

MASTERING AWARENESS: ONE KEY TO EFFECTIVE LEADERSHIP FOR TRANSFORMING SCHOOL SYSTEMS*

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1 The Context for Transforming School Systems

Duffy and Reigeluth (2008) use a three-path metaphor to characterize the process of creating and sustaining transformational change in school systems. The three paths are:

- Path 1: transform core and support work processes
- Path 2: transform internal social infrastructure.
- Path 3: transform environmental relationships

Unlike real-world paths, these change paths can be traversed simultaneously because they represent cognitive pathways. Each one is not a linear sequence of trail markers that are used to navigate the terrain of transformational change. Further, the pathways are serpentine with many switchback trails. Instead, thinking along the pathways unfolds something like this:

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1.1

If we want to introduce personalized learning into our school system (Path 1) what kind of organization design and reward system (Path 2) do we need to have in place? And, what level of political and financial support do we need from our external stakeholders (Path 3)? And, if we want to get political and financial support what kinds of changes do we need to make to our system (Paths 1 and 2)?

“Mastery of Awareness” is an element of *Path 3—transform environmental relationships*. Path 3 is particularly important because stakeholders in the external environment have political influence and they control the resources school systems need to operate. The external environment also contains multiple opportunities and significant threats that can affect the success of a school system’s transformation. If a school system does not have the political support or the resources needed to engage effectively in transformational change, and if that system is blind-sided by unanticipated threats or frustrated by missed opportunities, then efforts to transform that school system will certainly fail. Therefore, it is critically important to prepare for whole-system transformation by engaging in environmental assessment activities to become aware of key stakeholders, to assess their concerns and aspirations for the district, to determine which stakeholders’ issues should be addressed, to evaluate their level of support for or resistance to transformational change, to identify potential external threats and opportunities, to determine the level of environmental complexity, and to assess the rate of change in the environment. All of these assessment data are then used to transform a district’s relationship with its external environment (Path 3, above).

We know a lot about how to improve entire systems (e.g., Ackoff, 1981; Banathy, 1996; Duffy & Reigeluth, 2008; King & Frick, 1999, Pasmore, 1988; Pava, 1983a, 1983b; Reigeluth, 1994). One of the core principles of whole-system transformation that emerges from this literature is that three sets of key organizational variables must be improved simultaneously (e.g., see Ackoff, 2001; Duffy, 2002, 2003; Duffy, Rogerson & Blick, 2000; Pasmore, 1988). Earlier, these three sets of variables were characterized as change paths. The general terrain features of each change path are briefly described below.

2 Three Paths Toward Transformation

Path 1: Transform a core and support work processes. Core work is the most important work of any organization. In school districts, core work is teaching and learning that is traditionally organized as a preK-12th grade instructional program. Core work is maintained and enriched by support work. In school districts there are two categories of support work: academic support work and non-academic support work. Academic support work roles include instructional technologists, librarians, district-level and building-level administrators, supervisors, and other education specialists. Non-academic support work includes cafeteria workers, janitors, bus drivers, and others.

Although support work is important to the success of a school district, it is not the most important work. Teaching and learning is the most important work and it must be elevated to that status if a school system wants to increase its overall effectiveness.

While transforming student learning is the primary goal of *Path 1: Transform core and support work processes*, focusing only on improving student learning is a piecemeal approach to improvement. A teacher’s knowledge and literacy is probably one of the more important factors influencing student learning (e.g., see Sanders & Rivers, 1996). So, taking steps to improve teacher learning must also be part of any school district’s effort to transform its core work process.

While improving student and teacher learning are two important goals of improving core work in a school district, this is also a piecemeal approach to improving a school district because a school system is a knowledge-creating organization and it is, or should be, a learning organization. Professional knowledge must be created and embedded in a school district’s operational structures and organizational learning must occur if a school district wants to develop and maintain the capacity to provide children with a quality education. So, school system learning (i.e., organizational learning) must also be part of a district’s transformation strategy.

Path 2: Transform internal “social infrastructure.” Improving core and support work processes

to improve learning for students, faculty and staff, and the whole school system is an important goal but it is still a piecemeal approach to change. It is possible for a school district to have a fabulous instructional program with extraordinarily effective instructional technology supporting it but still have an internal social “infrastructure” (which includes organization culture, organization design, communication patterns, power and political dynamics, reward systems, and so on) that is de-motivating, dissatisfying, and demoralizing for teachers. De-motivated, dissatisfied, and demoralized teachers cannot and will not use a fabulous curriculum in remarkable ways. De-motivated, dissatisfied, and demoralized support staff cannot and will not perform their duties in value-adding ways. So, in addition to improving how the work of a district is done, transformation efforts must focus simultaneously on improving a district’s internal social “infrastructure.”

The social infrastructure of a school system needs to be redesigned at the same time the core and support work processes are redesigned because it is important to ensure that the new social infrastructure and the new work processes complement each other. The best way to ensure this complementarity is to make simultaneous improvements to both elements of a school system.

Path 3: Transform environmental relationships. A school district is an open system. An open system is one that interacts with its environment by exchanging a valued product or service in return for needed resources. If change leaders want their district to become a high performing school system they need to have a positive and supportive relationship with stakeholders in their external environment. But they cannot wait until they transform their district to start working on these relationships. They need positive and supportive relationships shortly before they begin making important changes within their district. So, they have to start improving their district’s relationships with key external stakeholders as they prepare to begin a transformation journey.

