# Copernicus, Deming, & Schools:  Finding a System That *Makes Sense*

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*System…* what system?

In American education it's become a cliché to blame "the system" and demand *systemic change*, yet there is little agreement as to what that system actually looks like.  Some even question whether or not there is a system.

Yet, there <u>is</u> a system there.  People who work in schools increasingly sense that "everything-seems-connected-to-everything-else" -- that their work settings are made up of parts that influence one another, intentionally or unintentionally, as they strive to accomplish their common organizational purpose -- to impact the lives of children.   Unfortunately, few people have experienced *positive interdependence* in their organizational systems.  Almost universally, "the system" has become autonomy's enemy.  And recognizing that one is being impacted negatively by a system -- and understanding and perceiving that system so it can be managed productively -- are two wholly different issues.

> "When you read the myriad of recommendations these commission reports contain, it becomes clear that they are not informed by any conception of a *system*.  That is a charitable assessment. . . . those outside the system with responsibility for articulating a program for reform have nothing resembling a holistic conception of the system they seek to influence.``
>
> "<u>The Predictable Failure of Educational Reform:  Can We Change Course Before It's Too Late?</u>   Seymour Sarason, 1990

Today, that latter understanding is the common prerequisite for every major educational reform initiative that attempts to develop a coherent <u>systemic</u> strategy.  For schools to be improvable, they first must be seen as *manageable*.  Yet even those who think they understand that schooling takes place in a system, have trouble seeing it as a manageable entity with boundaries and connected components.  There is little understanding of how the "parts really fit together," and how seemingly isolated acts are parts of linked processes even though separated by time and distance.

> . . . (there is a) lack of agreement on a conceptual model of an optimally functioning education system . . . Agreeing on a set of measures to describe the health of the education system requires broad consensus on how the various pieces of the system fit together.  That consensus is elusive and certainly does not exist at present.  <u>Education Counts;</u>  U.S. Department of Education, July 1991

As a consequence, many policy makers, as well as school leaders, are attempting *systemic change* as if they were characters in the *Blind Men and the Elephant* -- limited by an incomplete understanding of the system with which they must work.  Each defining the system from the perspective of the part over which

> "Part of the reason for the interest [in a new Consortium on Productivity in the Schools] is that no one knows how education's component parts really fit together."   Editorial,  <u>Washington Post</u>, 12/11/92

they have most control.  As a result there is no common understanding of the schooling "elephant"-- the minimum viable system of relationships representing a sustainable capacity for responding to the learning needs of children.

In fact, the situation sounds very much like the one described in this letter.  If you note the date -- it was written in 1543 to the Pope by a Polish astronomer named Copernicus.  As you may recall, he suggested that the problem was the theory behind the maps.  Because it was based on direct observation, there had been little reason to question it, and it did work pretty well for simple tasks.  Farmers could plant and harvest, and sailors could navigate.  Each day, people could go on with their lives, and what they saw with their own eyes was what the theories predicted… the sun, stars and planets moved around the earth.

> *"… it is as though an artist were to gather the hands, feet, head and other members for his images from diverse models, each part excellently drawn, but not related to a single body, and since they in no way match each other, the result would be a monster rather than a man."*
>
> Nicholas Copernicus
> in letter to Pope Paul II,
> 1543

Actually, they could even predict the position of the stars and the planets from season to season.  Of course, there was some problem in predicting the length of the seasons, but astronomers could correct any discrepancies by adjusting something else in the system.  Unfortunately, discrepancies corrected in one place, usually produced a discrepancy in another.  As a result, Egyptians had added over 5 days to their year; and by Julius Caesar's time the Spring equinox had slipped 10 days.

In seeking to understand what could be observed in the world around them …much as we do today, …mankind had created a theory from what it had directly observed, without realizing that it never really saw the *system* the theory predicted, and which they drew abstractly on their charts.

Copernicus set out to find a different theory… a different answer to the question "Why?" …different rules about the "game" that he saw being played.  He sought a view of the system that would allow more sensible explanations of how planets moved and seasons occurred. . . one that would allow the more exact predictions needed by explorers beginning to cross oceans.

At that point, Copernicus must have felt as we do today when we look at what's happening in our schools.  We, too, are trying to make sense of our system of schools --seeking out its natural processes and rules -- so we can use that understanding to improve them.  But many times when we think we fix one part of schools, another problem appears somewhere else and we end up patching and stretching to make things fit.  It's as if everything were connected to everything else, but we can't really see how.  We think we know the "game" that's being played, but can't figure out the rules.

