4. Organizational Learnings: Reflections of a Superintendent

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Secondary teachers in the Rockford Public School (RPS) district had the opportunity to participate in dynamic professional development experiences for seven years. These experiences evolved over time but always centered on the goal of improving student achievement in secondary mathematics, the sciences, technology, and more recently English (MSTE) education. A collaborative partnership including the RPS, Northern Illinois University (NIU), and Rock Valley College (RVC) drove the professional development project, but over the years it included scores of teachers and hundreds of business partners. For four of the seven years, I was an observer and participant, as deputy or interim superintendent, and witnessed the many and varied outcomes.

As I reflect on the outcomes, I am compelled to discuss the project in terms of my dual roles and have framed my reflections from the perspective of a student of organizational leadership strategies, techniques, processes, and outcomes.

Theoretical Lenses and Reflective Process

I have selected four models to frame my personal and professional reflections. The central model is derived from Senge's (1990) seminal work, *The Fifth Discipline*. However, as I continue reflecting on the outcomes and learning from the MSTE initiative, I also find meaningful connections with the work of Heifetz (1994), related to leadership and problem solving; Morgan (1998), related to organizational metaphors; and Hall and Hord's (2001) system for understanding the process of change.

The interconnections among these theoretical constructs became obvious as I shifted my reflection from leadership to change to organizations to systems thinking and ultimately to where I started – leadership. The interconnections provided coherence to my reflections about this initiative. Senge et al.'s (2002) discussion of the Industrial Age of Education resonates with Morgan's (1998) machine metaphor. Morgan's brain metaphor resonates with Heifetz's (1994) adaptive model of problem solving, and Hall and Hord's (2001) principles of change are woven throughout the writings of Senge, Heifetz, and Morgan.

The Learning Organization and Systems Theory

Senge's (1990) *The Fifth Discipline* and the subsequent *Schools That Learn* (Senge et al., 2000) have guided the professional development work of the RPS administrators and provided the opportunity to reflect on MSTE in terms of the tenets of a learning organization and our applications of the tenets. I have framed my analysis of the learning organization on Senge's five disciplines: Personal Mastery, Mental Models, Shared Vision, Team Learning, and Systems Thinking.

Discipline 1: Personal Mastery

A premise of the MSTE initiative was that teachers cannot teach students what they do not know themselves. According to Senge (1990, p. 140), "organizations learn only through individuals who learn. Individual learning does not guarantee organizational learning. But without it no organizational learning occurs."

Personal mastery for the secondary teacher in the 21st century necessitates the use of technology to extend knowledge and skills in mathematics, science, and English. But personal mastery also requires that educators clarify what is important and assess the current reality. In the MSTE initiative, the inclusion of English in the discipline mix brought to light curricular voids in technical writing for mathematics, science, and technology, while promoting acquisition of vocabulary specific to career paths and the use of technology in the teaching, assessment, and extension of language skill. The integration of disciplines increased the opportunities for students not only to apply and articulate their knowledge but to see the interconnections.

Senge (1990) argues that the juxtaposition of values and reality results in "creative tension," and that learning ensues as we seek resolution of the tension: "People with a high level of Personal Mastery live in a continual learning mode" (142). The MSTE initiative provided equipment, training, and a safe place to risk learning new ways to present the traditional bodies of knowledge as well as develop new skills and knowledge.

Often the involved teachers were learning at warp speed, even though the gaps in their training and education made it appear that they were running in place. They came to the project with a wide range of skills and competencies both in the content areas that they represented and in the pedagogical processes. The MSTE staff took these differences into account and modeled teaching strategies that could be replicated in K-12 classrooms. The assessment of current reality was based on individual situations and also indicated significant differences across participants. However, the teaming processes that will be discussed in a later section provide some assistance in managing this wide range of differences and in resolving the creative tension generated in examining values against the current reality. In Rockford, this examination often led to tensions around student achievement in the content areas, the expectations and role of the teachers in the learning process, the differences between teaching and learning, the definition of leadership, and the responsibility for lifelong learning.

As teachers pursued personal mastery in the development of new knowledge and skills, they also developed confidence in their own abilities and a capacity to bring their current reality into line with their personal and professional values. This capacity for leadership became crucial in the implementation phases of the process and a significant factor in assessing the role of leadership in the change process.

Discipline 2: Mental Models

In an analysis of why some of the best ideas fail, Senge (1990) suggests that the "slip 'twixt cup and lip' often stems from our own mental models" (p. 174). The development of this discipline was evident in the MSTE initiative. A significant part of the project was the interaction with more than 300 business, industry, and community (BIC) partners. During the years of the project, there were significant technological advancements in most of the BIC environments. The teachers who engaged in on-site learning with these partners learned from and

contributed to this generation of new information. They would not have been privy to the current requirements and methodology had they not developed these important relationships with practitioners.

