

**INNOVATION IN WHOLE-SCALE™ CHANGE:
PAST, PRESENT AND FUTURE**

by

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LEARNINGS FROM OUR PAST AND PRESENT:

Kathleen's Story

The roots of the processes now known as Whole-Scale Change¹ go back to the early days in the development of “organization development” – to the 1950's at the National Training Labs (NTL) in Bethel, Maine. Ron Lippitt was one of the founders of NTL and had begun doing community development as an expansion of what he had learned about group process in his work with small groups. This expansion was the work he was doing to help communities create a systemwide view of the future the participants yearned to achieve for their own communities. I had the privilege to learn from him both at NTL and in his community work during the 1960s until his death in 1985.

In the early 1980's Bruce Gibb, Al Davenport, Chuck Tyson and I were invited to Ford Motor company to talk with an Executive Vice President, Tom Page, who was convinced that the downturn Ford Motor Company was experiencing was not just the usual cyclical change in the industry. He was aware that the industry itself was being permanently challenged in the United States, and indeed must change if it were to survive the Japanese competition. He had been exposed to a quality circle program that was developed at Ford between the UAW and the Employee Relations office in the late 1970s.

Many of Mr. Page's manufacturing plants had been involved in the quality circle programs. Mr. Page became very impressed as he watched and received results from the program. His most important learning was how knowledgeable hourly workers were about what would make the plants more effective. He began to see how little of this knowledge had been utilized in the past. He suspected that keeping this knowledge alive and growing in the future could be a secret weapon for change. His dilemma was that in those days Ford leaders were archetypes for a “command and control” type of leadership.... a cultural style that could diminish employee empowerment if it continued unchecked.

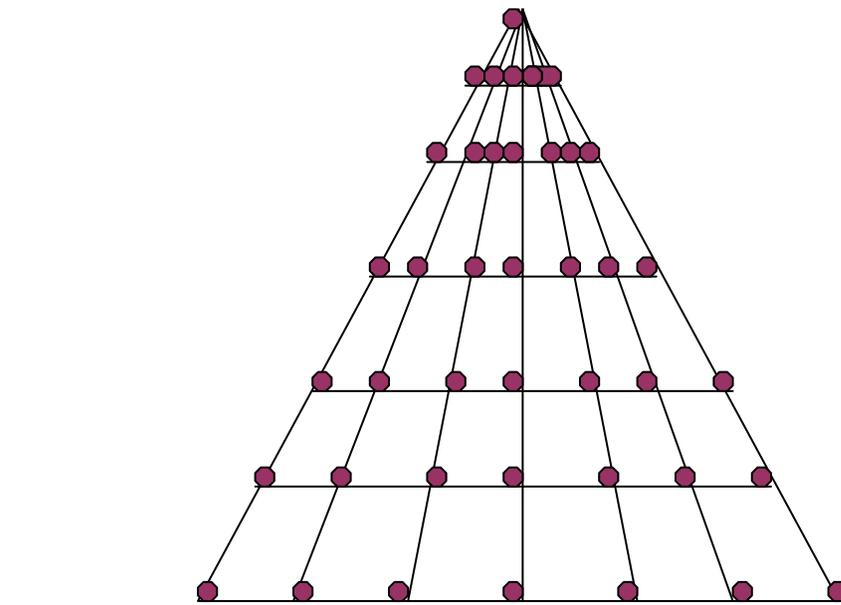
The request, therefore, from Mr. Page was to build a training program to teach the “top of the house” how to manage participatively. The four of us as consultants said, “A training program won't work. The leaders have been trained to be the way they are. They've been rewarded and promoted because they were good at a “Read my lips” style of leadership. We as consultants could put together the best training program imaginable

¹ Whole-Scale is a registered international trademark of Dannemiller Tyson Associates

and the leaders would finish the training saying that it was an interesting way of leading ..and it was too bad it wouldn't work at Ford's. They would walk away with new ideas, but with the traditional Ford mindset unchanged." Tom Page's response was: "Then what can we do?" And the four of us said that we would go home and work together to answer that question. We worked over the next several months with Nancy Badore and Cynthia Holmes, internal consultants at Ford, to have a proposal we believed would work.