Like Copernicus, we need ways to make sense of how the whole school system is supposed to work.  We have to see how the parts relate and connect to each other.  And there's the problem!   While the parts may be visible, the relationships or connections between them aren't; and there is even disagreement on exactly what these connections are.  Just as in Copernicus' age, we've operated for a long time on assumptions and theories of how things are connected...assumptions that seemed to match our observations... and which seemed to work... most of the time.

But increased pressures on schools have tested these supposed connections. When they didn't seem to connect, we, like the pre-Copernicans, "stretched and patched" -- and we added more pieces to provide what we hoped were the missing links. But in the end, it has been much like a scarecrow -- all the parts seemed to be there and connected to one another....until we look inside. Then we see that critical life-sustaining connections are missing. Schools cannot adapt themselves to different situations unless their separate parts have ways to interact and contribute to the life and survival of the entity.

Like people in Copernicus' time, we have been operating without sound knowledge of how key parts of our system work. Without necessarily realizing it, we have been like physicians trying to run hospitals without really understanding how a human body functions as a system. Thus much about education today doesn't seem to make much sense, and there are many theories about why and, for each, what to do about it. As we've seen, we even have trouble defining the "system" we want to fix.

Which *System?*

One can see many "systems" operating in American education and attempts to define them usually produce "cognitive gridlock." Which are the *manageable* systems that we can most directly influence? For example,

• One can look at the levels of schooling a child moves through from <u>pre-school through higher education</u> and think of that as a *system* that will influence the ultimate behaviors of a student moving through it.

• Or one can look at <u>local, state and federal educational policy making agencies</u> whose budgets provide funding for education and think of that as a *system*.

• Or one can look at all the <u>influences on a child</u> - school, parents, peers, media - and think of them as a *system* of experiences from which a child learns how to act. While these varied experiences are not organized <u>as</u> a system, the child's mind does all the necessary connecting as part of basic sensemaking. Everything ties together to form a seamless picture that answers two intertwined questions: *What does it mean? What do I mean?*

• Or, finally, there is a system over which educators have most direct control -- the <u>system of work</u> in specific classrooms, schools, or school districts, that is supported, designed and managed <u>as</u> schools.

Our starting assumption is that systemic change must <u>begin</u> with the last two "systems." And we must have ways to work "in" both systems <u>at the same time.</u>

First, we must be able to understand how the *learning mind* handles the experiences it encounters -- for this is the non-negotiable "system" a child brings to school. In a similar fashion, one enters a hospital with certain systems [e.g., circulatory, digestive, etc.] already in place. The hospital, in structuring its capacities to respond to patient needs, cannot ignore those established "transparent" systems without putting the patient at great risk.

Then, we must understand the system of *intentional work* designed to respond to the development needs of that first "system." But at what level of work do we focus -- the `classroom? school? or district? Here it becomes critical to look for the minimum boundary of *viability*. For example, within each person can be found several systems [respiratory, digestive, etc.], and at the same time that individual may be part of several larger systems [family,

community, work organization.]  But the smallest <u>bounded</u> system that can survive as a unit is the person.    It is the same with school "systems." The smallest unit capable of maintaining sustained improvement [ i.e., changes that do not disappear when people leave] is the school <u>district </u>and its supporting community.

Thus school practitioners are always operating in two parallel "systems."   One they control through planning and operational management decisions to achieve the <u>results they want</u>.  But they are influenced by the dimensions and relationships of another "system" -- this composed of all factors that influence the student <u>results they get,</u> whether or not they can control them.

This "two systems" view of schooling may help explain why the work processes of the central office and school buildings seem so disconnected.  Each is responding to a different criterion.  As an example, the work of curriculum developers in the "first system" starts with what students *must know*.  This first system then provides teachers, principals, and other building level educators with goals for general direction-setting, as well as general support for attaining them.

The work of daily instruction, on the other hand, interacts largely with the "second system."   It starts with, and must respond to, what the student *already knows*.  And much of this knowledge base increasingly is a product of the "second system" - the one over which educators have little control.   As Bill Moyers has noted, the *popular culture*  is the "most powerful *chancellor*,  *superintendent, principal* or *teacher* in America." (1990)   The images and fragmented reality that children confront every day -- and from which they evoke meaning and values, provide the canvas and frame on which schooling starts.

<u>Why have we had so much trouble "seeing" these systems?</u>

Although there has been a lot of discussion of shifted paradigms in society, that shift at least as far as understanding organizations as systems are concerned has not yet taken place.  But, if Heydinger is correct, the readiness is there.