Hopefully, this three-path metaphor makes sense because the principle of simultaneous improvement along the three paths is absolutely essential for effective systemic transformational change (e.g., see Emery, 1977; Pasmore, 1988; Trist, Higgin, Murray, & Pollack, 1963). This systemic transformational approach to change, while considerably more difficult than piecemeal change, is possible and is indeed being carried out successfully in all kinds of organizations, including the Metropolitan School District of Decatur Township, Indiana.² Furthermore, many advocates of transformational change believe this is the only approach that can create and sustain breakthrough improvements in student learning in our 21st Century knowledge society.

3 School Districts as Complex Systems

Organizations are complex systems (e.g., see Olson & Eoyang, 2001). As complex systems school districts are responsible for performing the extraordinarily difficult task of educating children who come to school with a handbarrow full of diverse learning styles, needs, interests, and abilities. As a complex system, a school district is also a collection of parts. Those parts are called schools, programs, curricula, and so on. Each part performs an important function within the system, but no part by itself can do what the entire system does. Further, the relationship between and among parts creates synergistic behavior that represents the overall performance of the system.

The science of complex systems (e.g., see Bar-Yam, 2004) suggests that when parts of a system are independent those parts are free to respond to independent demands from the environment. However, when the demands on one part of a system are linked to the demands of other parts, those parts will only perform well if they are connected to each other (p. 49). Since a child’s education is more than what he or she learns in a particular grade or classroom, it is logical to argue on the basis of complex systems theory that all of the parts of a school system are and must be connected to each other. Schools, programs, and curricula must become increasingly interdependent rather than increasingly independent.

Even though more interdependence is required to improve teaching and learning, that interdependence should not be so tight as to exclude some independent actions in classrooms and schools. There must be an artful balance between independence and interdependence. An analogy illustrating this point is found in a

²Readers may visit their website at http://www.indiana.edu/~syschang/decaturn_the_change_effort.html (<http://www.indiana.edu/%20~syschang/decaturn_the_change_effort.html>). The transformation is being facilitated by Dr. Charles Reigeluth of Indiana University.

child's toy called a "slinky." A slinky is a continuous coil of metal (or plastic). When set at the top of stair and nudged it slinks its way down the steps. The lead segment of the coil falls first. Each subsequent coil segment follows on. The coil is flexible and adapts to the stair as it makes its way through its environment (the stair). The key to the success of the slinky is found both in its flexibility and in its integrity as a whole coil. In much the same way, a school system (the coil) must be designed with sufficient flexibility to allow individual schools and classrooms to experience some degree of independence while maintaining its integrity as a whole system.

4 General Features of a School System's External Environment

All systems exist within a broader environment and complex systems interact with and form relationships with elements of their external environments. As noted earlier, to be effective the complexity of a system must match the complexity of its environment (Bar-Yam, 2004). This principle suggests that transforming a school system's relationship with its environment (Path 3 of the transformation process) is critical to the success of a school system's transformation journey. Further, it is clear from the literature on organization theory and design (cited throughout this article) that the quality of that relationship will affect the future performance of the system.

The field of organization theory and design (e.g., Daft, 2006; Burton, 2006) offers abundant and time-tested concepts and principles for assessing a system's external environment. Examples of organization theory and design concepts and principles relevant to a school system's external environment are highlighted below.

5 General Environment vs. Task Environment

General environment. The general environment for all school systems is composed of the national society, a geographical region, the national economy, international events, and so on. Components of this broad environment can have a significant impact on a school system, but a single school system has no opportunity to exert any influence on its general external environment.

The relationship between a system and its general environment is unidirectional (from the outside-in), which means that the general environment affects the system but the system cannot affect the general environment. Even though a school system cannot influence its general environment (e.g., the national economy, societal change), change leaders need to conduct a scan of the general environment to anticipate threats and identify opportunities that may emerge from the general environment. With that knowledge, they can then devise strategies to deal effectively with the consequences of the threats or to seize the opportunities.

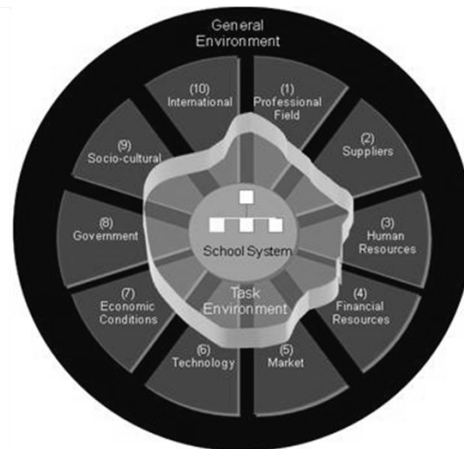
Task environment. The task environment for a school system is a sub-set of its general environment. The task environment is composed of individuals, groups, and organizations that have a stake in the performance of a school system (thus, they are called stakeholders). The task environment also is composed of other variables such as community demographics, availability of scarce resources, local property values, and so on. Further, the relationship between a system and its task environment is reciprocal with multi-directional opportunities for mutual influence. Therefore, the quality of the relationship between a system and its task environment is very important because that relationship will affect the system's performance and impact the availability of the technical, financial, and human resources that the system needs to "live."

All school systems are situated in both a general environment and a task environment. The general environment is depicted in Figure 1 by the dark outer circle and the dark spaces between the ten sectors. The task environment is represented by the tips of the pie-shaped sectors inside the transparent splotch shown in the center of Figure 1. The ten sectors identify key elements of the general and task environments.

