suggest recommendations for future study, it is necessary to restate the original purpose of this research, which was to examine how one elementary site council learned and used a set of communication and inquiry tools. The selected set of tools was drawn from learning organization theory and organizations that are seeking to become learning organizations. Though the findings note a growth in the site council members' capacity to listen, engage, trust, and to work effectively with each other, the study is narrowly defined. Consequently, the following suggestions for future research focus on replicating the study with an enlarged population, continued examination of instruction and learning cycles, and identification of and experimentation with new tools.

1. A field study which enlarges the number of participants to include all the staff members of a school.

2. Evaluation of the instructional and learning cycle used during this study.

3. Identification and evaluation of new tools drawn from learning organization theory and organizations that are seeking to become learning organizations.

4. A study exploring the usefulness of the capacity-building dimensions framework (awareness of self, awareness of others, awareness of the systems) as a template to identify and evaluate new learning organizational tools and instructional strategies.

5. A longitudinal study of the school used in this research to assess what effect if any the site council's leadership has on the student performance.
Final Remarks

The demands on schools to increase student performance are being driven by systemic forces that will not dissipate (Albers-Mohrman & Wohlstetter, 1994). Tyack and Cuban (1995) observe that education is always at the vortex of debate because education embodies the uncertainty of "defining the present and shaping the future" (p. 42). The learning organization is a conceptual construct seeking to respond to uncertainty and change that surrounds organizations today. The leaning organization is in the inventive stage and so are the tools associated with it. Thus, the connection between the tools and the organizational learning theory is not yet clearly defined. My work with the site council incorporated early drafts of cognitive tools which, over time, will become better understood and more effective in building educators' capacity to participate in new organization structures that align with the learning needs of the quantum paradigm. The concept of the learning organization is being continuously refined and will eventually be replaced.

I believe the positive response of the site council members to the communication and inquiry tools is centered around the hopefulness they provide. The frustration, powerlessness, despair, and depression I often see expressed by educators comes from the gap between their school's current reality and the vision multiple stakeholders hold of the school's potential. The tools engender hope by developing cognitive and processing skills which help people deal with uncertainties that surround schools today.

Educators, like many individuals, find themselves in organizations today struggling to maintain competence and economic viability in the rapidly changing landscape of the knowledge era. Unfortunately, the tools and strategies educators often use to identify, discuss, and address issues come from the Newtonian paradigm which stresses certainty,
predictability, and control. These tools do not match well with the complex, chaotic, and uncertain problems characteristic of the quantum paradigm framing the knowledge era.

I believe that much of the feeling of frustration that educators feel comes from trying to use tools which no longer fit the needs and problems they seek to address. The communication and inquiry tools used in this study represent an emerging set of cognitive tools focused on developing skills to build solutions to problems typical of the knowledge era – complex problems in environments of uncertainty. I believe these emerging cognitive tools have potential to shift the dialogue surrounding education reform away from frustration and blame and toward capacity building and hopefulness.

The most rewarding memory I take from this research was watching the site council members strengthen and in some cases renew their beliefs that they could make significant contributions to improvement of the educational processes at their school.
REFERENCES


APPENDICES
APPENDIX A

COMMUNICATION AND INQUIRY TOOLS
**Advocacy**

**Definition**
- Advocacy is a tool that makes your thinking process more visible to others.

<table>
<thead>
<tr>
<th>Ladder of inference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actions</td>
</tr>
<tr>
<td>Beliefs</td>
</tr>
<tr>
<td>Conclusions</td>
</tr>
<tr>
<td>Assumptions</td>
</tr>
<tr>
<td>Meanings</td>
</tr>
<tr>
<td>Data</td>
</tr>
<tr>
<td>Observable</td>
</tr>
</tbody>
</table>

**Ways to use the tool**
- State your assumptions and data
  - "Here's what I think and here's how I got there."

- Explain your assumptions
  - "I assumed that..."

- Make your reasoning explicit because...
  - "I came to this conclusion..."

- Explain the context of your point of view: who will be affected by your ideas; how they will be affected and why.
  - "Students will be affected in this way ...."