The relationships played out in a variety of ways. Without the BIC and higher-education visits, teachers would have had little opportunity to identify and challenge the mental models they held about important concepts and skills. They gained opportunities to shadow practitioners whose work depended on a current application of mathematical, scientific, or technological advances. Shadowing revealed curricular and instructional voids (particularly in medical technology, engineering, and mathematical applications) and enhanced the development of new mental models. It became clear to the teachers that the fieldwork required a different knowledge base and skill level than had been part of their own preparation and teaching repertoire. The requirements of this new knowledge base led to the hosting of "discipline update" workshops by the professors and BIC partners.

The Rockford teachers also benefited by learning from models, while simultaneously serving as models. The opportunity for the teachers to be the experts in teaching pedagogy and methodology, when interacting with the BIC and higher-education partners, shifted their mental models about the complexity and requirements of their own profession and helped them see that the ability to stimulate learning was not to be taken for granted. These two-way collaborations enabled them to connect with the Personal Mastery dimension and develop it concurrently with the shifting of their own Mental Models.

Discipline 3: Shared Vision

According to Senge (1990, p. 206), shared vision "is vital for the learning organization because it provides the focus and energy for learning…. A shared vision is a vision that many people are truly committed to because it reflects their personal vision." Further, "the discipline of shared vision is the set of tools and techniques for bringing disparate aspirations into alignment around the things people have in common" (Senge et al., 2000, p. 72).

As the initiative played out in Rockford, the power of shared vision became apparent and was the glue that held participants together during some of the rough times of implementation. The vision was developed by capitalizing on the learning related to the disciplines of Personal Mastery and Mental Models and was extended throughout the informal organizations created during implementation. The work of the teachers often built upon the work of teachers in previous cohorts as teams shifted and were reconfigured. Many teachers came back year after year and encouraged others to join them, expanding the benefits throughout the district. The ability of the project staff to model interdisciplinary teaching, provide learning experiences for varied learning styles, and create and share tools and techniques enhanced the development of shared vision at the content, grade, school, and district levels. The initiative provided a space for intervention to support the teachers in a less than accommodating environment. Many players owned the vision and gained power in a setting usually known for the isolation of the professional staff. The vision could be articulated at any level of the district where opposition occurred.

Even more significant, the educational modules developed by the teachers required sharing visions across disciplines to create coherence in the learning activities and strategies. As

the teachers discovered connections between content areas and created opportunities to take advantage of the connections, they also developed a shared vision of learning for their students. The project director and team listened carefully to the participants and found connections when the participants could not. The participants came to realize that in a shared organizational life, we all have something to learn and to teach. Finding a shared vision became the tipping point in creating learning organizations in the schools.

Discipline 4: Team Learning

Senge's (1990) work informs the concept of team learning and helps participants to use the power of the team to enhance the effectiveness of teaching and the efficiency of learning. According to Senge (1990, p. 234): "When a team becomes more aligned, a commonality of direction emerges, and individuals' energies harmonize. There is less wasted energy. In fact, a resonance or synergy develops, like the coherent light of the laser rather than the incoherent and scattered light of the light bulb. There is a commonality of purpose, a shared vision and understanding of how to complement one another's efforts."

Team learning brought out the connections that developed in the shared visions for enhanced student learning. The teams also learned how and when to engage in dialogue and discussion, even in difficult or defensive situations.

Senge (1990) has identified three critical dimensions of team learning: a need to think insightfully about complex issues, a need for innovative and coordinated action, and a recognition that members of one team have a role on other teams. An individual cannot master the discipline of team learning. There were formal and informal teams at every level of the MSTE initiative: classroom teaching teams, university professor teams, business partnership teams, subject matter teams, teaching and learning strategies teams, grade level teams, building teams, and district teams. They tackled the three dimensions on every level of their work together by sorting through the complex issues of development and implementation of the products and their own learning.

The first dimension, thinking insightfully about complex issues, goes right to the heart of the MSTE initiative. Changing the content and delivery of instruction is a very complex issue. Reflection often leads to the painful conclusion that it is necessary to give up long-held beliefs that shape our professional persona. This kind of thinking is best done in a team context, and during the MSTE initiative, the team learning brought reflection to a much deeper level. Learning begat learning, and questioning begat questioning, as well as the generation of new answers. Thinking is synergistic in nature, which brings us to the next dimension of team learning.

The need for innovative and coordinated action brought out the strengths and weaknesses of the Rockford leadership team. There was no way to include all of the teachers in the project at the same time, and this generated an insider/outsider complex. Some staff members were working diligently to effect the learnings of the initiative, while others were working just as diligently to end the project. In buildings and departments where professionalism was evident in the work of the teachers and administrators, innovative and coordinated action was demonstrated. Conversely, in those where power was held at the administrator level and not distributed to other staff members, roadblocks to implementation were clearly evident.