Examples of what can be found in a school district's general and task environments include:

1. Professional Field Sector: the profession of education and its controlling paradigms, mental models, and mindsets.

2. Suppliers Sector: suppliers of books, equipment, and so on.
3. Human Resources Sector: labor market, employment agencies, universities that prepare future teachers and administrators.
4. Financial Resources Sector: availability of local, state, federal funds, and local property taxes that support education.
5. Market Sector: the local community served by the district.
6. Technology Sector: Research on teaching and learning, computer technology, instructional management systems, and information management systems.
7. Economic Conditions Sector: recession, unemployment rate, inflation rate, rate of return on investments, and local economic conditions.
8. Government Sector: city, state, federal laws and regulations, taxes, government services, and the state and federal departments of education.
9. Socio-Cultural Sector: demographic data about the age, values, beliefs, education, religion, work ethic, and so on of the community served by the district.
10. International Sector: student exchange programs and “sister” schools in foreign countries; politicians comparing the performance of American school systems with the performance of school systems in other countries.

Figure 1**General and Task Environments for School Systems (Adapted from Daft, 2006)****Figure 1**

6 Assessing the External Environment

To be effective the organization design of a system must match the complexity of its external environment (Bar-Yam, 2004). This principle compels change leaders in a school system to assess the characteristics of their system’s general and task environments and then make choices about how to redesign the structure of their systems to match the complexity of their external environments. To assess the complexity of the external environment change leaders use a process called environmental scanning.

Environmental scanning methodologies and tools are easily extracted from the literature on strategic planning. These methodologies are used to identify issues, trends, threats, opportunities, and forces within each of the ten environmental sectors within a school system's general and task environments (described earlier).

6.1 Identifying Key Stakeholders

After assessing what's happening in each of the ten sectors of a district's general and task environments, change leaders then identify key external stakeholders in the task environment.³ A key stakeholder is any person or group with an interest in, or who will be significantly affected by, planned changes in a school system. Examples of external stakeholders in the task environment for school systems include:

- Parents
- Suppliers of books, supplies, equipment
- Critics
- State departments of education
- U.S. department of education
- Accrediting agencies
- College/university professional preparation programs for teachers and administrators
- Local government
- Local business leaders and groups
- Charter schools and private schools

A single change leader will have a difficult time identifying all of a district's key stakeholders and he or she will surely be unable to assess all of their concerns, issues, dreams, aspirations, and so on. Identifying and assessing stakeholder concerns requires a team effort that is data-based rather than opinion-based (opinions are not to be excluded from an assessment, but they must follow, not precede, the collection and analysis of environmental scan data).

6.2 Stakeholder Mapping

Stakeholder mapping (e.g., see Savitz & Weber, 2006) is a process by which a school system learns about the perceptions, issues, dreams, aspirations, concerns, and expectations of its external stakeholders and then creates a "map" representing those data. These data are then used to communicate more effectively with the external stakeholders as the school system moves along three change paths toward a transformed school district.

As change leaders identify key external stakeholders and what they expect of a school system the change leaders can also assess and map the level of political support that each stakeholder provides to the district's transformation journey. This kind of political assessment yields five groups of stakeholders based on their level of agreement with the school system's transformation goals and the level of trust the change leaders have in each group (Figure 2). Each stakeholder's relative amount of power (i.e., political influence) and the relative importance of each stakeholder's concerns are also assessed and mapped (Figure 3).

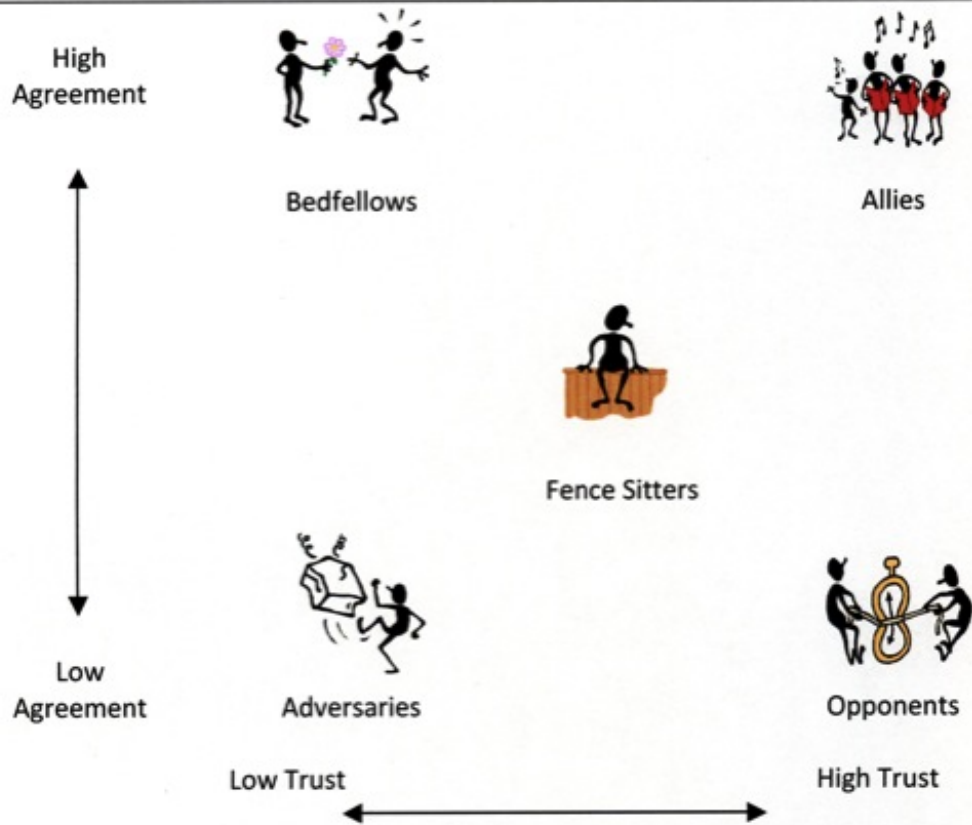
After completing the stakeholder mapping process, change leaders then must decide what to do with those data. A matrix like the one shown in Table 1 can be particularly helpful for making those kinds of political decisions. Examples of how to use these assessment data to communicate during times of great change are presented below.