---

* Source: The Fifth Discipline Fieldbook © 1994, p. 256

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Balancing Inquiry and Advocacy

Definition **
- A framework which examines how one engages in conversations. What is the balance between making your thinking visible to others and asking others to make their thinking process visible to you?

<table>
<thead>
<tr>
<th>High advocacy/Low inquiry</th>
<th>High advocacy/High inquiry</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Telling</strong></td>
<td><strong>Skillful discussion</strong></td>
</tr>
<tr>
<td>- Forthright.</td>
<td>- Balances advocacy &amp; inquiry.</td>
</tr>
<tr>
<td>- Tells much more than asks.</td>
<td>- Genuinely interested and curious.</td>
</tr>
<tr>
<td>- Pushes own point of view.</td>
<td>- Discusses and converses.</td>
</tr>
<tr>
<td>- Appears closed to other's input.</td>
<td>- Makes reasoning explicit.</td>
</tr>
<tr>
<td>- Doesn't explain reasoning.</td>
<td>- Asks others about their assumptions without being critical or accusing.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Low advocacy/Low inquiry</th>
<th>Low advocacy/High inquiry</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Observing</strong></td>
<td><strong>Asking</strong></td>
</tr>
<tr>
<td>- Doesn't say much.</td>
<td>- Asks more than tells.</td>
</tr>
<tr>
<td>- Steps back and watches.</td>
<td>- Interviews rather than discusses.</td>
</tr>
<tr>
<td>- May make comments which neither expresses a point of view nor elicits from others.</td>
<td>- Makes indirect statements.</td>
</tr>
<tr>
<td>- May appear defensive through withdrawal.</td>
<td>- Hides own views behind questions.</td>
</tr>
<tr>
<td>- Appears to have no opinion.</td>
<td></td>
</tr>
</tbody>
</table>


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Check In

Definition **
- Bring who you are to the meeting

Critical Learning **
- Individuals all come to the meeting with baggage.
- Personal issues can compete silently with set agendas.
- Rituals can create group and individual focus.

Instructions *
1. Introduce the concept.
2. Guidelines:
   - individuals can pass
   - participants signal they are finished by saying "out"
   - group listens in silence
3. Begin Check In with yourself.

* Source:
Adapted from MIT
Center for Organizational Learning

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Composite Learning Journal

Definition
- A verbatim transcript of the learning journals filled out by participants at each learning session.

Instructions
- The composite learning journals are read at or before the next learning session. Participants are asked to identify any trends or patterns they see. Teams members are invited to share and discuss any observations they have found.

Critical Learning
- Provides insight into collective thinking of a group.
- Encourages individual to shift thinking from personal to collective perspectives.
- Can bring to the forefront questions that need attention.
**Desired Outcomes**

**Definition**
- A desired outcome answers the question: What will we walk out of this meeting with? A desired outcome is what your meeting aims to achieve.

**Critical Learning**
- Desired outcome statements focus the reason for the meeting.
- Answers the question "Why are we using this valuable commodity called time?"

**Two Kinds**
- **Products**
  - List
  - Plans
  - Decisions
  - Agreements
  
- **Knowledge**
  - Awareness of ... so that ...
  - Understanding of ... so that...

**What They Look Like**
- Brief, written statements
- Specific and measurable
- From the perspective of the participant

**Examples**
- By the end of the meeting, we want to have:
  - Agreement on the key problems with our current communication system between parents and teachers
  - A decision and action plan on how we plan to implement home work goals
  - Understanding of the District Wide Strategic Plan so we can build support for site council decisions

---

* Source:
Facilitative Leadership Participant Manual
Interaction Associates

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Dialogue

Definition **
- Engaging in a conversation with the purpose of searching for the flow of meaning.

Critical Learning **
- Listening in silence.
- Suspension of assumptions.
- Noticing when you are voting in your mind.

