

Chapter 3

The Complexity of the Change Process

Productive educational change roams somewhere between overcontrol and chaos (Pascale, 1990). There are fundamental reasons why controlling strategies don't work. The underlying one is that the change process is uncontrollably complex, and in many circumstances 'unknowable' (Stacey, 1992). The solution lies in better ways of thinking about, and dealing with, inherently unpredictable processes.

How is change complex? Take any educational policy or problem and start listing all the forces that could figure in the solution and that would need to be influenced to make for productive change. Then, take the idea that unplanned factors are inevitable — government policy changes or gets constantly redefined, key leaders leave, important contact people are shifted to another role, new technology is invented, immigration increases, recession reduces available resources, a bitter conflict erupts, and so on. Finally, realize that every new variable that enters the equation — those unpredictable but inevitable noise factors — produce ten other ramifications, which in turn produces tens of other reactions and on and on.

As you think through the reality of the previous paragraph there is only one conclusion: 'No one could possibly come to figure out all these interactions' (Senge, 1990, p. 281). As one of Senge's participants exclaimed after being engaged in an exercise to map out all the complexities of a particular problem:

All my life, I assumed that somebody, somewhere knew the answer to this problem. I thought politicians knew what had to be done, but refused to do it out of politics and greed. But now I realize that nobody knows the answer. Not us, not them, not anybody. (p. 282)

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Senge makes the distinction between 'detailed complexity' and 'dynamic complexity'. The former involves identifying all the variables that could influence a problem. Even this would be enormously difficult for one person or a group to orchestrate. But detailed complexity is not reality. Dynamic complexity is the real territory of change: 'when "cause and effect" are not close in time and space and obvious interventions do not produce expected outcomes' (*ibid*, p. 365) because other 'unplanned' factors dynamically interfere. And we keep discovering, as Dorothy in Oz did, that 'I have a feeling that we are not in Kansas anymore'. Complexity, dynamism, and unpredictability, in other words, are not merely things that get in the way. They are normal!

Stacey (1992) goes even further. Since change in dynamically complex circumstances is non-linear, we cannot predict or guide the process with any precision:

While Senge concludes that cause and effect are distant from each other in complex systems and therefore difficult to trace, this chapter concludes that the linkage between cause and effect disappears and is therefore impossible to trace. (p. 78)

Stacey concludes:

The long-term future of such organizations is completely unknowable because the links between specific actions and specific outcomes become lost in the detail of what happens. We can claim to have achieved something intentionally only when we can show that there was a connection between the specific action we took and the specific state we achieved; in other words, that what we achieved was not materially affected by chance. Since it is impossible to satisfy this condition when we operate in a chaotic system, it follows that successful human organizations cannot be the realization of some shared intention formed well ahead of action. Instead, success has to be the discovery of patterns that emerge through actions we take in response to the changing agendas of issues we identify. (p. 124)

What all this means is that productive change is the constant 'search for understanding, knowing there is no ultimate answer' (*ibid*, p. 282). The real leverage for change, says Senge involves:

- Seeing interrelationships rather than linear cause — effect chains, and
- Seeing processes of change rather than snapshots. (*ibid*, p. 73)

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The goal then is to get into the habit of experiencing and thinking about educational change processes as an overlapping series of dynamically complex phenomena. As we develop a non-linear system language, new thinking about change emerges:

The sub-conscious is subtly retrained to structure data in circles instead of lines. We find that we 'see' feedback processes and system archetypes everywhere. A new framework for thinking is embedded. A switch is thrown, much like what happens in mastering a foreign language. We begin to dream in the new language, or to think spontaneously in its terms and constraints. When this happens in systems thinking, we become . . . 'looped for life'. (*ibid*, p. 366)

Sounds complicated? Yes. Impractical? No. It is eminently more practical than our usual ways of introducing change, if for no other reason than that the latter does not work. Indeed, wrong solutions to complex problems nearly always make things worse (worse than if nothing had been done at all).

So, what is this new language for harnessing the forces of change? Chart 1 contains eight basic lessons arising from the new paradigm of dynamic change.¹ Each one is somewhat of a paradox and a surprise relative to our normal way of thinking about change. They go together as a set, as no one lesson by itself would be useful. Each lesson must benefit from the wisdom of the other seven.

CHART 1: The Eight Basic Lessons of the New Paradigm of Change

- Lesson One: You Can't Mandate What Matters
(The more complex the change the less you can force it)
- Lesson Two: Change is a Journey not a Blueprint
(Change is non-linear, loaded with uncertainty and excitement and sometimes perverse)
- Lesson Three: Problems are Our Friends
(Problems are inevitable and you can't learn without them)
- Lesson Four: Vision and Strategic Planning Come Later
(Premature visions and planning blind)
- Lesson Five: Individualism and Collectivism Must Have Equal Power

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- (There are no one-sided solutions to isolation and groupthink)
- Lesson Six: Neither Centralization Nor Decentralization Works
(Both top-down and bottom-up strategies are necessary)
- Lesson Seven: Connection with the Wider Environment is Critical for Success
(The best organizations learn externally as well as internally)
- Lesson Eight: Every Person is a Change Agent
(Change is too important to leave to the experts, personal mind set and mastery is the ultimate protection)

Lesson 1: You Can't Mandate What Matters

(The more complex the change, the less you can force it.)