As we learned more about the hierarchy of Ford Motor, we began to understand what made it so difficult for an organization of Ford's size to respond to a turbulent environment. The structure and age of the organization led us to compare it to an aging human body. As we get older, we often develop osteoarthritic build-ups (calcium deposits) at the "joints". That development causes a reduced flexibility. (See Model 1 below) Each division was a pyramid, with functional "chimneys" going up and down and levels of job titles going across the chimneys. This model causes each person, at whatever level and whatever "chimney", to be locked into an "arthritic box" ...where they can't see what's going on above, below or beside their own box. The arthritis blocks the view beyond my box.² In order to get people connected around a radical new style of managing and/or a different strategy, we decided we would need to pull the top 5 levels together outside the pyramid. We needed to enable people to see a common database (customers, suppliers, corporate leaders, each other) and therefore be able to uncover what changes would be called for. We came to see that we can influence as far as we can see...and no farther. Therefore we needed to get each and all of them to a whole common picture, internal and external.

Figure 1 - Organizational "Arthritic Boxes"



² Dannemiller, K. "Team Building at a Macro Level, or 'Ben Gay' for Arthritic Organizations." In *Team Building: Blueprints for Productivity and Satisfaction*. W.B. Reddy & K. Jamison, eds. Alexandria, VA: NTL Institute, 1988.

The answer was to use what we knew about small group work and expand it to fit larger groups. Our idea was to work with one division at a time, pulling together the top five layers of management in each division, from the General Manager to the direct reports of the plant managers. We had this group be together with us for five days. The five days consisted of two sessions: a three-day seminar and another two-day seminar after a six-week interval where they returned to their “real world” to try to change things in their own realms. We would not “teach” participative management. Instead, we would give them the experience of being participative, using their own division’s data. Over the next six months, we planned and implemented this work within each of Tom Page’s business divisions. We began to refer to the work we were doing as “Large Group Intervention Processes”(LGIP)...a way to help a large organization shift in its heart and head quickly enough to survive radical changes in the environment.

The results from the different divisional meetings were astonishing to all of us. In every five-day meeting, we were surprised to discover that each division’s purpose for the five days of planning together was achieved. The purpose was slightly different for each division, and yet it basically aimed at this reason for having the gathering:

“To work together as the leaders of the _____ division to unleash and combine the wisdom, knowledge and skills of all of our people in order to be able to create an organization of our own choosing.”

The secret to the results we were achieving turned out to be in bringing all of the leadership of the division together in one room for five days to engage in conversations about what each person knew and yearned to be able to create. In order to have helpful conversations, we used everything we had learned about group process, such as:

- We created smaller microcosms by having “max-mix” table groups of 8; that seating enabled a table to hold a systemwide conversation. Several times during the 5 days we changed seating to create the group that needed to be talking together for a particular assignment, i.e. a mix-mix of leaders within a Program, or a “back-home” group to make commitments for change at home.
- We gave clear written assignments to small microcosm tables, with part of the assignment being to manage themselves by choosing a facilitator, recorder and reporter. These assignments helped them to have more effective meetings. One important assignment was to listen to each other without judgment...“Listen to see the world through the speaker’s eyes. Remember that each person’s truth is truth.” When the group is able to listen to each other, to see what each of them sees, the group will have built a complex truth instead of arguing with each other.
- We kept the conversations going from the individual to the table to the total group, and back again. We made sure to be focused in each assignment on expanding the database at every step. We invented a process we called an Open Forum, designed to shift the balance of power from a speaker or panel to a table discussion of what they

have heard and what they want to know more about. Tables then asked questions of understanding, to be able to see the world through the stakeholder' eyes.