Priority 1: Powerful stakeholders with very important concerns. This group of stakeholders (allies, bedfellows, opponents, adversaries, and fence-sitters) is extraordinarily important to the success of a school system's transformation journey. They are influential people with important concerns. It makes

³There are also key stakeholders inside a school system, but these people and groups, by definition, are not part of the assessment of the external environment. Their needs, interests, aspirations, and concerns will be assessed in a separate transformation activity.

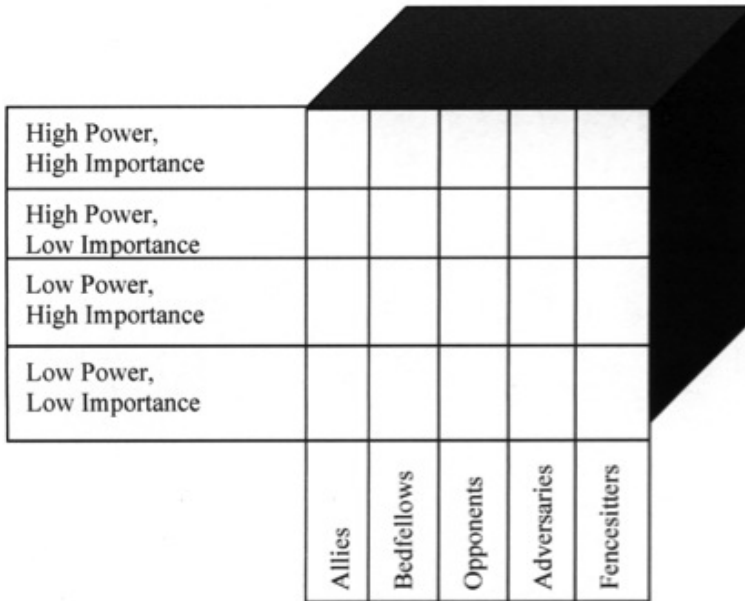
political sense to engage these stakeholders in substantive conversations about their concerns and about how they can contribute to the success of the transformation.

Figure 2
Political Assessment of Key Stakeholder Groups Within the External Environment



Adapted from Block, P. (1991). *The empowered manager: Positive political skills at work*. San Francisco: Berrett-Koehler Publishers.

Figure 3: Assessment of Stakeholder Power and the Importance of Their Issues



High Power, High Importance					
High Power, Low Importance					
Low Power, High Importance					
Low Power, Low Importance					
	Allies	Bedfellows	Opponents	Adversaries	Fencesitters

Table 1
Setting Priorities for Responding to Stakeholder Concerns

	Priority 1	Priority 2	Priority 3	Priority 4
Allies	High power, high importance	Low power, high importance	High power, low importance	Low power, low importance
Bedfellows	High power, high importance	Low power, high importance	High power, low importance	Low power, low importance
Opponents	High power, high importance	Low power, high importance	High power, low importance	Low power, low importance
Adversaries	High power, high importance	Low power, high importance	High power, low importance	Low power, low importance
Fencesitters	High power, high importance	Low power, high importance	High power, low importance	Low power, low importance

In the case of powerful opponents with very important concerns (people who disagree with the transformation goals, but who are trusted), change leaders may be able to convert them to allies if they listen carefully to their concerns and demonstrate a willingness to make adjustments to the transformation plans based on their input. With adversaries (people who disagree with the transformation and who are not trusted), change leaders probably will be unable to convert them to allies or bedfellows; nevertheless, their concerns should be listened to which will demonstrate to observers that these people are being treated fairly and with civility.

Priority 2: Less powerful stakeholders with very important concerns. Often low influence people are simply ignored. They fade into the background and become invisible. Yet, they may have important concerns about the future of a school system that should be considered. So, the communication strategy for this group is to engage them in conversations about their concerns.

Priority 3: Powerful stakeholders with less important concerns. These people are highly influential, but their concerns are relatively unimportant. Nevertheless, because of their level of influence it makes political sense to figure out a way to involve them in conversations about the transformation and to find ways for them to influence others to support the transformation. If nothing else, they can become champions for the transformation journey.

Priority 4: Less powerful stakeholders with less important concerns. This last group is probably the one that is easiest to ignore. Although members of this group are not very influential and although their concerns may be trivial, they should not be alienated by ignoring them, thereby converting them into adversaries. So, devising communication strategies that are built on civility and that express gratitude for their opinions will help to preserve their support. If these people are opponents or adversaries by treating them with courtesy and gratitude for sharing their concerns change leaders may prevent their opposition from growing stronger.