Distinctions *

<table>
<thead>
<tr>
<th>Dialogue</th>
<th>Discussion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insight</td>
<td>Knowledge</td>
</tr>
<tr>
<td>Choice</td>
<td>Decision</td>
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<tr>
<td>Live</td>
<td>Memorex</td>
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<tr>
<td>Wonder</td>
<td>Knowing</td>
</tr>
<tr>
<td>Wholeness</td>
<td>Fragmentation</td>
</tr>
</tbody>
</table>


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Energies of the Field

Definition
- A framework which identifies how people contribute to meetings and how their contributions can influence the productivity of the meeting.

Four Fields
- **Mover- Desires action**
  - **Enabler** - Leads forward. They place proposals on the table for consideration.
  - **Disabler** - Focus of attention is their idea. They become the center of attention. Moving is for their own attention or needs.

- **Bystander- Listens and observes**
  - **Enabler** - Listens deeply. Witness who is willing to share observations.
  - **Disabler** - Sees but does not speak. Disengages for the proceedings.

- **Follower - Supports others**
  - **Enabler** - Comments provide momentum. Their ideas invoke empathy.
  - **Disabler** - Unconsciously they move with the direction of the group.

- **Opposer - Provide dissidence**
  - **Enabler** - Opposes to provide a balance. Creates opportunity to see other angles in the discussion.
  - **Disabler** - Opposes continuously and is repetitive with their concerns.

* Source:
Ron and Susan Kertzner. 1995
DiAlogos. Cambridge, MA

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**Five step decision making process**

**Step 1 - Setting the stage**

**Focus:** What is the issue, desired outcome, and what process will be used.

**Language:** "We want to adopt a new charter which is required by the state. We will use consensus. We will work on one page at a time."

**Tools:** Advocacy...making your thinking clear to others  
Inquiry...what is not clear about the issue?

**Step 2 - Dialogue**

**Focus:** Throwing rocks into the pond

**Language:** "I am concerned about the length of terms of site council members for these reasons.."

**Tools:** Inquiry ... helping others make their thinking clear to you  
Advocacy... making your thinking clearer to others  
Listening with a beginners mind ... suspending assumption so you can hear others  
Left-hand Column...am I using it as a resource?  
Energies of the Field ... am I being a enabler?

**Step 3 - Creating Proposals**

**Focus:** Throwing out an idea for consideration

**Language:** "I would like to make a proposal ...."

**Tools:** Energies of the Field (Mover)... placing your ideas out on the table
Five step decision making process (continued)

Step 4 - Dialogue about the proposal

Focus: Throwing rocks (ideas) into the pond (about the proposal)

Language: "What do you mean by community member?"

Tools: Inquiry ... helping others make their thinking clear to you
       Advocacy... making your thinking clearer to others
       Listening with a beginners mind ... suspending assumption so you can hear others
       Left-hand Column...am I using it as a resource?
       Energies of the Field ... am I being a enabler?

Step 5 - Voting

Focus: Making your opinion known to others

Language: Finger vote

Tools: Advocacy.... making my thinking visible to others.
Group Agreements

Definitions: A framework which documents agreements and builds accountability

Critical Learning
- Visual documents group participation
- Builds a record of commitments
- It drives action

<table>
<thead>
<tr>
<th>Attendance</th>
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<table>
<thead>
<tr>
<th>Tasks/Group Agreements</th>
<th>Who will do it</th>
<th>When</th>
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</table>

Source:
Adapted from Facilitative Leadership Participant Manual

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Group Guidelines

Definition
- A list of behaviors that the group agrees to live by which they believe creates a productive atmosphere to working together

Critical Learning
- Common expectations can be identified and agreed upon
- People want to contribute their vision to the gathering

Instructions
1. Individual brainstorming - writing ideas from past experiences.
2. Creating a group list - soliciting sequentially from all team members.
3. Clarification of meaning through inquiry.
4. Grouping if appropriate.
5. Completeness - what is missing?
6. Final review - clarity & acceptability.

* Source:
2.) Jerry Newberry, Washington DC

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Illusions

Definition

- A perceived weakness that can be viewed as a secret strength.

Critical Learning

- You know other peoples illusions ... they know yours.
- Lots of energy is spent on protecting what other people already know.
- Unintended consequence - collective intelligence is limited.