- We invented a method of getting data shared amongst the people in the room, where a table would brainstorm “what’s working/not working” in the organization right now. This data is created anonymously to document a table’s picture. This data is posted and each individual indicates by checkmarks what he/she agrees is working or not working. The items that received large numbers of checkmarks were reported out to the whole group to ensure that everyone was building a systemic database.
- We built a common database, where everyone could see the same challenges. A key element in building that common database was to bring in a variety of stakeholders (such as customers, suppliers and corporate leaders) who enabled the group to see the world through their eyes.
- We followed what we knew about action learning in order to architect a change journey. Our plan for three stages:
 - I 3 days together creating a common database, a preferred future, and the first steps to move forward
 - II Followed by an interval of 6 weeks, when the leaders went home to their arthritic boxes and tried to bring about the changes they had uncovered.
 - III This interval was followed by a 2 day reunion with the same people. The agenda was based on action learning principles we learned from Edwards Deming. Plan/Do/Check/Act³ was described by Dr. Deming as the same stages we use in Action Learning – “What did you say you’d do when you left? What did you actually do? What surprised you? What did you learn from all of that? “ The interim phase had the leaders back in their home base with the intent to change. They often felt as if nothing worked. Coming back for the 3rd phase, we began in back-home groups agreeing on the answers to Dr. Deming’s time-honored questions. Astonishing stories emerged. Though they had arrived with a somewhat cynical view that nothing had happened, they uncovered the data that told them of the change that was occurring because of the first three days together. They had begun new ways of managing without even consciously knowing they had changed until they explored the questions and answers together.

In designing the flow of needed discussions, we used a model for change that Dick Beckhart⁴ first articulated as DxF>R...dissatisfaction with things as they are (D), a

³ Deming (1986), p. 86 and Scherkenbach (1988), pp. 35&36.

⁴ Beckhard and Harris (1987).

vision of what we (individually and together) yearn to have in our organization's future and in our own (V), and the first systemwide actions we must take together that in order to move us in that direction (F). If all of those elements have been discussed and created, the sum of $D \times V \times F$ will be greater than resistance to change (R). If any one of the elements has not been explored and combined, the sum will be zero, and you will find that you can't overcome the very natural resistance to change. In that eventuality, the consultant and the microcosm group will need to diagnose what is missing. When all three elements are in place, change will begin in the moment. Six months into the change process (LGIP) we realized that the astonishing results were the direct response to creating a paradigm shift. The DVF formula was a description of what was needed to get a paradigm shift...literally seeing the world through new "eyes" and therefore being able to act in new ways.

A MODEL THAT DESCRIBES CONDITIONS NECESSARY FOR CHANGE

$$D \times V \times F > R$$

D	=	Dissatisfaction with the current situation
V	=	Vision of a positive possibility, more than the absence of pain of the present situation
F	=	First steps in the direction of the vision
R	=	Resistance to change

Change will occur and sustain itself when there is a common database of D, V, and F in an individual and/or the microcosm of the system or the system as a whole. If any of these bases is zero, change will not occur. The product will be 0 which will not be greater than R. It is appropriate for members of an organization to resist when they can't see the larger picture.

And what we had uncovered was a way to ensure that the whole organization saw the world differently and was committed, individually and together, to making the change happen. What we learned in that early work with Ford was the power of a "one-head/one-heart" paradigm shift happening in a way that creates resonance .. a physics concept where all of the energy unleashed will enable the "waves to get in phase". The same process in human beings is expressed in our phrase describing becoming "one-brain and one-heart." When we all (as a microcosm of the whole organization) see the world differently, and we know that we are all on the same path, the organization as a whole will begin to shift behavior. When the microcosm began to shift in their ways back home, it was like a "positive virus" moving through the large organization.

In order to re-enforce what had happened with the Ford leaders, we created several more stages: (1) diffusion events for the "bottom" of each division -- from plant managers all the way through to hourly works. We trained internal Ford people to carry out that diffusion, and (2) moving the LGIP up to the top of the Tom Page's Ford organization, creating wholeness in the views across divisions. We also took the work to Europe for

Ford. The most important thing we learned from those experiences is that once a group, division or person has made a paradigm shift, the person or people cannot go back. That fact doesn't mean it's easy. Leadership changes in the company can break the spirit for awhile, with people ducking down for cover until the right leaders emerge again. And most of the time people are ready and eager to respond to that new leadership, even some years later. The spirit is strong.