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A shift in the current paradigm is underway when

1. there are *increased arguments about seeing and doing.*

2. there are *extensive reports and data on failures.*

3. there is *dissatisfaction and confusion amongst practitioners.*

4. there is *performance deterioration which alters the political order.*

5 there is an *increased search for alternative approaches..*

6 when *little events lead to crises.*

7. there is *increased dynamism within the system.*
> "A framework for examining a current paradigm and assessing its volatility"
> cited by Richard B. Heydinger Univ. of Minn. in "assessing the Case for Paradigm
> Shifts" - in *On the Horizon* - April-May 1994

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Paradigms, as Copernicus demonstrated, have two critical dimensions:  a core organizing element to which everything relates, and an "outer" boundary that defines the connected elements.  It has been particularly difficult to view schools from the perspective of a different

frame or paradigm because both of those elements can now be seen as operating on the basis of *naive theories.*

Of course, no one wants to be accused of holding naive theories. The term itself even sounds demeaning. However, as cognitive psychologists use the term, "naive theories" have a very specific meaning. These are concepts that are formed from simple observation rather than knowledge. As an example, for centuries humankind believed the earth was flat, that the sun and planets circled the earth, and that heavy objects fell faster than lighter ones -- all because they *appeared* to. Many intelligent people held and acted on those and similar observation-supported beliefs -- including people in the church, universities, and governments whose roles depended on the old ways of doing business.

Even today we are learning that the human mind's tendency to generalize from observable data can still produce naive theories. In fact, at the root of education's perceived unfixable nature today can be found a "naive theory" of what the work of schools is and how it gets done within a system of influences.

What is this theory? Ask most people what the work of schools is and the answer generally will denote some form of delivery or transmission process -- *communicate* culture, *transmit* knowledge, *disseminate* information. The prevailing unstated theory is that during children's' formative years the job of the school, family and church is to *fill them up* with the knowledge, skills and values they will need to deal with the conditions of future life in healthy, productive ways. In the tape Schools that *Make Sense* we term this a "dump truck theory."

Yet the job of schools is no more the "delivery of knowledge" than the job of hospitals is the delivery of medicine. True, medicine is "delivered" in hospitals, but only through a *managed work process* that tries to match it appropriately to need. Thus the work of hospitals takes place in a work setting structured and managed to deliver appropriate service based upon continuing individual diagnosis.

Most educators believe that is the nature of their work, also. But they attempt to accomplish that work in a setting that has been structured and managed according to an unstated theory of delivery rather than *response*. The strength of this "delivery" paradigm can be compared to that of Ptolemy's map of the solar system. It can be easily validated by observation even though many intuitively agree with cognitive science research which suggests that learning is not delivered, but "constructed" as part of each student's intrinsic need to make sense.

And there lies the real "data" required for the complete acceptance of the new organizational paradigm for schools, if not all organizations. Until now, educators have had to operate much as heart specialists who had never seen the workings of the heart. Although it may be difficult to acknowledge, teaching has gone on for centuries based on assumptions of how learning happens. Today however, we have cognitive science's new understandings of how the

> "Schools routinely and profoundly violate what we know about how people learn the most effectively and the conditions under which they apply their knowledge appropriately to new situations . . . The common American experience with the public schools powerfully *frames our ideas and models* of what learning environments should look like . . ."
> Sue E. Berryman, Director
> Institute on Education and the Economy, &
> Consortium on Productivity & the Schools

mind actually transforms experiences into stored capacities to act [that is, learns.] But these are relatively recent, still developing, and not widely understood. Thus, many still believe learning

to be only a "possibility" [e.g., every child *can* learn] instead of a fundamental biological process like circulation that can be developed and enhanced.

The power of the present paradigm

Even with new knowledge of the fundamental learning process at which schools direct their efforts, and new understandings of how schools practitioners can work to facilitate it, our generation still faces the problem of overriding the prevailing organizational paradigm which lies, invisible, in the deepest recesses of our minds.

Some see this paradigm as a cultural constraint of Western civilization blinding us to the simple truth that was the core of                W. Edwards Deming's entire philosophy. Quite simply, his  fundamental belief [he called it *Profound Knowledge]* was that organizations put together by human beings, become connected systems of individuals -- linked by their work processes to accomplish their mutual purposes -- with each person intrinsically-driven to want to have positive effects on their environment, and willing to learn how to do that.

> "Civilization advances by extending the number of important operations we can perform without thinking of them."
> Alfred North Whitehead

Unfortunately, and for the same reasons, accepting this as the fundamental nature of organizational systems is as difficult as accepting learning as part of each person's fundamental nature. As noted earlier, few people have had totally positive experiences within their systems of work. For many, years of sublimating anger at <u>the</u> *system*, has led to adversarial roles that became accepted behavior for survival in organizations; part of the transparent *just-the-way-to-do-business*. For example, until now, both labor and management have accepted roles that erode any attempts to function systemically. And in hierarchical structures, we find it hard to believe that people at other "levels" have the same aims, or values that we do.