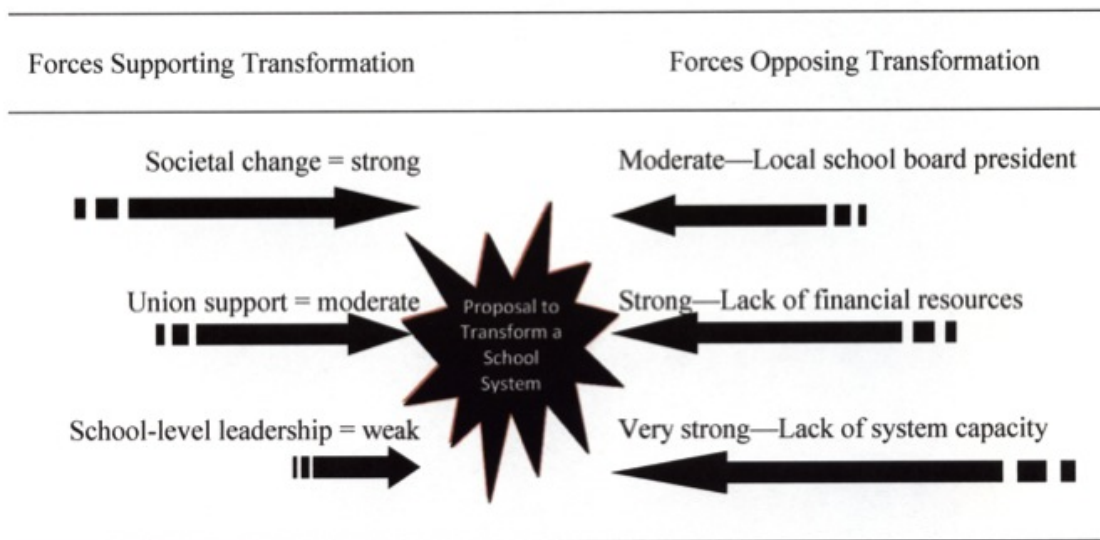
7 Force Field Analysis

Kurt Lewin (1951) gave change leaders a tool for assessing the level of resistance to a proposed change and the level of support for that change. He characterized the resistance vs. support dynamics as “forces.” As change leaders identify and assess the relative strength of these forces they engage in what Lewin called “force field analysis.” This technique can also be used to assess the relative degree of political support for or resistance to change among a district’s external stakeholders.

An example of how to map the forces for and against a proposed change is displayed in Figure 4. In that example, the forces opposing transformation outweigh the forces supporting it. While preparing the system to engage in a transformation journey change leaders need to focus their attention on maintaining the supporting forces while devising strategies for reducing the strength of the oppositional forces. According to Lewin, the principle of maintaining support while reducing resistance is tactically important because trying to increase the supporting forces can backfire by causing a corresponding increase in resisting forces.

Figure 4

Force Field Analysis Map



8 Matching Organization Design to Environmental Characteristics

9 Collecting Environmental Scan Data

Environmental scanning tools. Environmental scanning requires data collection. Examples of data collection tools that are commonly used to scan the external environment are:

1. Surveys
2. Focus groups/interviews
3. Open forums/public meetings
4. Observation/site visits
5. Media monitoring
6. Anecdotes/case studies
7. Literature reviews
8. Data-bases such as the U.S. Census data-base

9.1 Community Engagement Conferences

A large group process tool that is extraordinarily effective for bringing into one room stakeholders from all five groups identified in Table 1, above, is the Community Engagement Conference (Duffy & Reigeluth, 2008). This conference is designed using principles of Owen's (2008) *Open Space Technology*.

A Community Engagement Conference is a large group event for external stakeholders who are carefully selected to participate in the conference. The event can accommodate thousands of people, but for most school systems the groups will probably only be in the hundreds.

Following the design principles of Owen's *Open Space Technology*, the event allows participants to self-organize into small discussion groups on topics of their choosing, but all of the topics must be aligned with the main theme for the conference. As each small group engages in conversations about their "table topic" someone in the group records the main points and themes that emerge. At the end of each discussion period the scribe submits the notes to a staff person who converts the notes into an electronic format.

At the end of the conference, change leaders have a substantial amount of environmental data collected from carefully selected external stakeholders who participated in the event. Those data are then analyzed by the change leaders to identify patterns of concerns, opportunities, and threats.

9.2 SWOT Analysis

One of the important uses of the environmental scan data is to complete what strategic planners call a SWOT Analysis (e.g., Ansoff, 1988). SWOT is an acronym for Strengths, Weaknesses, Opportunities, and Threats.

Given the environmental data collected up to this point, change leaders now conduct a SWOT analysis for their school system. In other words they ask, "Given what we now know about our environment what are our district's strengths, weaknesses, opportunities, and threats?"

Strengths and weaknesses describe a school district's overall effectiveness as a system and reflect the internal operations of the system. Opportunities and threats are found in the external environment. A brief summary of possible diagnostic questions for each element of the SWOT analysis is provided below.

9.2.1 Strengths

Strengths represent a school system's resources and capabilities that contribute to the overall effectiveness of the system. Given the environmental scan data, change leaders compare their district's performance to those data to identify their system's strengths. The description of the strengths should answer questions like these:

- What are the school system's advantages within its external environment?
- What does the system do very well?
- Does the system have access to the human, financial, and technical resources it needs to engage effectively in transformational change?
- What do our external stakeholders think our strengths are?

Examples of strengths include the district's good reputation within the community, having timely access to needed resources, employing highly qualified faculty and staff, and producing superior student performance on state mandated assessments.

9.2.2 Weaknesses

Weaknesses are weak points or deficiencies within a school system that inhibit the district's overall performance and that could become barriers to a school system successfully completing its transformation journey. Efforts should be made to identify these weaknesses honestly and accurately so they can be overcome as quickly as possible.