Many years after leaving Ford, while we were writing a book about our processes, we were searching for the answer to why the concept of "microcosm" was so critical to the success of the processes we now thought of as "robust processes". They always worked, far beyond what we originally expected. We, as a company ourselves, began to hear stories about the power of stem cell transplants. Stem cells are human blood cells, which represent the basic cell types in the body and which are capable of transforming themselves into cells needed for the heart, muscles, brain, skin and other tissues. A complex stem cell contains the DNA of the whole body. Medical research is finding ways to transplant cells into the human bone marrow. Our exposure to this way of creating blood cells has come from several friends who have been diagnosed as having terminal cancer. In the early stages of their treatment, they were each given stem cell transplants from relatives or similar blood types. The next stage, if that didn't work, was to do chemotherapy on a level that killed the cancer cells for a brief period of time, allowing the doctors to harvest the person's own stem cells without including the cancer cells. This treatment appeared to take the patient to the edge of death. The medical world has uncovered a process that enables a doctor to take some of a person's own stem cells (a process called harvesting), and re-plant those cells in the same person's body ...because the cells are actually the person's own cells, the whole body system is able to "ask" for whatever it needs in order to get healthy...if the body needs red blood cells, the stem cell transplant will transform itself to supply them. If the body needs white blood cells, that can happen also.

It seemed like a magic trick when we first heard about it, and our anecdotal education is certainly flawed, but it captured our imagination. We realized that it was the same process we had been using with organizations to bring about the paradigm shift. When a microcosm began to develop a common picture of what was needed in the future, with a common understanding of "why", the change began to happen at that moment. And when it began to happen with the microcosm group, we found that the new way of "being" would spread to the wider organization. It often felt as if we were unleashing a "virus" that spread naturally in a way that caused people to know the answers they needed to have in order to change. Starting with the Ford work, we began to experience something that felt like magic...the people unite with the right answer and they are on fire to bring it about.

One of the places where we cemented our learnings about the importance of microcosm was when we uncovered a new way to design events. We called it an Event Planning Team. We asked for and got a group of people who were representative of the participants who might be called together for an event. This Event Planning Team was a microcosm of the participants for the event. Previously we had tried to gather the data

with interviews. We discovered that getting a microcosm of the real group together for two days, we would be able to get data and answers that we, as outsiders, would not know how to discover. This microcosm planning team, as they developed the Purpose (“what has to be different in the world because we will pull all these people together?”) become truly connected as a team, thinking as a mini-whole system to design the agenda. At the end of the two days, the Event Planning Team would have prepared an event that was predictable in achieving the purpose, because they knew what the conversations needed to be, what decisions were needed, what follow-through should look like. As they struggled to grow together over the two days, that struggle (or conversation) will be a precursor to what will happen in the actual meeting ...exactly because they are a microcosm. They notice this and design the meeting in ways that would work for them as a group.

We spent five years at Ford Motor, around the United States and abroad, running large group events and teaching internal consultants how to create this rapid change. Then Chuck Tyson and I were called to work at Boeing Company. One of the things we have been clear about is that the “magic” is in the people, so we listened carefully to clients and adjusted our processes to fit the particular need. At Boeing we began to use what we had learned in our work with Ford to help leaders create new strategy and get all their people engaged around the head and heart to bring about fast new results. During the mid-80s with Boeing, we invented the phrase “Real Time Strategic Change” because we realized that the Large Group Interventions processes we had invented during our Ford work enabled people at all levels of the organization to connect around a common strategic direction, and as soon as they all got it, they began to change. We realized that change truly happened “real time”.