Source:
Adapted from Learning Organization Core Course exercise conducted at the MIT Center for Organizational Learning 9/24/98

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Inquiry

Definition

- Asking others to make their thinking process visible.

Ways to use the tool

- Gently walk others down the ladder
  - "What leads you to conclude that?"
  - "Can you help me understand your thinking?"

- Draw out reasoning
  - "What is the significance of that?"
  - "How does that relate to your other concerns?"
  - "Where does your reasoning go next?"

- Explain your reasoning
  - "I'm asking you about your assumptions because..."

---


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**Ladder of Inference**

**Definition**

- A framework which helps individuals become aware of the process one uses to reach assumptions, conclusions and beliefs.

1. I take **ACTIONS** based on my beliefs
2. I adopt **BELIEFS** about the world
3. I draw **CONCLUSIONS**
4. I make **ASSUMPTIONS** based on the meanings I added
5. I add **MEANINGS** (cultural and personal)
6. I select “**DATA**” from what I observe
7. **OBSERVABLE** “data” and experiences (as a videotape recorder might capture it)

---


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Learning Journal: Version 1

Learning Journal
Session Feedback

* * *
Ah-hah's (personal insights or increased awareness)

* * *
Puzzlements (concepts or ideas that arose in toadies presentation that remain unclear)

* * *
Questions (what questions does this information trigger for you?)

* * *
What implication does the learning generated from today's session have for your work?

How did we actualize these premises? Rate on a scale 1 to 5 (FIVE HIGH: ONE LOW)

- quality of relationships deeply influence quality of thinking
- people must take actions to learn
- there is nothing so practical as good theory
- learning often means deliberately stepping outside our comfort zone
- learning requires engaging the full person - emotions, body, and quality of character

What suggestions do you have concerning today's session in terms of increasing your learning?

---

* Source: MIT Center for Organizational Learning
  Cambridge, MA

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** Source: William Baker- Group Dynamic Associates
  Oakland, California
  Cognitive Coaching Workshop
Learning Journal

Ah-hah’s (personal insights or increased awareness).

Puzzlements (ideas that remain unclear).

Questions.

How does today’s learning apply to tomorrow’s responsibilities?

How can we increase learning in future sessions?

Please access our operational premises in relationship to today’s session

<table>
<thead>
<tr>
<th>strongly disagree</th>
<th>strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
</tbody>
</table>

The quality of my relationships with site council members influenced the quality of my thinking.

My actions (thinking, speaking, listening) influenced my learning.

The tools we used and the theories we discussed are practical.

Today’s site session stretched me outside my comfort zone.

The issues discussed today have meaning to me.

Today’s meeting engaged my emotions, body and quality of character.

* Source: Adapted from MIT Center for Organizational Learning
** Source: William Baker- Group Dynamic Associates
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*Cognitive Coaching Workshop*
Learning Journal

* Ah-hah's (personal insights or increased awareness).

* Questions / Puzzlements.

* How can we increase our group effectiveness in future sessions?

** Identify ways in which you contributed to the collective intelligence of your team today (enabler role as a mover, follower, bystander, or opposer).
**Left-Hand Column**

**Definition**
- Becoming more aware of what you are thinking but is not saying to the other person.

<table>
<thead>
<tr>
<th><strong>left-hand column</strong></th>
<th><strong>right hand column</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>What you are thinking.</td>
<td>What is said.</td>
</tr>
</tbody>
</table>

**Sample Case**

What does he want? Did I do something wrong?
I really don’t have time for this
Why is everything a crisis?
I don’t have time right now.
I have to prepare for my class.
Why didn’t he ask me about the math curriculum.
I find this new curriculum difficult to teach. Half the class failed the test.
What does that mean?
Nothing I will say will make a difference she is angry about the “new math program.
How can he help when he never has five minutes for a conversation.

ARVIN: I got a call from Mrs. Jones s new is unhappy about her sons math test score. Her concern ... the test is to hard.
ME: Jeff is a hard worker but math is his weakest subject.
ARVIN: I would like you to talk to her and see if you can work something out.
ME: I will see her on Thursday during parent conferences.
ARVIN: I have to run to a meeting with the Special Ed. teacher. Let me know I can help.