Weaknesses can be identified by answering questions such as:

- What can be improved?
- What is done poorly?
- What should be avoided?
- What are we doing as an organization that could be done more effectively or efficiently?
- What is this school system not doing that it should be doing?
- If one thing could be changed that would trigger additional important changes what would that be? (that “one thing” is called a “high-leverage change”—see Reigeluth, 2006)

Examples of weaknesses include: wide gaps between high performing schools and low performing schools within the district, inability to meet state and federal standards for educating students, missing deadlines, high turnover in the superintendent’s position, and significant complaints from many stakeholders.

9.2.3 Opportunities

Opportunities are favorable environmental conditions that exist today or that are likely to emerge in the near future. To identify opportunities questions like these must be answered:

- What are some changes in state or federal legislation that could benefit the district?
- What are some changes in the community’s demographic profile that present an opportunity to create significant change in the district?
- What are some examples of new research about how school districts function as systems that can help us engage more effectively in transformational change?

Examples of opportunities in the external environment include the election of a new school board that is supportive of transformational change, changes in federal legislation that removes barriers to successful change, and the influx of much needed financial resources from the state or federal governments.

9.2.4 Threats

Threats are external forces that present unfavorable possibilities that are potentially damaging now or in the near future. To identify threats change leaders should be able to answer questions such as these:

- What obstacles do we face as we think about transforming our school system?
- What is our competition doing?
- Are the required state and federal standards changing in ways that will impact the district negatively?
- Is the knowledge-base about teaching and learning changing in ways that will impact the district negatively?
- Is the district’s paradigm of teaching and learning hobbling educators’ ability to educate children in more effective ways?
- Does the district have financial problems?

Examples of threats include significant shifts in the demographic profile of a school system’s community, withering political support for the school district’s plans to engage in transformational change, the election of an adversarial school board, and increasing state and federal demands for improving teaching and learning that require significant increases in financial resources that a school system doesn’t have.

10 Matching Organizational Design to Environmental Characteristics

10.1 Analyzing Environmental Scan Data

The environmental scanning process yields a significant amount of data. Those data need to be transformed into information and knowledge. The transformation of the data proceeds through a process of careful analysis that:

- Identifies and assesses the broad characteristics of a school system's external environment;
- Identifies key stakeholders, assesses and maps their level of power and the importance of their concerns;
- Identifies SWOTs and predicts their impact; and,
- Results in an accurate force field analysis.

Given all of these data, change leaders now need to determine how well the design and performance of their school system matches the characteristics of its external environment.

The field of organization theory and design tells change leaders clearly and consistently that the structural design of an organization must be aligned with the characteristics of its external environment if that organization wants to function effectively (e.g., Bar-Yam, 2004; Burns & Stalker, 1961; Daft, 2006; Lawrence & Lorsch, 1967). Organization design is an element of *Path 2: Transform Internal Social Infrastructure*. Determining the appropriate organization design for a system's external environment is done by engaging in environmental assessment activities while moving along *Path 3: Transform Environmental Relationships*.⁴

Among the many features of the external general and task environments that influence the design of an organization, organization theorists attach particular importance to the level of environmental complexity (simple versus complex) and the rate of change (stable versus unstable).

10.2 Environmental Complexity

Environmental complexity is a function of stakeholder demands and expectations. If a school system has many stakeholders with many important demands and expectations, its external environment is complex. If the district has fewer stakeholders with fewer important demands and expectations, then its external environment is simple.

10.3 Environmental Change

The rate of environmental change is assessed by determining how much and how often change is happening in the external environment that has or will have a clear impact on a school system. If the level of change is substantial and rapid, the external environment is considered to be unstable. If the rate of change is less than substantial and slow paced, then the external environment is considered stable.