The third dimension speaks to the role that the members of one team serve on other teams. This dimension was demonstrated throughout the project. When participants had the opportunity to interact across team structures and serve on teams with different foci and mission, they significantly increased their learning and the ability to implement the desired changes.

Discipline 5: Systems Thinking

The project served as a microcosm of Senge's fifth discipline (1990, p. 68):

> Systems thinking is a discipline for seeing wholes. It is a framework for seeing interrelationships rather than things, for seeing patterns of change rather than static "snapshots." It is a set of general principles....It is also a set of specific tools and techniques....

Discipline 5 has synergistic interrelationships with the other four disciplines – among professors in varied schools, departments, and academic disciplines; between theoreticians and practitioners; and between classroom teaching and student learning. Of Senge's (1990) 11 laws of the fifth discipline, three seem closely connected to the implementation of the initiative in the Rockford schools. Examples of the second law (p. 58), "The harder you push, the harder the system pushes back," were common throughout the project and often compromised implementation of the interdisciplinary modules. The fourth law, "The easy way out usually leads back in," will be discussed later in the section on adaptive leadership. The eleventh law, "There is no blame" (p. 67), shaped both the framework of the initiative and the successful implementation efforts in the schools. Senge discusses this law in the context of the impossibility of disconnecting ourselves from the outside forces that we often blame for our problems and emphasizes that we are all a part of the system that creates the problems that we encounter.

Evident throughout the project were structures of balancing and reinforcing feedback loops, principles of leverage, double-loop learning, and the language of systems thinking. Our first cohorts predated Senge's work, but our outcomes certainly support his ideas. The whole was surely greater than the sum of the parts, and patterns of change became clear, at least when seen through the lens of leadership.

Technical vs. Adaptive Leadership

The second theoretical lens I applied to my reflections is Heifetz's (1994) problem-solving model. In *Leadership without Easy Answers* (1994) and *Leadership on the Line* (Heifetz & Linsky, 2002), Heifetz defines two types of problem-solving challenges that require completely different approaches. Technical, or Type I, problems are those that we have the knowledge and skill to define and solve. However, many problems require more than technical expertise to solve. Heifetz offers two definitions for these adaptive problems. The first is the Type II Adaptive Problem, for which we have the knowledge and skill to define but no obvious solution. The solution requires new learning. The most complex problem is the Type III Adaptive Problem, which requires new learning both to define and solve.

This differentiation of strategies has focused my thinking on many levels. Our initiative had many adaptive challenges, and the missteps in the school system could often be traced to

situations where a Type I technical solution was applied to an adaptive problem that required a Type II or Type III approach. For example, it was critical that teacher teams have enough time to plan together and deliver instruction in nontraditional scheduling formats. In those cases when the building principal supported the project and was willing to take on a Type II or III adaptive approach, the problem of flexible teacher time was resolved. However, when the principal framed the building schedule as a Type I technical problem, the flexibility was impossible to achieve. There really is no technical solution for an adaptive problem, and the narrow approach to the time issue set up barriers to implementation; the inability or unwillingness of the principal to think creatively added frustration for many of the teacher participants.

A significant learning from this experience is that a leader who has a ready solution in his/her repertoire that has been applied to similar situations may decide not to risk doing something different. An additional learning is that the use of technical solutions often supports Senge's fourth law of the fifth discipline and provides the easy solution that often leads right back into the problem.

Further reflection on the successes of the MSTE initiative led me to conclude that the entire project exemplified adaptive leadership. Type II adaptive problems were abundant in the project, and the many alternatives generated during the years attest to the leadership within the project itself. The problems that the school district encountered with implementation seemed to relate to its inability to understand or solve Type II and Type III problems. Too often, the organization lacked the capacity or language to articulate or deal with the problem. Those participating educators grounded in theory (as described in Senge, Heifetz, and Morgan) were generally better able to avoid attacking complex adaptive problems in a linear and simplistic manner.

Images of Organizations

The challenge of organizational capacity leads to the third model that shapes my essay. Morgan's (1998) *Images of Organizations* identifies eight "metaphors" to help understand organizations. He defines metaphor as "a primal force through which humans create meaning by using one element of experience to understand another" (p. 4). Table 1 (Cambron-McCabe et al., in press) stimulates my own reflections, especially in terms of moving an organization like the public school system from old images to emerging ones. The two images that capture our journey are the machine metaphor in the "old" category and the brain metaphor as the emerging image. The brain metaphor also connects with Senge's (1990) learning organization and Heifetz's (1994) adaptive leadership.