After 3 years working with Boeing, we were called on by the industries facing the most serious need for change at any given time to help them change quickly. These clients included organizations in the changing areas of banking, health systems, education, telecommunications and (of course) the defense industry...the pain in organizations became endemic, spreading now, in the new Century, to e-businesses. As we modified our work to respond to these critical challenges, we began to truly understand the need for whole system thinking as organizations redesign their structures, their processes, and their global interactions. We learn constantly from our clients, and we continued to expand what we had learned at Ford and Boeing into what we now call “Whole-Scale Change”. For us, Whole-Scale means “always thinking whole” (whole systems) at any scale (from a large group of thousands or a small group of 15-100). We found that it always works as long as the participants are a microcosm of the larger system...and the Event Planning Team is always a smaller microcosm of the participants.

Whole-Scale is based on the theory, values and processes we had been using all along. Our work became more conscious of the importance of “system focused” work, and the incredible magic continued to unfold. As clients’ convening issues became increasingly complex, we joined them in the journey to create whole-systems solutions faster and faster. People were able to redesign their organizations, and their process flows within

the organization, together, enabling the “real time” magic to continue to take place. The moment a microcosm saw how it could work, the people began to do it.

Sylvia’s Story:

Today I can refer to myself as a “pioneer in large group, system wide change” because I was fortunate enough to be in the right place at the right time...wise enough to notice that fact!...and curious enough to explore what I saw! In 1981, I was an internal consultant with Ford Aerospace, a subsidiary of Ford Motor Company, when 120 of our managers attended the “Participative Management” three-day session Kathie describes. I was there to learn and to work with the organization on its interim and reunion experience. I remember standing in the room as all those previously disparate voices reached consensus on the future they saw and the actions to move them forward. All the individual (and often conflicting) stories of dissatisfaction that I had heard in previous management meetings and skill workshops became a powerful force to do something!

Of course, the aerospace management dutifully “saluted” their parent company Ford and embarked on the change journey to become more participative. More importantly, managers saw the power of breaking through cross-functional barriers and began to see all kinds of opportunities for a different approach to managing their own government programs. Instead of designing, throwing designs “over the wall” [arthritic barrier] to manufacturing, and Quality controlling and fixing, they could launch new programs together and engage every function in the conversations to design, manufacture, and deliver products (what later was termed Concurrent Engineering). They saw the possibilities to ensure on-time delivery, within budget and to continue to position themselves for future government defense contracts.

I was fortunate to work inside an organization that “noticed” the power of the microcosm and these large group engagements around “real work.” They were quick to “trust the process.” They had endless ideas for staying agile and competitive even though they were already highly profitable and a winning team for Defense contracts. (This was before the drastic cuts in defense budgets). Over the next ten years, I had all kinds of “invitations” to integrate concepts like Concurrent Engineering, Total Quality Management, SEI levels of Excellence,⁵ Product Development Teams. I was asked by a new Human Resource leader to help transform the Human Resource organization from a procedure-center staff to a consultative partner in the business. All these were opportunities to engage microcosms (small and large groups) in improving processes, structures, shared information, and organizational learning.

My own learning was from those managers and employees who kept asking, “Could we use that process to...” I just kept working with them to figure it out. They let me know when we were “out of bounds” for the situation or culture. I learned reliability, the scalability and the adaptability of those original processes and principles which we began to articulate. Again and again, I trusted DxVxF as the framework for conversations with

⁵ Software Engineering Institute, Carnegie Melon University

leaders, for agenda designs, for training, for living my life. I surrounded myself with max-mix (microcosms) to do the work and to uncover the right work to be doing along the way to support my internal customers.

Since that time, I have worked with all types of organizations around the world. I continue to discover both participative and “command and control” leaders who see these processes as “an efficient way of managing” -- from aligning an entire organization to managing major programs, to leading staff meetings or project reviews. They see their organization shift from blaming to learning, to routinely engaging microcosm groups to develop creative next steps, and to listening to the wisdom of diverse viewpoints and backgrounds. They incorporate these processes for engaging microcosms into their Project Management in order to launch one integrated team with shared goals, agreement on schedules and connected relationships capable of providing each other with what is truly needed, on time.