* Source:
The Fifth Discipline Fieldbook
© 1994, p. 247

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Pathway to Action: Key Agreements and Activities

<table>
<thead>
<tr>
<th>Key Agreement</th>
<th>Key Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Process Design Space</strong>&lt;br&gt;Agreement on the pathway and process for moving through the spaces.</td>
<td>• Confirm issue to be worked on.&lt;br&gt;• Identify goals for the work effort.&lt;br&gt;• Explore the context surrounding the issue to be worked on.&lt;br&gt;• Do a thorough Stakeholder Analysis.&lt;br&gt;• Identify resources/support needed to complete the task.&lt;br&gt;• Design pathway through spaces, identifying desired outcome for each space.&lt;br&gt;• Agree on how the final decision(s) will be made.</td>
</tr>
<tr>
<td><strong>Problem Space</strong>&lt;br&gt;Agreement on what the problem is and why.</td>
<td>• Legitimize and understand all perceptions of the problem (or opportunity).&lt;br&gt;• Analyze the problem.&lt;br&gt;• Agree on a problem definition and root causes.</td>
</tr>
<tr>
<td><strong>Vision Space</strong>&lt;br&gt;Agreement on an image of the ideal future state.</td>
<td>• Solicit a variety of views of the ideal future state.&lt;br&gt;• Create a visual image of success.&lt;br&gt;• Build agreement on the ideal future state.</td>
</tr>
<tr>
<td><strong>Solution Space</strong>&lt;br&gt;Agreement on a solution(s) that everyone is willing to support.</td>
<td>• Identify possible solutions.&lt;br&gt;• Evaluate solutions.&lt;br&gt;• Build agreement on a specific set of solutions to be implemented.</td>
</tr>
<tr>
<td><strong>Implementation Space</strong>&lt;br&gt;Agreement on an action plan for implementing the decision. (Also includes carrying out the action plan.)</td>
<td>• Agree on an action plan - what, who, by when.&lt;br&gt;• Agree on how implementation will be evaluated.&lt;br&gt;• Take action.&lt;br&gt;• Evaluate impact and team process.</td>
</tr>
</tbody>
</table>
### Sample Pathways

<table>
<thead>
<tr>
<th>Pathway</th>
<th>Useful</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Problem-Solving Pathway</strong></td>
<td>When dealing with a critical issue in a short time frame.</td>
<td>Fixing a broken piece of equipment by:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1. Agreeing on a problem-solving pathway</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Identifying the cause of the problem</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Agreeing on a remedy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. Applying and evaluating effectiveness of remedy</td>
</tr>
<tr>
<td><strong>Vision-Realization Pathway</strong></td>
<td>When a group has an opportunity to create something new, revitalize an existing system, or revisit the purpose of their work.</td>
<td>Introducing a new product by:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1. Agreeing on a vision realization pathway</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Imagining the impact of the new product on the market</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Developing a strategy to achieve that impact</td>
</tr>
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<td></td>
<td>4. Implementing the strategy</td>
</tr>
<tr>
<td><strong>Problem/Vision Combination Pathway</strong></td>
<td>When it's important for people to acknowledge and understand what's not working, or to highlight the gap between present reality and the ideal future state.</td>
<td>Resolving a role conflict between two departments by:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1. Agreeing on a problem/vision pathway</td>
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<td></td>
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<td>2. Identifying what isn't working about the relationship</td>
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<td>3. Exploring what an ideal relationship would be</td>
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<td></td>
<td>4. Agreeing on ways to achieve the ideal relationship</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5. Agreeing on next steps</td>
</tr>
<tr>
<td><strong>Vision/Problem Combination Pathway</strong></td>
<td>When there may be significant barriers to realizing the vision, and those barriers must be addressed in order to move forward.</td>
<td>Applying new technology by:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1. Agreeing on a vision/problem pathway</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Developing a vision for use of information technology</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Identifying all the problems that need to be addressed in order to reach the vision</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. Agreeing on solutions to the problems</td>
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<td></td>
<td></td>
<td>5. Agreeing to and implementing an action plan</td>
</tr>
</tbody>
</table>
Polling

Definition

- A quick reality check of how the group's thinking at the moment.