Table 4.1 Imagining Your School District (Adapted from Morgan, 1998)

Image	Nature	Strengths/Weaknesses
Old Images		
Machine	Goals and objectives predominate; rational structure; organizational charts; people interchangeable within the system.	Works well where machines work well. Creates a mindless bureaucracy.
Political System	Management as political process; identify different styles of government; view politicization as nearly inevitable and accept conflict as normal; study power and learn how best to use it.	Puts power and conflict center stage while emphasizing the interest-based nature of organization. Breeds more politics and can understate gross inequalities in power and influence.
Psychic Prison	Psychic forces encourage or block innovation; frozen mindsets and unconscious forces hinder change; irrational things take on power and significance; imprisoned by own way of thinking.	Challenges basic assumptions, puts the "irrational" in new perspective, and encourages the management of tension. A focus on the unconscious may deflect attention from other forces of control.
Instrument of Domination	Power dominates organizational activity; workaholism, occupational accidents, and social and mental stress common; exploitation of employees and customers taken for granted.	Indicates that rationality can be a mode of domination and brings ethical concerns to forefront. Metaphor is so extreme it can polarize discussion.
Emerging Images		
Culture	Organization as unique mini-society that reflects people; accepts idea that some cultures are uniform, others fragmented.	Emphasizes symbolic significance and interdependence of management and labor in everything. Can manipulate and ignore some dimensions of culture.
Organism	Focuses on open systems; organizational health, life cycles, and development considered important; adapting to environment encouraged; relationships of species to ecology explored.	Contributes to organizational development. Easily becomes ideology and overstates cohesion.
Brain	Examines organizational intelligence; interest in learning organizations; uses technology to decentralize and distribute intelligence.	Recognizes importance of paradox and provides clear guidelines for learning organizations. May be naïve if conflicts arise over learning and realities of power.
Flux and Transformation	Tries to understand fundamental nature of change; looks "around the corner"; analyzes systemic forces encouraging change; tries to encourage organization to shift from one pattern of operation to another.	Leaders get powerful new perspective on role in encouraging change. May imply that leaders and managers have to "go along for the ride" and are powerless to do much about change.

The Machine Metaphor

Morgan's (1998) description of the machine metaphor is consistent with ideas presented by Senge et al. (2000) in "The Industrial Age of Education." Both trace the factory system of production that characterized the Industrial Revolution to the mechanistic military organization attributed to Frederick the Great of Prussia during the 18th century. Mechanistic organization led to the principles of classical management theory and scientific management that defined organizations during much of the 20th century and still define many school districts today. Morgan's machine metaphor uses many of the same terms that we associate with the factory model of education: decentralization of work, centralized control, specialization, efficiency, production, precision, dehumanization, consistency, narrowly defined goals and objectives, and bureaucratic principles and processes. Morgan describes the strengths and limitations of the machine metaphor in terms of the types of organizations served. Organizations that require precision, consistent application, and strong measures of accountability are able to thrive under the bureaucratic practices that are consistent with the machine metaphor. However, the very characteristics that define success in these organizations also set up a barrier when the organization needs to change.

As we look at the MSTE initiative, we can understand some of the resistance and barriers encountered as we faced down many of the bureaucratic processes. The school district was often responsible for many of the barriers through policies and procedures consistent with a top-down organizational structure.

Participation and change might be mandated by the administration but not followed up with the necessary support, including scheduling and feedback. Often the principal set the tone for an individual school building and influenced not only actual participation but also the effectiveness of the module pilots and evaluation and implementation. Additionally, union regulations limited the times and conditions of teacher participation. Reviewing Morgan's (1998) metaphors and Hall and Hord's (2001) change principles might have helped project leaders and ultimately the districts to anticipate and address these issues.

The Brain Metaphor

Morgan's (1998) brain metaphor is based on the notion of learning organizations, which by definition have the capacity to be flexible and innovative in meeting challenges. This metaphor is consistent with Senge's (1990) definition of a learning organization and Heifetz's (1994) adaptive model of problem solving. The paradoxical images described by Morgan include holographic and specialized, random and coherent, and redundant and efficient.

Morgan lists five principles that can help to create contexts for holographic self-organization. These principles, which are consistent with Senge's systems theory, are: (1) build the whole into all the "parts," (2) redundancy is important, (3) ensure requisite variety, (4) define minimum specifications, and (5) learn to learn. The first and fifth tie directly to Senge's shared vision and team-learning disciplines.

Morgan describes the strengths and limitations of this metaphor in terms of the organizations of the future, in contrast to the machine metaphor, which capitalized on historical premises. The brain metaphor provides clear guidelines for creating learning organizations and using information technology to support intelligent evolution. It also lays out the challenges

facing traditional organizations, supports the creation of new kinds of leadership and management models, and recognizes the importance of dealing with paradox. The metaphor does have significant weaknesses, notably in dealing with the realities of organizational life, especially those that concern power and control – two constructs that often shape the status quo. Employment of the brain metaphor can set up an intense resistance to change. The idea of resistance to change leads to the next lens for reflection.