In both the public and private sectors today, society seems to accept *dysfunctional* organizations as the norm for the same reason that children in dysfunctional families are unaware of their own family's unhealthy relationships. And, similarly, they see the people in the system at fault, instead of the *relationships* between them.

Thus, except maybe for the person on top, organizations have required unnatural behavior of consenting adults. This might explain a history of revolutions against established authority in religion, government, etc. as these adults periodically withdraw their consent.

While all organizations today are coming up against this anti-"system" cultural bias, Education, also must overcome the deep set assumptions, if not beliefs, about the *work* of the system as "delivery."

How did this delivery paradigm gain so much power? How did it become an almost universal learning? Cognitive science suggests one possible answer.

During children's formative years the work of the child is to develop those capacities they will need in the future -- but they develop those understandings, skills and values in response to <u>challenges they address in the present</u>. The work of the educator, as we can now see, is to provide the opportunities for those capacities to develop and continue to be enhanced.

Picture then, children between the ages of three to five -- natural learners, intrinsically driven by wonder and curiosity, seeking to make sense, trying to discover what things mean and -- by testing and discovering their limits -- what he or she means. And they are put into a world that is organized logically to do the work it <u>believes</u> children are supposed to do.

There is no doubt that if the school's task is knowledge delivery then knowledge should be compartmented into disciplines and levels for easier delivery by specialists. Time should be allocated for maximum efficiency so that the greatest number can be moved through required experiences. Space should be compartmented for easy management. Since teaching-as-delivery is what it is all about, decisions about what is taught become more important than those about how it is to be learned. And although the child is "pre-programmed" as a trial-and-error learner, errors -- a major source of learning -- become punishable because they interrupt the *delivery* process.

What is a child to do… but to try to make sense of this. He or she does not know that this is not the way things are supposed to be. Unlike the heart and lungs, systems which present simple "we function or you die" choices, the mind is more accommodating. It adjusts and modifies itself a part of understanding the information it takes in. Thus, as in dysfunctional families, or systems, it figures the "system" is okay and it must be "me" that is the problem.

> "This can create a kind of *Alice in Wonderland* world in which people ultimately begin to nod blithely at the inevitability of incompatible events -- a world in which educators cease to try to make sense of their environment for themselves as professionals or for their students. They have to explain the procedures and policies that students encounter only in terms of what some faceless, external, and presumably non-rational "they" say we have to do."
>
> Linda Darling-Hammond

Children have to develop beliefs that explain what happens there, and roles for themselves that allow them to survive in that setting. They learn to *react* to authority, instead of developing their own sense of what is important, thus becoming increasing extrinsically motivated. They learn that "wholes" have to be cut into parts to understand them. They learn a variety of ways to cope -- to "beat the system." "Good" students may play the game, and sometimes this makes it work for them; "bad" students frequently resist. They may be labeled as behavior problems or poor learners and soon file that in their self-concept. Many students learn to drop out figuratively, if not literally.

> "When teachers are unable to help students make sense of the school environment, the students [and often their teachers as well] become alienated. Young people are very good at identifying things that do not "make sense" and rejecting them. They find other ways by which to organize their time, their thinking, and their lives. Solving the problem of contradictory policies is a prerequisite for solving the problems of student engagement and learning in schools.
>
> Linda Darling-Hammond

And in the end almost all of us bought the model. That's the way its *supposed* to be…if there is a problem, it is <u>us</u>.

Thus, the roots of the present paradigm, the *theory of our business* in schools, run deep. To shift to a new paradigm based on a different theory requires two key bodies of knowledge.

First, understanding the paradigm you are leaving behind. "*Change comes,*" someone once said, "… *when the contained realize the shape of the container.*" What has trapped us in the present paradigm has been limited understanding of the learning mind -- both children's and adults. We now have to find ways to communicate effectively what we know about learning,

and especially what the <u>consequences</u> are for both children and adults when we operate counter to it.

And second, we must provide work experiences that can be transformed into new learnings with enough regularity that they can become operating beliefs -- the transparent *just-the-ways-we-do-business.* Providing those experiences <u>as part of work</u> is the primary leadership and management issue for school leaders and policy makers today.