In the early 1990s, I received a telephone call from an engineer from my former aerospace days who was now a contractor to NASA. He knew he was involved in another task so complex that it required those robust processes he had experienced with Kathie and me at Ford Aerospace. He asked me to help NASA approach the task of overhauling the “Columbia”, the oldest orbiter in their fleet of shuttles. She also needed to be fully x-rayed and retro-fitted with a new parachute. Talk about complexity! This was the first overhaul ever tackled on a shuttle. The task involved approximately five contractors (who are all competitors with each other, vying for follow-on business), three NASA centers and two government regulatory agencies. The task would start in a month and had to be accomplished within a non-negotiable (and short) timeframe in order to ensure that the next “payload” was launched into space on time. The launch schedule could not be delayed without impacting the entire “shuttle business”.

Over three days we worked with key stakeholders to understand their picture of success and the obstacles they saw for getting there. Everyone wanted to collaborate and each group “did its own thing,” saw the other group(s) as being in the way by having unreasonable and inflexible procedures. We listened, asked them if they were to come to a meeting to sort all this out and make decisions, what would need to be accomplished, who would need to be there? Impossible, they thought. I trudged on in the conversations with each one: “ Say it is possible, what needs to happen right now and who needs to be at the meeting? “ Quickly each one joined me in solving the puzzle, answering these questions and arranging for me to meet with others to build the meeting outcomes and participant list. Those with the influence assured me they would get the right people there!

We worked together to create a roadmap for when and how to engage a microcosm through the life of the project to ensure on-time delivery. While the details of that journey unfolded as the project progressed, it became clear that everyone needed to launch with one shared picture of success, as well as a clear picture of all of the complexity needing to be addressed to make it come together. Over four months, three whole-system events were held. Each event brought together a microcosm of these

contractors, NASA personnel and government regulatory agencies. At the first session, the group created a shared vision of how they would work together, what they would need to do differently to ensure the short turnaround, and when they would check back to ensure they were on track. At the end of the first session, the NASA and contractor leaders stood side-by-side to talk about what they saw accomplished and what would happen next. They were serious about the critical importance of having the shuttle not only be on time but be safe. At the same time they were light-hearted about the energy produced by the meeting and the “partnerships” formed—they referred to the meeting as a kind of marriage ceremony!

Each work session engaged only about 60-80 people; however, they were a microcosm with clear purpose and processes for the conversations they needed to have at each phase. Each work session was designed by a sub-set of the microcosm using the current state of affairs (what is working, what isn't working) and their needs at this stage (next steps). Between each large-group work session, normal project status meetings were held and special task teams met – all designed to include a microcosm for whole-system solutions. Based on this continuous flow, the “tuned-up” Columbia was successfully launched in time, complete with parachute.

I poured every learning I had from the last ten years into working with the NASA/Contractor community on the Columbia overhaul. And I didn't work alone; I partnered with colleagues who also had experience in these large group processes. I was reminded of the power of embracing the complexity of a situation, pushing back against traditional views of getting things done, seizing each glimmer of a leader's hopefulness and learning from their doubts (wisdom), using my own adrenalin to stay focused, and staying curious to figure out each engagement. Finally, I trusted the thinking of the microcosm and the robust processes for engaging people.

INNOVATING INTO THE FUTURE

The beat goes on. The speed of change, worldwide, has called all of us into new challenges and excitement.

And now as we move forward into this Century, we join our clients in discovering new approaches, including helping a global company connect around the head and heart when it's not possible to get everyone in the room. We are finding those answers together, because both the clients and we, as consultants, know how revolutionary it will be when we figure it out.

As we move ahead and innovate with our clients, we know that some things must remain absolute if we are to be successful together.

First is our underlying principles and beliefs—about people, empowerment, integrity and trustworthiness—that shape every facet of our work. These principles are, indeed, the “heart” of the work, and no compromise of the principles is possible for us.

We disturb the universe with every breath, and every breath/word/action must be intentional. We are constantly asking ourselves, “What is the purpose? What truly needs to be different in the world because of ...this event, this change effort, this conversation...