Principles of Change

Hall and Hord (2001) provide a useful framework for examining the change process from the leadership perspective. Their 12 principles applied to our initiative and are also identified in the writings of Senge (1990), Heifetz (1994), and Morgan (1998). The sources used to shape these reflections include *Implementing Change: Patterns, Principles, and Potholes* by Hall and Hord and a chapter in *The Superintendent's Fieldbook* (Cambron-McCabe et al., in press) entitled "Nature of the Change Process." (The *Superintendent's Fieldbook* presents the learnings of the Danforth project, which involved superintendents across the country dealing with the realities of making change in their organizations. The concepts of Senge, Heifetz, Morgan, and Hall and Hord are embedded in the presentation.)

Change Principle 1: Change is a process not an event.

This principle was reinforced over and over throughout the seven years of the project. At no time could the participants say that the change was complete and then move on to something else. The participants were changing both in the persons involved and in the knowledge and skills achieved.

Hall and Wallace (Cambron-McCabe et al., in press) note that as people and organizations move through change, they begin to understand and use new ways of thinking and doing. These new ways of thinking and doing require new systems of implementation that spawn newer ways of thinking and doing, and so on. To revert to Heifetz's (1994) model of leadership, if change were an event, technical solutions could make it happen according to plan with no need to adapt. That clearly was not the case with our initiative in Rockford. As the project grew in numbers and complexity, the implementation processes often required new thinking and different arenas for implementation. Senge et al. (2000) define these phenomena as a reinforcing process, "a form of feedback that leads to exponential growth or decline – either in nature or in human affairs" (p. 84). They caution that underestimating the power of reinforcing processes often leads to linear thinking, which in turn leads to trouble.

Linear thinking is a technical process used when we know what the problem is and can apply known solutions to the problem. In Rockford, the underestimation of the power of reinforcing processes was clearly evident in the early years of the project. Single-loop thinking prevailed, and the question of whether the curricula and instruction in our secondary schools were relevant to the needs of the workplace or foundational to higher-education requirements did not emerge. Linear thinking sufficed for the purpose of instruction, when the process was isolated from the needs of the workplace and the knowledge and skill requirements of higher education. Do I hear echoes of Heifetz?

Change Principle 2: *There are significant differences in what's involved in developing an innovation and implementing it.*

Earlier I referred to the role of the principal in the implementation of the products generated by the participants of our initiative. Hall and Wallace (2004) describe development and implementation as two sides of the same coin but remind us that the style of the change agent for implementation needs to be significantly different from the style of the change agent for development.

An early problem that we encountered was the communication gap between the teacher-developers and the administrator-implementers. We recognized that there were gaps in the knowledge and skills between those who were engaged in developing the modules and those who would have to put the structures in place to implement the modules. But we incorporated a technical solution into the problem by trying to educate the implementers about the power of the modules in effecting change, rather than understanding that their contribution to the success had to do with a completely different skill set and organizational context. I understand now that it would have been helpful to have built the capacity of the administrator-implementers to effect changes at the same time as the teacher-developers were creating the impetus for it. When those processes overlapped and all the participants in the project understood the different roles and expectations for developers and implementers, the change process went more smoothly.

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Change Principle 3: *An organization does not change until the individuals in it change.*

This principle is consistent with the disciplines of Personal Mastery and Mental Models as Senge (1990) describes them. He makes this principle the spirit of the learning organization. The initiative supported individual change on many fronts. Two supporting mechanisms that contributed to the success of our initiative are not common approaches to staff development, at least in my experience. The first is the modeling embedded in the staff development opportunities. Modeling occurred in many ways throughout the project, but two techniques were significant in providing for change in individual participants. Those who led the workshops were trained to incorporate the desired teaching strategies into their own planning and presentations; the BIC partners provided models for the new knowledge base required for assuring relevance of the teaching modules. These two techniques facilitated change in the mental models teachers held about content and effective teaching. The second mechanism was even more powerful in effecting individual change: personnel actually went to the classrooms to help teachers pilot or test their modules. In a profession known for isolation, this exhibition of support let the teachers know that they were not out there by themselves. They had a safety net and could take the risks inherent in learning something new.

Change Principle 4: Innovations come in different sizes.

This principle certainly held true in our initiative. Innovations occurred on many fronts and in many forms and formats. The underlying philosophy was itself an innovation consisting of many components:

- Writing across content areas
- Interdisciplinary development teams and team teaching, portfolio assessment
- Interdisciplinary learning and integrated MSTE curricula
- Rubric development and scoring with authentic performance-based assessment
- Teaching and learning styles
- Multicultural sensitivity in the selection and creation of materials
- Distance learning
- Internships
- Use of technology as an infrastructure and for teaching and learning

In addition to the innovations in pedagogy, we used many innovations in technology to enhance the teaching and learning process. Whatever the innovation – collaborative software for critical interaction, a PowerPoint presentation, creation of a website, Web-based learning, or a simulation representing a scientific process – it became a source of changed behavior. The size of the innovation did not matter. It only mattered that everyone was engaged in learning.