**It is at this point that Quality Management begins to *make sense!***

> "If you act as though it matters,
> and it doesn't matter
>    …then it doesn't matter.
> If you act as if it doesn't matter, and it does
>    … then it matters!
>
> Harland Cleveland

<u>Making Sense *of* [and *with*] TQM</u>

> "Since [1957], countless reports have been issued decrying the condition of our educational system, …. They have come from every side, Republican as well as Democrat, from the private sector as well as the public. Yet for all the talk, little happens. At times, the schools look more like they are being dismantled than rebuilt. How can this be? If Americans over a broad political spectrum regard education as vital, why has nothing been done?"
>
> Benjamin R. Barber, Rutgers Univ., <u>Harpers</u>, November 1993

America's frustration today -- and not just with schools -- increasingly expresses itself as anger aimed at those who do not seem to know how to deal with the complexity and connectedness of current social, economic and political conditions.

Leaders are supposed to know! But how <u>could</u> we expect anyone to know how to deal with the scope and complexity of problems our organizations must respond to today?

And, as we have seen, because of shifting paradigms the problem has become more than one of just not knowing, but also *not knowing that we do not know.*

Our theories -- *Why* we do what we do -- therefore have become more important than the "What's" and "How's." And to compound the problem, we have lost much of the cushion of time that once allowed us to develop new theories from experience. In simpler times, it was said that if you did not learn from the past you were doomed to repeat it. Now, if you can't learn from the present, you are doomed…period!

> "…'what to do' is increasingly becoming the central challenge facing managements, especially those… that have enjoyed long term success. The story is a familiar one: a company that was a superstar only yesterday finds itself stagnating and frustrated, in trouble and, often, in a seemingly unmanageable crisis. This phenomenon is by no means confined to the United States.… And it occurs just as often outside of business--in labor unions, government agencies, hospitals, museums, and churches. In fact, it seems even less tractable in those areas."
>
> Peter F. Drucker
> <u>Harvard Business Review,</u>
> Sept.-Oct. 1994

For school practitioners to learn from their daily experience however, brings them up against another naive theory or outdated paradigm -- that of <u>professional development</u> in schools. Here, teachers and administrators, like the children, are often isolated as they work, having limited

opportunities to interact with others. They are asked to respond to rapidly changing conditions in their work environment and to the children they teach, but are not given opportunities that help them figure out how to respond to these new conditions. Their "professional development" traditionally has consisted of series of short term activities planned by a superior to <u>deliver</u> updated knowledge, skills, and practice, too often in a one-way communication mode, and almost always on top of, and after, their work not as part of it.

> "We are not living in an 'age of enlightenment', but an age of not knowing what to do."
>
> Walker Percy
> <u>Thanatos Syndrome</u>

Trapped in a misperceived paradigm of the work they do  - one which finds no time in the "delivery-filled" day for the types of trial-and-error reflective learning that physicians depend on when they say "Take two aspirin and call me if…," teachers and administrators cannot stretch and expand their content knowledge or instructional and management skills through sustained practice. Without a work culture that promotes their continual learning and professional development, they have no choice but to fall back into the old beliefs and assumptions of what teaching and schools are "supposed" to be, because that is the only way that "makes sense" in terms of what is possible.

Thus we currently have a model of schooling that doesn't work, and a model of professional change that doesn't work, … and the solution to both dilemmas lies in the same new understandings of how the human mind develops capacities to be successful in a changing environment.

<u>The New Worksite:  The Human Mind</u>

A review of both psychological and organizational literature suggests a coming together of these two domains as the human mind increasingly is recognized as the *new worksite* -- the key to productivity.

For example, the "work" that produces quality results [i.e., outcomes that meet or exceed the needs, requirements, standards desired] depends upon a caring worker's ability to continuously "construct meaning" through interaction with the outcomes of his/her specific effort -- the more frequent the interaction, the higher the quality. In today's conditions of dynamic change, workers have had to become continual *learners,* and managers have had to become *teachers* -- i.e., creating and managing environments within which "workers" can learn from their work.

And leaders of complex organizations -- whose results have been termed *World Class* -- have had to learn new leadership strategies that concurrently allow the organization to learn; i.e., develop new capacities that become part of their work processes.

What makes this possible in these successful *World Class* work settings is that their leaders create a <u>connected learning infrastructure</u> in the spaces between the parts of the traditional organizational structure. Between the traditional "boxes" that show who makes the major organizational decisions, they build interactive links to the people whose daily decisions and choices have to carry them out -- the people who represent, in their continuing actions, *the-ways-the-work-gets done.* Principal among these new leadership processes has been a philosophy or strategy called quality management, continuous improvement, and sometimes TQM. [Today there are so many different names for these processes and, unfortunately, differing views of

whether they are *means* or *ends*, that for our purposes here we will just use the term *quality management.]*

All organizations have learning infrastructures, but in most they are informal and dependent upon happenstance -- chance meetings, grapevine communication, and ad hoc get-togethers of individuals driven to exchange information about some common problem or need. In contrast, these new purposeful, connected learning infrastructures do for the organization what the mind does for the body. They provide ways to handle challenges to its survival by maintaining continual awareness through scanning of internal and external environments, and supporting continued low-risk practice until new processes become the practically automatic new ways-to-do-business, thus increasing the organization's capacity to act effectively again in similar situations.