Wisdom is in the people of the organization. That wisdom is developed through helping participants get to one-brain (all seeing the same data) and one-heart (all connected around common yearnings). When this has come to pass, people will be bonded together as a “whole,” and will be capable of acting separately yet in a unified way—to combine and release their own system-wide wisdom.

Each person's truth is truth. Creating a common database of truths is the work of the consultant and the organization. From the complexity of all those diverse “truths,” organizational wisdom will emerge and make sense. If you create that organizational wisdom in a microcosm of the whole organization, you will find that they are able to move back into the larger organization and act as a catalyst to evoke change in the virtual “blood stream” of the whole organization.

It's about living out of our hearts. We freely share the wealth of our experiences and processes with others, in faith that those who receive the wealth will do the same, thus creating an ongoing, positive force for change in the world.

Let's uncover this together. As Kathie Dannemiller says, “I am not the expert with ‘answers.’ It's easy to keep from acting as if I know everything because I don't! The biggest clue that I am inappropriately ‘taking over’ is when I get irritated at others for not doing the ‘right’ things.” Consultants, internal or external, can be experts on process and adult education, that's all. Clients must

fight for processes which they believe will work and must be flexible and creative at the same time. Organization members are the real experts on their own world. If the organization says a particular process (e.g., a presentation or open forum) will be wrong there, we must be willing to say “Okay. Let’s work together to invent another way to achieve the purpose.”

This work is about a sincere, deep abiding, unwavering view of democracy and empowerment within a system-wide view of reality. The wisdom is in the “whole.” Help to release and combine the diverse beliefs and voices, and the answers will always be the right ones. Leaders⁶ help everyone be as good as they can be by getting them to see the whole picture of reality--inside and outside the organization.

Be authentic in everything we do, with client systems as a whole, with others in our organizations and communities, with students, and with our own family. This belief system is not a “part time” thing.

Life is an Action Research Project. Everything we do or say becomes data for action learning and insight.

Second, and equally important to innovation in our work, we need to continue to build on our robust processes which are capable of addressing the complexity of today’s environment. Whole-Scale change processes are built from the wisdom that has become part of our field of organization development: process consultation, action learning, systems theory, preferred futuring, community building, social-technical-systems, adult learning, strategic planning, and chaos theory.⁷

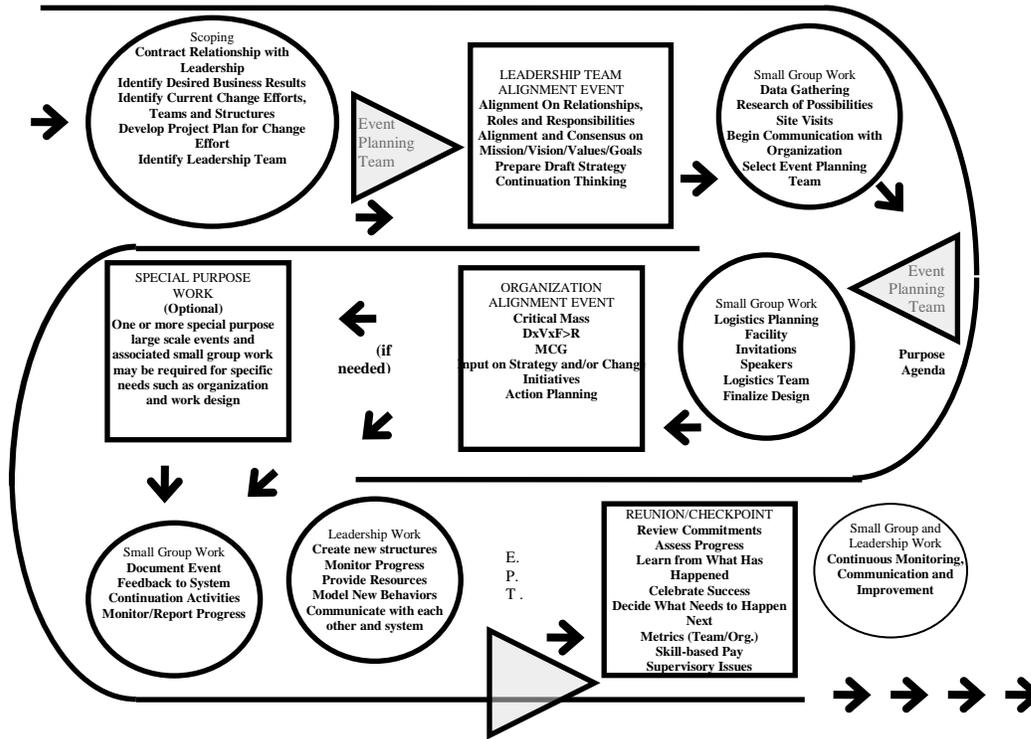
As we move into the chaotic future, we know that we must always remember that the answers to the emerging questions are in the collective wisdom of the people. If we remember that and behave accordingly, we will all be successful beyond our wildest dreams. Ron Lippitt would have been very proud to see that the wisdom he awakened in all of us continues to be expanded and utilized in the ways we now do the work.