A major learning related to this principle is that the principles of change cannot be ignored, whatever the scope and impact of the innovation.

Change Principle 5: Interventions are actions and events that are key to the success of the change process.

Hall and Wallace (Cambron-McCabe et al., in press) have emphasized that leaders often neglect the very interventions that can shape the process of change. Leaders can become so consumed with the innovation that they ignore the day-to-day opportunities to question, provide help when needed, and support the developers and change makers. Leaders are often so busy planning the big events related to the change that they forget to manage the individual components and support the people who are affected by it.

As superintendent, I was guilty of ignoring this principle, especially when developers were not getting the needed support in their buildings. While full-scale mandates can be detrimental to success, especially if you are unsure of the audience's potential reaction, I know now that there were places where I needed to be more "hands on," even to the extent of intervening to gain support for the teacher teams' work.

Even if administrators are not inclined to actively support the teachers' participation and change efforts, they should be directed to avoid negating the process. My own reluctance to intervene at the individual, department, and building levels undoubtedly slowed the process in some buildings and halted it in others. However, in hindsight, I know that supportive informal conversations I held with some of the participants, usually by chance, were important far beyond my expectation.

Change Principle 6: *Although both top-down and bottom-up approaches can work, a horizontal perspective is best.*

Both top-down and bottom-up are descriptors associated with bureaucratic organizations, and we have learned that change-making within bureaucracies is challenging at best. Developing horizontal approaches to change signals a new model, but it also comes with new and often daunting challenges. The most significant in our project was the development of trust.

In a horizontal structure, the trappings of formal power and control give way to collaboration and cooperation. All participants contribute, and all benefit. However, everybody must be trusted to do their part. In our initiative, trust issues ran the gamut from very significant concerns around creating a safe place to take risks or expose weaknesses in skills or gaps in knowledge to providing the pastries for an early morning session.

We learned that trust builds very slowly in troubled organizations and is always fragile and tenuous. Unfortunately, the climate in Rockford contributed to significant trust issues. Earlier in this report, Scarborough writes about the lost opportunities for publishing discussions about our initiative owing to lack of trust by the public school participants. This is a clear example of some of the real costs to the higher-education participants and the tradeoffs required to create an adaptive solution. However, the attention paid to issues of trust helped to create a horizontal organization that built leadership capacity and could sustain innovation in the absence of formal authority.

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Change Principle 7: Administrator leadership is essential to long-term and successful change.

As I initially confronted this principle of change, I concluded that it was too obvious and even questioned its inclusion in this model. I have changed my mind and believe that it was my own narrow conception of administrator leadership that challenged serious reflection of this principle. It makes sense to me now to apply my reflections about a different model of administrator leadership.

Schools are noted for embracing change for change's sake, and yet very little innovation is actually institutionalized. Too often change comes about because of external factors. Administrators leave the district. A school board election results in a different philosophical approach. The message of a dynamic speaker motivates the staff to explore a new concept. The pendulum is continuously swinging back and forth, never stopping long enough to establish a firmly centered position.

When I analyze this principle through the works of Senge, Heifetz, and Morgan, my conception of leadership shifts in fundamental ways, and it is within this view that I see the power of this principle. If we are seeking long-term and successful change, we must look at a different concept of leader, one that does not incorporate the more traditional and bureaucratic idea of administrator. The most important work of the administrator in this context is to develop leadership in others, a task requiring a different skill set and certainly a different approach to power relationships. If we look at Senge's learning organization, we find no place for static

knowledge. Rather, everyone in the organization must become a learner, with all the inherent risks. When all are learners, it follows that all can also be leaders.

In Rockford it was sometimes necessary for teacher-leaders to develop or implement the initiative, and it was certainly easier when the administrator was willing to support or at least allow the development of leadership in others. My own impression is that this willingness is correlated with an administrator's personal concept of the strength and effectiveness of their own leadership abilities. The least secure seemed to be the least likely to build capacity in others.

Change Principle 8: Mandates can work.

As a superintendent who believes that a mandate from on high should not be necessary (if you believe that people, given the opportunity, will do the right thing), this principle is difficult. However, I learned the hard way in our initiative that sometimes it is necessary to mandate the change if you want it implemented. Too many innovations bloom for a short time and disappear without a mandate, or at least intervention, to support the implementation. Mandates can provide impetus, resources (sometimes!), and legitimacy to the need for change. I learned that some people respond to a mandate because it removes accountability and responsibility from them; they are doing "it" because "the superintendent made me do it" or "the grant required it."