Quality Management as a Learning Infrastructure

The "*Learning Organizations*" required for today's dynamically changing world are not possible until we create connected <u>organizations of learners</u>. Today, many of the beliefs, principles, and strategies related to quality management offer means to lead and manage an organization *as* a system that enables its participants to learn from their work.

What makes this possible is that quality management is a common sense, sense-making approach consistent with people's cognitive processes. As purposeful, problem-solving beings we are "programmed" for discovery learning. We are intrinsically motivated to learn how to do what we don't know how to do as we go through the experience of trying to do it. This is how we learned to walk, talk, and function as human beings. Over time we grow in capacity to deal with new conditions through continuous short-term trial-and-error experiences in long-term directions.

What we have lacked until now has been a way to employ that same capacity-development process as part of our organizational behavior. Quality management offers several components that can make that attainable:

- a philosophy or belief framework that provides a common theory for the organization's work.

- a way to understand positive interdependencies within the organization, and

- a connecting information infrastructure to reinforce and maintain them,

- access to broader understanding and experience through team-based problem solving, and

- support for organizationally-supported trial-and-error learning.

Because it offers a structure that connects processes to beliefs, quality management can provide a framework for total culture change. As a systemic, goal-seeking, belief-driven, daily management process, both the organization, and the individuals in it, join in a self-correcting discovery learning process based upon planning, acting, learning from the consequences, and then acting again as part of the ordinary flow of school operations.

*Common Theory Frame*

From cognitive research we know that the human mind automatically frames problems within paradigms that provide the all-important answer to the question, "*Why?*" People are willing to give up power to have direct effects on results, and be part of an organization's greater effort, as long as they can see how they're connected to common purposes. Once one knows *why*, total dependence upon the "*what*'s and *how*'s" becomes less important.

The theory that supports quality management is a core of fundamental beliefs about organizations -- and the people who comprise them -- that frames the way one perceives, and operates in, any organization. Deming, suggesting the level of consciousness at which the beliefs had to function, called them "profound knowledge."

### *Positive interdependence*

Quality management practitioners from outside of education frequently are surprised when they seek to analyze schools' work *processes*. In the prevailing culture of isolated practice, the person and the process have become practically synonymous. For example, if you want to improve teaching, fix teachers. Until recently, there has been little reason to question these fundamental assumptions because we lacked ways to provide comprehensive, total organizational x-rays of school work processes. We could only take snapshots of its various components--here's what teachers do, or administrators, or curriculum developers, etc. How it all fit together was impossible to see.

> "How people *think about* their jobs can have more impact than what they actually do…
> Breakthrough thinking comes not from continuing to look through our glasses at our work but taking off our glasses and examining the lens… (L)eadership looks at the lens and says, 'Is this the right *frame-of-reference*?'"

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Today however, we are finding that QM tools and strategies provide a capability to view and manage the actual interrelationships and interdependencies. For example, when school personnel throughout a district engage in an internal "customer-supplier" analysis, they begin to see their work in a flow of time and interconnectedness. They begin to see their "fit," what they influence or could influence, and how they might be able to extend their influence by empowering others and discover the already-present influences on each other's work.

Using this type of total system x-ray, it is fairly easy to see the critical connections, and more important, the "disconnects"-- the missing linkages separating dedicated professionals with something to contribute to each other's effectiveness. Also, they can see the points where critical information must be accessible as it is needed, and where new information must be generated from daily experience.

From these and other "pictures" developed through use of quality management tools and processes, we can begin to understand that schools' core-work processes do not differ from those of any organization attempting to produce *quality* results. There is a common nature to quality work in schools--or in every other work setting.

• *Quality* outcomes--those that are appropriate to the needs or requirements they respond to--are the product of an iterative process of informed interaction between caring workers and the "product" of their effort.

• Supporting this core process is the work of *everyone else* in the organization.

• The connections between their functions becomes the blueprint for the school system's *structure* [and "re-structure].

• Most significantly, providing the *connecting opportunities*, real time *access*, and *new forms of information* that make possible a continuing process of informed interaction are the very value-adding dimensions of many quality management processes.