10.4 Mechanistic Organization Design vs. Organic Organization Design

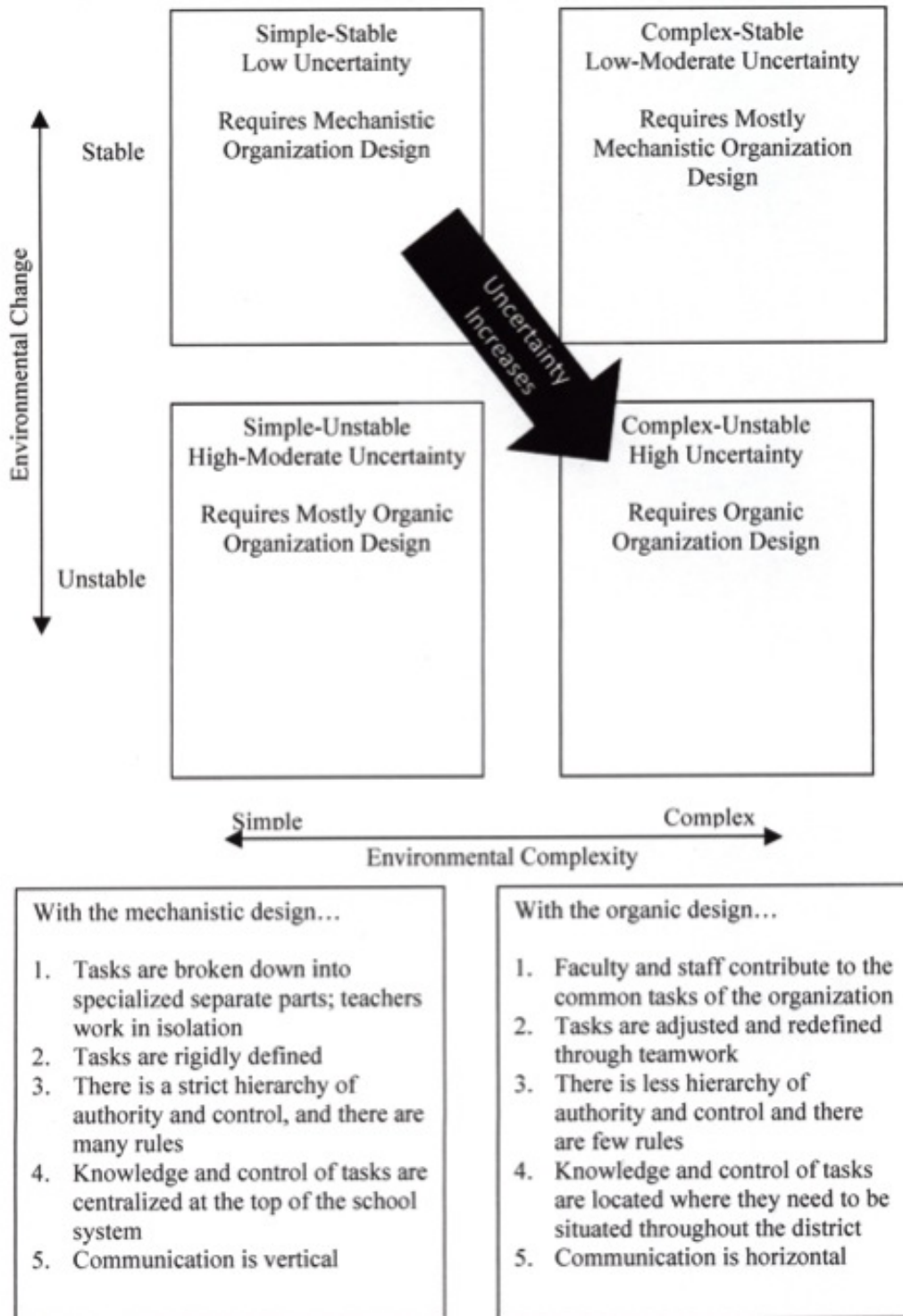
The intersection of environmental complexity (simple vs. complex) and the rate of change (stable vs. unstable) creates a two by two matrix as shown in Figure 5.

Given a thorough assessment of the external environment as suggested above, change leaders can make predictions about the nature of their school system's external environment and then identify the kind of organization design required by the characteristics of the environment. Specifically,

- A simple + stable environment requires a mechanistic organization design
- A complex + stable environment requires an organization design that is mostly mechanistic
- A simple + unstable environment requires an organization design that is mostly organic.
- A complex + unstable environment requires an organization design that is organic.
- As the environment becomes increasingly unstable and complex the level of uncertainty about the future increases. As uncertainty increases, the need for an organic organization structure becomes increasingly important.

⁴This relationship between Paths 2 and 3 is yet another example of why it is so important to transform school systems by creating and sustaining simultaneous changes along the three change paths that were identified at the beginning of this article.

Figure 5
 A school system’s structural design matched with environmental characteristics



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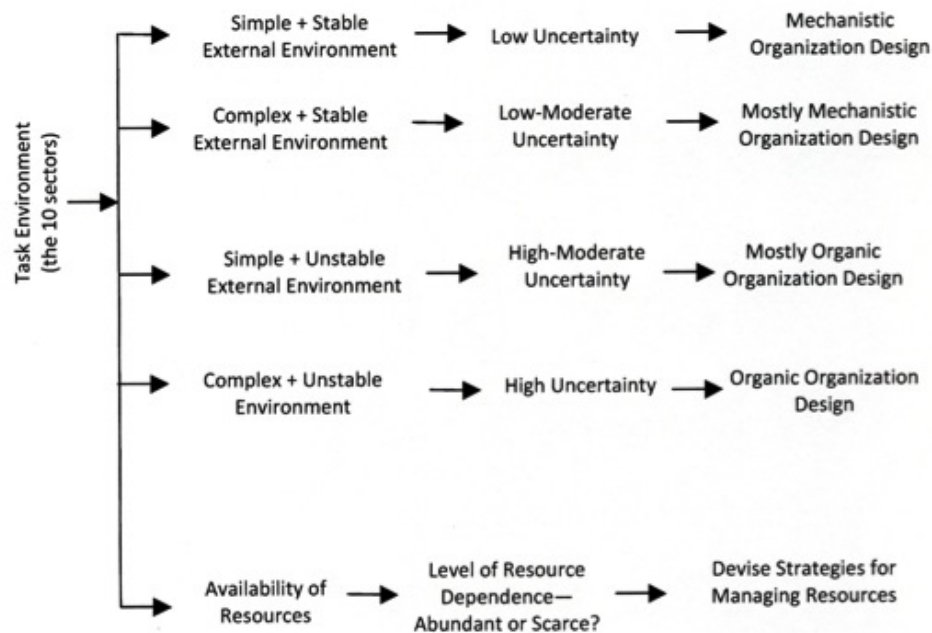
11.1 Assessing Availability of Resources

After determining the characteristics of the external environment and once the ideal organization design to match the environment is identified, then the next assessment activity determines the relative availability of needed resources to sustain the district’s performance within the context of its new design. The assessment of resource availability will tell change leaders if the resources are either abundant or scarce. The assessment of the environment’s complexity and stability in relation to the availability of resources is depicted in Figure 6.

12 Conclusion

It is clear from the body of knowledge about organization theory and design that the environment within which a school district exists has a significant impact on the performance of that district. Further, change leaders in school systems, like change leaders in all other organizations, must know what their environment expects of them and then decide whether or not to meet those expectations and how to do that effectively. It is also clear from organization theory and design that school systems, like all other organizations, must be designed to match the characteristics of their external environments. The matching of organization design to environmental characteristics is important because, as noted earlier, when the design of a system does not match the characteristics of its external environment that system will move toward failure.