Also, we experienced the power of an oppositional mandate. If the principal, the central office staff, other teachers, or the union opposed the processes required for development or implementation, the levels of resistance often required a return to the hierarchical model of management to counteract the resisting forces. A mandate could provide cover for those who genuinely wanted to participate fully in the benefits of the project. Mandates also provided a means to limit participants to those who were willing to take on the challenge of learning and implementing new techniques.

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Change Principle 9: The school is the primary unit for change.

In our initiative, the successes and the failures of implementation confirmed this principle. Even when identical modules were used in different schools, the results varied according to the ability of the participants to implement changes at the site.

A major learning is that the superintendent must work with the building's leadership to effect implementation according to the school's need for change and its capacity to sustain it. This relates back to Principle 7 and requires different approaches from district leaders. The approaches are rooted in creating capacity for leadership at the building level and providing a safety net for those principals who are advocating for change. The superintendent must minimize the personal and professional risks for the building's administrator, while supporting development and implementation that can clearly be interpreted as top-down management. The superintendent must employ the tenets of both a bureaucratic and a learning-organization form of leadership, without appearing schizophrenic or two-faced.

The theoretical models and vocabulary described above were invaluable to me as I reflected on this particular slippery slope and sorted through the events to understand when and why some things worked very well, while others were dismal failures at the building level. This principle and Principle 12 both operated in the district and had significant impact on the success of implementation.

Change Principle 10: *Facilitating change is a team effort.*

This principle refers to the fourth discipline of a learning organization, team learning. No one person can manage all that needs to be done in a change effort. Different skills, competencies, perspectives, knowledge bases, processes, and products enhance the change effort. However, there must be coherence or alignment of the effort or chaos will result. Alignment needs to be incorporated into the district's mission and supported throughout the organization for optimal implementation.

Senge (1990) writes: "Individuals learn all of the time and yet there is no organizational learning. But if teams learn, they become a microcosm for learning throughout the organization" (p. 236). The teaching and learning teams surely facilitated change in RPS, especially in the deepening of content knowledge and the acceptance of integrated learning models and innovative teaching strategies at the secondary level. A review of the participants and the modules confirms the effectiveness that can be achieved when teams are supported. Early in my experience with this initiative, a new principal was appointed at one of our high schools. She bought into the inherent MSTE team structure early in her administrative career and supported the efforts at that school from the outset. Eventually, most of the staff was involved in project work either directly or indirectly, and the culture of the building now reflects respect for teachers and students, risk-taking in teaching, high levels of student achievement, and participation in the activities of the school and the community.

Change Principle 11: *Appropriate interventions reduce the challenges of change.*

This principle follows from Principle 5. Harvey (2004) describes the leap of faith that is often required to move from "today's ugly realities to tomorrow's beautiful possibilities" (as cited in Cambron-McCabe et al., in press, p. 304). He also provides a bridging strategy to assure that when we take the leap, we can arrive at the other side.

This bridging strategy was very useful to my reflection about leadership. Harvey has suggested that we need to find out where the people are in relation to the leap of faith and lead them from there. His "bridge" is adapted from Hall's seven Levels of Concern (Hall et al., 1979, p. 309):

- Little awareness of innovation – Needs general information
- General awareness of innovation – Needs substantive information
- Concerned/anxious about innovation – Needs financial or status information
- Worried about processes or tools – Needs information about time demands, efficiency
- Interested in impact on students – Needs data on performance/competencies
- Interested in cooperation – Needs support and encouragement
- Refocuses and explores innovation – Needs to be cheered

I used Hall's framework for assessing the implementation of programs during the late 1980s and early 1990s, but had not considered it in examining the learnings of our program until

I stumbled upon it again in referencing Hall's later work. It amazed me to discover its applicability to the MSTE initiative, especially in managing appropriate interventions. The team was always right there, meeting the participants' levels of concern with the information and the strategies needed to permit them to take the leap of faith.

An example of this attention to the levels of concern is the innovative approach of following the participants into their own classrooms and observing the implementation of the pilot projects. This approach was unheard of in the public school setting, and concern was expressed from so many perspectives – ranging from fear of the experts observing mistakes to the place of this activity in the district evaluative process to the perceived lack of understanding the university faculty would have for the challenges of the contemporary K-12 classroom in an urban setting. The project team listened to the concerns, adapted the process when appropriate, provided tools, shared information related to content and data collection, interceded for the participants when necessary, and served as cheerleaders. I learned the importance of dealing with all of these levels of concern in a systematic and systemic fashion when attempting to institute change at any level of the organization.

Change Principle 12: The context of the school influences the process of change.