### *Connecting Information Infrastructure*

If school practitioners are cognitive beings whose actions are directed by their own conscious and unconscious thought processes; then the *information* that <u>feeds</u> those thoughts and choices, becomes a primary resource for effective work. In biology, a *culture* is "a prepared nutrient medium in which growth takes place." In the organizational culture, that nutrient is information. To extend the metaphor a little further, it may be helpful to think of information its own "food chain:"

> **Data** [both *quantitative* and *qualitative]* interpreted through a common "frame" of understanding;
> becomes **information,** which when it is believed
> appears as **knowledge,** which when mixed with experience over time
> becomes **wisdom.**

When that wisdom transfers to new organizational processes and infrastructure changes, the organization's capacity increases. It has learned.

Outside of schools, the ways that information is generated and exchanged play key roles in the alignment and flow of work. An organization's structure can be found in the quality and nature of the <u>information exchanges</u> that create, reinforce, connect, and maintain work relationships in the organization.

In schools, however, access to this critical resource for growth has been limited because daily "work" (responding to situations as they occur) is done in <u>isolation</u> from peers and experiences of others. When the *know-how* and *know-what* of both leaders and staff lack relevant experience, then the job of the organization is to structure itself to <u>continually generate new knowledge from experience</u>. This is what continuous improvement and quality management is all about.


### *Access to broader understanding and experience*

Quality management, through its internal customer-supplier analyses, provides a way to bring potentials for connectedness to the surface; and then, in its use of cross-functional <u>teams</u>, to make them *manageable* activities.

From a cognitive perspective, teaming provides access to a wider variety of perspectives of a situation, as well as varying experiences and differing styles of understanding. To enable this, quality management provides teams with two forms of support. The most obvious are the tools and strategies that offer effective ways to analyze and understand problems, and to determine appropriate solutions. Equally important are the processes that facilitate working and making decisions collaboratively which in schools have an immediate positive impact on the heretofore isolated problem-solving setting.

Working in teams, especially self-directed teams, also can provide a bridge across the "doing the right thing" / "doing things right" dilemma. Organizations have expectations that their staffs will do things "right" based on the organization's values, its experiences of what has worked for them in the past, and resources they believe they have available. At the same time, individuals within the organization want to do "things right" according to their own values, experiences, and knowledge of resources that might be used in unintended ways to accomplish a purpose. In quality management, since the team was created as a legitimate way to get the organization's work done, and has the support and trust to do it, individuals have the organization's sanction to apply their unique knowledge to the requirements of their work.

### Trial-and Error Learning

Only in education would one seem foolhardy to talk about learning from activities that do not turn out as expected. Today everyone -- students, teachers, school buildings, districts and even states -- faces the threat of grades if they are not successful. This environment of fear provides little room for creative problem-solving.

> "If you could be doing it, …
> wouldn't you already be doing it?"
> W. Edwards Deming

Quality management provides a strategy that reduces the risks of learning from work through support of smaller scale pilots that are sanctioned by, and feed, the learning of the larger organization. This process has been called at times a *Shewhart* cycle, or *Deming* cycle, or

> "As a manager, I could take on any project
> without having to know the answer ahead.
> All I had to know was the process for finding it."
> Xerox Manager

PDSA [Plan, Do, Study, Act] cycle. Regardless of what one calls it, the process works because it derives from the human mind's natural inclinations to *anticipate, envision alternatives, act, see the consequences of the act, learn from them, and act again.*

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"We've all been trained to look for the perfect solution that fits forever, not order that fits the moment.
We believe there is a "right answer," and as soon as we get it things will be fine --
but science is suggesting that there are no right answers --but answers that fit the moment....
and how do we find that order that fits the moment? We find it by creating a relationship-rich environment --
that is rich in information -- where people can focus on what needs to get done.
They have some simple rules of interaction which I would call values or principles, shared purpose, and that's all.
In comes a crisis or opportunity, and people organize around it.
--This is the fluid, boundary-less organization of the future."

Margaret Wheatley

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<u>Managing a Single System</u>

Earlier, we noted that our *"starting assumption is that systemic change… must have ways to work 'in' both the child's and the educator's work systems at the same time."*  With quality management we have a way to provide a single, manageable model where students, teachers, administrators, and parents can be viewed through the same lens:  as people who need to continuously learn from their work ways to be more effective.   Moreover, both teachers and administrators, as well as parents, can address the commonality of their work:  t*he creation and management of spaces where others can work and learn from their work.*

The framework provided by a common theory drives these linked processes.  For example, looking at effective learning practices over the years, one can see that each had at its center a process that touched on the fundamental ways that the children's minds learn:

- The children's minds were <u>engaged</u>; they were allowed to get <u>feedback</u> that led them toward feeling successful and competent.
- They developed their ability to <u>choose</u> their actions and act autonomously.
- They felt <u>connected</u> to the people around them.
- They began to <u>make sense</u> of the world around them and see connections to themselves.