Critical Learning

- Challenges preconceived assumptions.
- Establishes a true picture of the current thinking of the collective.
- Identifies areas of agreement and disagreement.

Instructions

- Ask team members to signal their current belief
  - thumbs up ... agree
  - thumbs sideways ... no opinion
  - thumbs down ... disagree
- Use this information to inform decisions how the group needs to proceed.
  - Examples ... Tell me your thinking behind your position?
    - It looks like we are close to a consensus ... John would you
      would you object to moving in this direction
APPENDIX B

CUMULATIVE LEARNING JOURNAL #1
June 6, 1996

Dear Lenox Site Council,

The Change Institute is continuously examining our effectiveness - what works, what doesn’t work - and capturing suggestions to enhance our development. Your responses to this questionnaire will document your learning and assist me understanding your needs for next year. I want to thank you in advance for your assistance.

Sincerely,

[Signature]

Mican Fierstein
Part A - shifts

<table>
<thead>
<tr>
<th>Shifts I have made</th>
<th>Behaviors that might have assisted in creating those shifts</th>
</tr>
</thead>
<tbody>
<tr>
<td>(working with staff members, parents at school)</td>
<td></td>
</tr>
<tr>
<td>(classroom)</td>
<td></td>
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<tr>
<td>(outside of school)</td>
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</table>
### Part A

<table>
<thead>
<tr>
<th>Shifts observed at site council</th>
<th>Behaviors that might have assisted in creating those shifts.</th>
</tr>
</thead>
</table>

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Funded by Portland General Electric
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Part B  Change Tools and Processes

Attached is a list of tools and processes introduced at Lenox Elementary School.

1995 -1996

Group ground rules
Illusions
Dialogue
Check in
Ladder of Inference
Inquiry
Advocacy
Balancing Advocacy and Inquiry
Polling
Left Hand Column
Transferring Left Hand Column
Pathways to Action
Capturing Learning

Circle the tool that had the most value to you and explain why and how it was valuable.

How have the Change Institute tools and processes assisted you in building your ability to be proactive in shaping the future of Lenox Elementary?
Part C - Skill Development

Please indicate your level of agreement or disagreement with the following statements:

**The Change Institute helped me enhance my skills to:**

1.) Inquire into the beliefs and assumptions expressed by your site council members.
   - Strongly Disagree 1 2 3 4 Strongly Agree 5
2.) Inquire into the problem-solving ideas proposed by colleagues.
   - Strongly Disagree 1 2 3 4 Strongly Agree 5
3.) Understand the thinking behind the ideas and positions your colleagues hold.
   - Strongly Disagree 1 2 3 4 Strongly Agree 5
4.) Understand your personal thinking process (how you move up and down the ladder of inference).
   - Strongly Disagree 1 2 3 4 Strongly Agree 5
5.) Advocate for ideas in a spirit of seeking solutions through understanding rather than through pressure or power.
   - Strongly Disagree 1 2 3 4 Strongly Agree 5
6.) Place your ideas, beliefs, concerns, questions and observations, "on the table" for consideration (communicate openly).
   - Strongly Disagree 1 2 3 4 Strongly Agree 5

**The Change Institute helped Lenox Site Council develop skills to:**

1.) Collectively inquire into assumptions, beliefs and ideas.
   - Strongly Disagree 1 2 3 4 Strongly Agree 5
2.) Collectively develop and evaluate multiple strategies to address issues.
   - Strongly Disagree 1 2 3 4 Strongly Agree 5
3.) Develop group commitment to implement and honor agreements.
   - Strongly Disagree 1 2 3 4 Strongly Agree 5
4.) Collectively "capturing learning" (identifying, building agreements, documenting areas that move the site council to their objectives).
   - Strongly Disagree 1 2 3 4 Strongly Agree 5
Part D - Open ended questions

What was the single most important thing that you learned from our work together this year?