Bennis's (1983) classic, *On Becoming a Leader,* describes the importance of mastering the context. It was apparent throughout the development and implementation stages of our initiative that the context of the school was usually the most significant factor in effecting change in the teaching and learning environment. The complexities of the context included the training and development of the teachers, the expectations for student achievement, the treatment of diversity, the expectation that all would be engaged in learning, the material support for learning, and the support of the principal.

If the school is the primary unit for change (Principle 9), the context of the school has far-reaching consequences on the superintendent's ability to effect change throughout the system. In Chapter 5, Scarborough describes the project's pull-versus-push approach, which is relevant to the superintendent's need to effect change at the building level while understanding when to push and when to pull. When we examined the influence of school context, we found an unexpected phenomenon. Those schools and teachers that were openly struggling with student achievement issues were willing to take the risks necessary to learn new content and strategies for teaching. A result of their efforts was that student achievement, as measured on both district and project indicators, exceeded the achievement in schools that had previously been considered better. We speculate that a reputation for being a good school may, in some cases, inhibit the possibility of becoming a true learning organization.

Recommendations

In reflecting on the RPS initiative, I am convinced that there are several general keys to overall success. Understand that even when the following are practiced, as with this initiative, challenges may still occur.

1. Actively involve representatives from the school district in the grant-writing process because they can judge which may be the best options. It is counterproductive to write a proposal that will not be possible.
2. Ground the project in theory to give leaders, teachers, and administrators a language to articulate the changes and programmatic needs.
3. Remember that a project grows and is modified as needed. It will require adaptive leadership, cooperation, and patience.
4. Have the building principals buy into the change process. The principal often sets the tone in a school, but it is possible to modify an attitude through cooperative interaction of a critical mass of the staff.
5. Select a core of teachers to become the leaders in each building. They should possess a strong curriculum focus and be willing to learn. They should also be team players who are willing to serve as models.
6. Treat the teachers as professionals and important contributors to the educational process. Remember that burned out does not mean bad; it simply means something has happened to cause a change of attitude or diminished enthusiasm. Since poor or burned-out teachers hurt everyone, it is crucial to have teachers reflect about why they originally became teachers and regenerate the enthusiasm.
7. Identify and deal with personality conflicts that can harm or derail the project. Focus on what is being done rather than on who is doing it. (The skilled leaders from Northern Illinois University helped overcome these challenges, but it was often three steps forward and two steps back.)
8. Use mandates carefully to avoid giving teachers the excuse that compulsion was the reason for their failure to participate in or support the activities and changes.
9. Remember that change occurs one person at a time; with a core of support, it is possible to keep going in difficult situations.
10. Organize ongoing formal discussions about the project, beyond the informal discussions at lunch and during sessions. These forums might be support groups for the teacher participants, and they could exercise quality control for the overall program. Eventually student input could be added through focus groups.

Conclusion

Heifetz and Linsky (2002) tell us that "leadership would be a safe undertaking if…organizations and communities only faced problems for which they already knew the solutions" (p. 13). They caution about the proportionate relationship between risk and adaptive change. When facing the dangers of tackling adaptive problems in organizations, one strategy is to distribute leadership. This distribution is different, however, from the specialized leadership that is prevalent in organizations characterized by the machine metaphor. It is more like the holographic description in the brain metaphor, which implies a distributed form of intelligence with the whole built into all its parts.

If we believe that teaching and learning are central to the mission and organization of schools, it follows that developing leadership capacity in teachers should improve the odds that teacher-generated innovation will overcome organizational inertia. I would rewrite Principle 7 to

read, "Administrator and teacher leadership are essential to long-term and successful change," and expand the notion of leadership to encompass the real leaders in a learning organization, the teachers and the learners.

We have learned that there are no shortcuts to the process. Building leadership capacity in others takes more time, effort, and skill than merely doing the job yourself. I liken the task to building supports for the organizational structure at the same time that you attempt to turn it upside down.

My own mental model or metaphor is an inverted triangle representing the traditional bureaucratic organization in flux and trying to maintain stability while tottering on its peak. Building leadership capacity creates supporting structures and strength throughout the organization, enabling it to maintain equilibrium during the process of change. That equilibrium is clearly dependent on the style of leadership, methods for approaching and solving problems, organizational images, and an understanding of the challenges of making substantive change. Building leadership capacity in others requires that everyone participate in the learning and results in everyone being changed by it. In Chapter 2, Scarborough uses Senge's (1990) concept of *metanoia*, a shift of mind, to frame the meanings that are applicable to our initiative. There is no doubt that significant mind-shifting occurred in all the participants who were willing to let go of preconceived notions and recapture the joy of learning. Our initiative evolved to develop a true representation of Senge's learning organization, and the Rockford Public Schools were forever changed by the process.

> We shall never cease from exploration
> And the end of all our exploring
> Will be to arrive where we started
> And know the place for the first time.
> – T.S. Eliot

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