Figure 6
Assessing availability of resources



Adapted from Daft, 2006

An assessment of the external environment for most contemporary school systems suggests that those environments are complex and unstable and that resources are scarce. Organization theory tells us that when a system exists within that kind of environment that system should be designed according to principles of

organic design. Which begs the questions, “Why are most school systems organized using a mechanistic, bureaucratic design?” and “What can be done to change that situation?” One answer to the first question is that the dominant paradigm for designing and managing school systems is the Industrial Age mechanistic design and it is stubbornly resistant to change. One answer to the second question is that school systems must be transformed to satisfy the requirements of their external environments—external environments that are increasingly complex and changing rapidly.

Developing knowledge and skills for assessing the characteristics of a school system’s external environment will help current and aspiring change leaders in those systems to become masters of awareness. Mastering awareness is one of the three essential skill-sets for leading transformational change (the other two skill-sets are “mastery of deliberate intention” and “mastery of methodology”).

13 References

- Ackoff, R. L. (1981). *Creating the corporate future*. New York: John Wiley & Sons.
- Ackoff, R. L. (2001). A brief guide to interactive planning and idealized design. Retrieved from <http://www.sociate.com/texts/ackoffGuidetoIdealizedRedesign.pdf>⁵.
- Ansoff, H. I. (1988). *Corporate strategy*. London: Penguin Books.
- Banathy, B. H. (1996). *Designing social systems in a changing world*. New York: Plenum Press.
- Bar-Yam, Y. (2004). *Making things work: Solving problems in a complex world*. Cambridge, MA: NECSI-Knowledge Press.
- Block, P. (1991). *The empowered manager: Using positive political skills at work*. San Francisco: Jossey-Bass.
- Burns, T. & Stalker, G. M. (1961). *The management of innovation*. London: Tavistock.
- Burton, R. M. (2006). *Strategic organizational diagnosis and design: The dynamics of fit* (3rd ed.). New York: Springer.
- Cummings, T. G. & Worley, C. G. (2001). *Organization development and change* (7th ed.). Cincinnati: South-Western College Publishing.
- Daft, R. L. (2006). *Organizational theory and design* (9th ed.). Cincinnati, OH: South-Western College Publishing.
- Duffy, F. M. (2003). *Courage, passion and vision: A guide to leading systemic school improvement*. Lanham, MD: Scarecrow Education and the American Association of School Administrators.
- Duffy, F. M. (2002). *Step-Up-To-Excellence: An innovative approach to managing and rewarding performance in school systems*. Lanham, MD: Scarecrow Education.
- Duffy, F.M. & Reigeluth, C.M. (2008, July-August). The School System Transformation (SST) Protocol. *Educational Technology Magazine: The Magazine for Managers of Change in Education*, 48(4), 41-49.
- Duffy, F. M., Rogerson, L. G., & Blick, C. (2000). *Redesigning America’s schools: A systems approach to improvement*. Norwood, MA: Christopher-Gordon Publishers.
- Emery, F. E. (1977). *Two basic organization designs in futures we are in*. Leiden, Netherlands: Martius Nijhoff.
- King, K. S., & Frick, T. (1999). Transforming education: Case studies in systems thinking. Presented at the Annual National AERA Meeting, Montreal, Canada.
- Lawrence, P. R., & Lorsch, J. W. (1967). *Organization and environment*. Boston: Harvard Business School Press.
- Lewin, K. (1951). *Field theory in social science*. New York: Harper and Row.
- Olson, E. E. & Eoyang, G. H. (2001). *Facilitating organization change: Lessons from complexity science*. San Francisco, CA: Pfeiffer.
- Owen, H. (2008). *Open space technology: A user’s guide* (3rd ed.). San Francisco: Berrett-Koehler.
- Pasmore, W. (1988). *Designing effective organizations: A sociotechnical systems approach*. New York: John Wiley & Sons.

⁵<http://www.sociate.com/texts/%20ackoffGuidetoIdealized%20Redesign.pdf>

Pava, C. H. P. (1983a, spring). Designing managerial and professional work for high performance: A socio-technical approach. *National Productivity Review*, 12, 6-135.

Pava, C. H. P. (1983b). *Managing new office technology: An organizational strategy*. New York: The New Press.

Reigeluth, C. M. (2006). A leveraged emergent approach to systemic transformation. *TechTrends*, 50(2), 46-47.

Reigeluth, C. (1994). Introduction: The imperative for systemic change. In C. Reigeluth & R. Garfinkle (Eds.), *Systemic change in education* (pp. 3-11). Englewood Cliffs, NJ: Educational Technology Publications.

Sanders, W. L. & Rivers, J. C. (1996). Cumulative and residual effects of teachers on future student academic achievement. Research Progress Report. Knoxville, TN: University of Tennessee Value-Added Research and Assessment Center. Retrieved from <http://www.mccsc.edu/~curriculum/cumulative%20and%20residual%20effect>

Savitz, A. W. & Weber, K. (2006). *The triple bottom line: How today's best-run companies are achieving economic, social and environmental success—and how you can too*. San Francisco: Jossey-Bass.

Trist, E. L., Higgin, G. W., Murray, H., & Pollack, A.B. (1963). *Organizational choice*. London: Tavistock.

⁶<http://www.mccsc.edu/~curriculum/cumulative%20and%20residual%20effects%20of%20teachers.pdf>