How has The Change Institute made a difference in your life at Lenox?

What suggestions do you have for The Change Institute to better meet the future learning goals of Lenox Elementary or other schools that participate in this process?

The Change Institute is committed to model the following premises:

- The quality of relationships deeply influences quality of thinking.
- People must take action to learn.
- There is nothing so practical as good theory.
- Learning often means deliberately stepping outside our comfort zone.
- Learning requires engaging the full person - emotion, body, and quality of mind.

Which premise was most effectively modeled?

Which premise was modeled the weakest? How can we improve?
APPENDIX C

CUMULATIVE LEARNING JOURNAL #2
### Part A - shifts

<table>
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<tr>
<th>Shifts I have made</th>
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</table>

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Funded by Portland General Electric

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Part A

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The Change Institute 503-464-8712
Funded by Portland General Electric
Part B  Change Tools and Processes

Attached is a list of tools and processes introduced at Lenox Elementary School.

Circle the tool that had the most value to you and explain why and how it was valuable.
Lenox Elementary Change Tools

Advocacy
• How can I make my thinking clear and visible to others?

Balancing Advocacy and Inquiry
• Am I telling more than I am seeking to understand?

Capturing Learning
• What new learning is coming from this problem or crises? How will I use this learning in the future?

Check In
• What do I need to say in order that I can be fully present? (What am I thinking about as I arrive to this meeting?)

Dialogue
• What is the quality of our listening?.... Are we listening with a beginners mind?

Desired Outcomes
• What do we want to have accomplished at the conclusion of this meeting?

Energies of the Field
• Is my behavior contributing the success of the meeting or is my behavior disabling the outcome.

Five Step Decision Making Process
• What process will our team use to reach a decision?

Group Guidelines
• What are the common assumptions we hold about working together?

Illusions
• What am I keeping others from seeing about me which they already know?

Inquiry
• What is unclear or confusing about what is being said?

Ladder of Inference
• What data and meaning am I using to come to my conclusions?

Learning Journal
Are we asking ... what did we learn and how we can work better together or are we guessing about our effectiveness and repeating our mistakes?

Left-hand Column
• How are my unsaid thoughts effecting the outcome of the conversation?

Pathways to Action
• Do we all understand and agree to the process we will use to build our solution?

Polling
• Have I asked the team what they are thinking or am I making assumptions?

The Change Institute 503-222-6448
1710 SW Harbor Way #402
Portland Oregon, 97201
Lenox Change Tools (cont.)

TW2 (Group Guidelines)

- Are we leaving this meeting with a written understanding of the decisions made, the tasks to be done, who will complete these tasks, and when will the tasks be accomplished?
Part C - Skill Development

Please indicate your level of agreement or disagreement with the following statements:

**The Change Institute helped me enhance my skills to:**

1.) Inquire into the beliefs and assumptions expressed by your colleagues.
   
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2.) Inquire into the problem-solving ideas proposed by colleagues.
   
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3.) Understand the thinking behind the ideas and positions proposed by colleagues.
   
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4.) Understand your personal thinking process (how you move up and down the ladder of inference).
   
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5.) Advocate for ideas in a spirit of seeking solutions through understanding rather than through pressure or power.
   
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6.) Place your ideas, beliefs, concerns, questions and observations, "on the table" for consideration (communicate openly).
   
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**The Change Institute helped this team develop skills to:**

1.) Collectively inquire into the underlying assumptions and beliefs before seeking as solution.
   
<table>
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<tr>
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2.) Develop collective solutions through dialogue.
   
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3.) Develop group commitment to implement and honor agreements.
   
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</table>

4.) Collectively build agreements and solutions which move the site council to their objectives.
   
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Part D - Open ended questions

If applicable ... describe how the change tools have influenced your thinking or behaviors in the following areas:

Personal (understanding your thinking process)

Relationships (your connections with others - one on one)

Site Council (the dynamics of working with multiple individuals)
If applicable, how have the Change Tools affected your relationships with:

Staff Members?

Students?

Friends of family?