Similarly, observing effective school reform models being promoted today, one can see attempts to create those <u>same cognitive opportunities</u> for the adults running the programs.

District wide quality management therefore should be viewed as a bridging process -- a process of *strategic management*.  Building on the context and direction setting provided by system-wide agreement on outcomes, it focuses the total system's daily attention on the "other end" of the processes -- where the students and teachers do their work; and brings to the work setting tools and strategies necessary to continually generate information required to maintain a journey of incremental improvement between the results we desire and plan for and those we're actually getting.

<u>Establishing a *Community* Base</u>

As stated earlier, "*the smallest unit capable of maintaining sustained improvement [i.e., changes that do not disappear when people leave] is the <u>school district</u> and its supporting community."*  Because of the present nature of school governance [where leadership soon may be classified as "migrant labor,"] it is important that this systemic management process be "anchored" in the community.  Support from other local private and public sector organizations that are addressing similar organizational issues can be easier than with other educational reform strategies because of the common language and processes of quality management.

Community anchoring offers an additional value.  In education, we have had little experience of our own that demonstrates that *total* organizations could change.  There are more examples of this phenomenon [but not many] in the private sector.  Awareness that it is  "possible." to deal with an organization's work processes as a *single* system can be an important motivation to push through the natural strains of learning to work differently.

Changing the "system" for a total school district and community requires opening minds to the possibility that things could and might be different; then providing sufficient [and this usually requires continuing] experiences to *prove* that it is different. And all in a medium of trust that can develop from understanding of common aims and the need for interdependency in order to accomplish them.

Old beliefs must be challenged through use of data and information that show that they "no longer work." New experiences to help "re-program" beliefs must then be provided. As an example:

- connectedness of people in a system can be discovered through  <u>customer-supplier analysis</u> and participation in <u>cross-functional and/or vertical teams</u> ;

- <u>facilitated</u> group meetings develop trust and understanding of each others' differences;

- <u>data</u> about the effectiveness of internal <u>processes</u> help people understand what can be "controlled" and what can't.

And, there must be regular opportunities to <u>reflect</u> on the meaning of these new experiences for what an organization *believes* and *does* -- thus continually ratcheting-up the organization's infrastructure of roles and relationships.

As a strategy for systemic change, quality management should be seen as the way dedicated professionals would naturally work if they had the *trust*, *time*, and *tools* to do so… and if everyone *believed that it was necessary* because the complex, connected nature of the problems they had to address could no longer be resolved with old, disconnected ways of operating

<u>But what about the kids?</u>

Finally, what would schools look like if they were structured and operated according to Deming's *Profound Knowledge* -- quality management's core belief that *organizations function as interconnected systems of intrinsically-driven psychological beings?*

1- There would be common *theories* -- sometimes expressed through visions and missions -- that framed and focused everyone's acts. Everyone would know *Why* things happened the way they did.

2- You would see people -- both children and adults -- seeking to re-experience the natural "high," the  internal sense of *joy* of productive accomplishment that comes from:

- knowing you are doing your best
- learning something new on your own
- solving a problem or overcoming a challenge
- knowing that you contributed by helping
- being part of something important

- being supported/acknowledged by others

3- They would be working in a *system* purposefully structured to connect them to each other for effective accomplishment of their work; and

4- They would have access to information and knowledge developed from that work that could be applied to continually improving it.

"Restructuring appears to mean many different things right now. It should mean starting out with principles of **thoughtfulness** such as those I've suggested (below) and working backwards to create the policy and then the schools within which thoughtful adult and student activity is likely to flourish."

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" **...** Thoughtfulness is primarily a process of **making meaning** (not just receiving it)
and **negotiating it with others** (not just thinking alone).
It is fundamentally **constructive**, which is to say it derives from a different set of        notions about the nature of knowledge and the process of human learning.
The old literacy, if we can call it that for clarity's sake, derives from the assumption that knowledge is objective and can be drilled into passive, blank-slate brains;
the literacy of thoughtfulness derives from the assumption that **we are all creating knowledge all the time through social interaction**, and the nature and uses of that knowledge constantly shift.
The old literacy has a mechanistic quality; it can be broken into little parts, taught to individuals one at a time.
The new literacy is organic and can only be acquired in social contexts and through social interaction."

Rexford Brown