Life has always been an action research project to us, which is what enables us to stay alive and growing. The “work” is always in process, never “finished”...and we are grateful for that unfolding of learning in our lives.

⁶ Dannemiller, Kathleen D., Peter F. Norlin, and Therese Fitzpatrick. “Unleashing the Magic in Organizations, Some New Rules for Leaders.” Executive Excellence, September 2001.

⁷ See Appendix A: Roots and Theories Underlying Whole-Scale: Selected Readings

SAMPLE ROADMAP FOR A WHOLE-SCALE™ CHANGE JOURNEY



APPENDIX A: Roots and Theories Underlying Whole-Scale: Selected Readings Action Research:

Frohman, M., M. Sashkin, and M. Kavanagh (1976). "Action Research as Applied to Organization Development." In *Organization and Administrative Sciences*, Vol 7, nos 1 and 2: 129-42.

Adult Learning:

Knowles, M. (1980). *The Modern Practice of Adult Education*. New York: Cambridge, The Adult Education Company.

Knowles, M., E. Holton, and R. Swanson (1998). *The Adult Learner: The Definitive Classic in Adult Education and Human Resource Development*. 5th Edition. Houston: Gulf Publishing Company.

Kolb, D. (1984). *Experiential Learning: Experience as the Source of Learning and Development*. Old Tappan, N.J.: Prentice-Hall.

Chaos Field Theory:

Gleick, J. (1987). *Chaos: Making a New Science*. New York: Penguin.

Wheatley, M. (1992). *Leadership and the New Science*. San Francisco: Berrett-Koehler.

Community Building:
Lippitt, G., and R. Lippitt, R. (1978). *The Consulting Process in Action*. San Diego: University Associates.

Preferred Futuring:

Beckhard, R., and R. Harris (1987). *Organizational Transitions: Managing Complex Change*. Reading, MA: Addison-Wesley.

Lippitt, Lawrence (1998). *Preferred Futuring: Envision the Future You Want and Unleash the Energy to Get There*. San Francisco: Berrett-Koehler.

Lippitt, Ron (1983). "Future Before You Plan." In *The NTL Manager's Handbook*. Arlington, VA: NTL Institute.

Socio-Technical Systems:

Trist, E. (1981). "The Evolution of Socio-Technical Systems." In *Perspectives on Organizational Design and Behavior* by Andy Van de Ven and William Joyce. Wiley Interscience.

Systems Thinking:

Deming, W. (1986). *Out of Crisis*. Cambridge, Mass.: Massachusetts Institute of Technology, Center for Advanced Engineering Study.

Scherkenbach, William W. (1988). *The Deming Route to Quality and Productivity*. Washington D.C.: CEE Press Books.

ABOUT THE AUTHORS

Kathleen Dannemiller and Sylvia James are two of the authors of these new books: *Whole-Scale Change: Unleashing the Magic in Organizations* (Berrett-Koehler 2000) and *Whole-Scale Change Toolkit* (Berrett-Koehler 2000).

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