Mandates are important. Policymakers have an obligation to set policy, establish standards, and monitor performance. But to accomplish certain kinds of purposes — in this case, important educational goals — you cannot mandate what matters, because what really matters for complex goals of change are skills, creative thinking, and committed action (McLaughlin, 1990). Mandates are not sufficient and the more you try to specify them the more narrow the goals and means become. Teachers are not technicians.

To elaborate, you can effectively mandate things that (i) do not require thinking or skill in order to implement them; and (ii) can be monitored through close and constant surveillance. You can, for example, mandate the cessation of the use of the strap, or mandate a sales tax on liquor or petrol. These kinds of changes do not require skill on the part of implementers to comply; and provided that they are closely monitored they can be enforced effectively.

Even in the relatively simple case — detailed, not dynamic complexity — almost all educational changes of value require new (i) skills; (ii) behaviour; and (iii) beliefs or understanding (Fullan, 1991). Think of: computers across the curriculum, teachers' thinking and problem solving skills, developing citizenship and team work, integration of special education in regular classrooms, dealing with multiculturalism and racism, working with social agencies to provide integrated services, responding to all students in the classroom, cooperative learning, monitoring the performance of students. All of these changes,

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to be productive, require skills, capacity, commitment, motivation, beliefs and insights, and discretionary judgment on the spot. If there is one cardinal rule of change in human condition, it is that you cannot *make* people change. You cannot force them to think differently or compel them to develop new skills.

Marris (1975) states the problem this way:

When those who have the power to manipulate changes act as if they have only to explain, and when their explanations are not at once accepted, shrug off opposition as ignorance or prejudice, they express a profound contempt for the meaning of lives other than their own. For the reformers have already assimilated these changes to their purposes, and worked out a reformulation which makes sense to them, perhaps through months or years of analysis and debate. If they deny others the chance to do the same, they treat them as puppets dangling by the threads of their own conceptions. (p. 166)

In addition to the introduction of more and more mandated requirements, there is the general expectation in education that more and more innovation is needed. School people often respond to this expectation in a knee-jerk fashion adopting the latest 'hot' items (site-based management, peer coaching and mentoring, restructuring, co-operative learning, whole language etc.) It is no denial of the potential worth of particular innovations to observe that unless deeper change in thinking and skills occur there will be limited impact. It is probably closer to the truth to say that the main problem in public education is not resistance to change, but the presence of too many innovations mandated or adopted uncritically and superficially on an *ad hoc* fragmented basis.

The result, as Pascale (1990) observes: 'not surprisingly, ideas acquired with ease are discarded with ease' (p. 20). New ideas of any worth to be effective require an in-depth understanding, and the development of skill and commitment to make them work. You cannot mandate these things. The only alternative that works is creating conditions that enable and press people to consider personal and shared visions, and skill development through practice over time. The more that mandates are used the more that fads prevail, the more that change is seen as superficial and marginal to the real purpose of teaching. The more that you 'tighten' mandates, the more that educational goals and means get narrowed, and consequently the less impact there is.

Lesson 1 says that the acid test of productive change is whether

individuals and groups develop skills and deep understandings in relation to new solutions. It finds mandates wanting because they have no chance of accomplishing these substantial changes even for single policies let alone for the bigger goals of moral purpose and the reality of dynamic complexity. Mandates alter some things, but they don't affect what matters. When complex change is involved, people do not and cannot change by being told to do so. Effective change agents neither embrace nor ignore mandates. They use them as catalysts to reexamine what they are doing.

Lesson 2: Change is a Journey, Not a Blueprint

(Change is non-linear, loaded with uncertainty, and sometimes perverse.)

I have already made the case in this chapter that change is a never-ending proposition under conditions of dynamic complexity. Another reason that you can't mandate what matters, is that you don't know what is going to matter until you are into the journey. If change involved implementing single, well-developed, proven innovations one at a time, perhaps it could be blueprinted. But school districts and schools are in the business of implementing a bewildering array of multiple innovations and policies simultaneously. Moreover, restructuring reforms are so multifaceted and complex that solutions for particular settings cannot be known in advance. If one tries to match the complexity of the situation with complex implementation plans, the process becomes unwieldy, cumbersome and usually wrong.

I think of the school in England described by McMahon and Wallace (1992) engaged in school development planning. Experienced in the planning process, working together, and committed to the plan they produced, they nonetheless encountered a series of unanticipated problems: staff training sessions had to be postponed because of delays in the production of national guidelines; a training project had to be deferred because the teacher appointed to run it had left after six weeks, leaving a vacancy which could not be filled for several months; the headteacher became pregnant and arrangements had to be made for a temporary replacement; the Government introduced a series of new changes that had to be accommodated — and on and on. I think of the group in the Maritimes in Canada with whom we were working who defined change as 'likened to a planned journey into uncharted waters in a leaky boat with a mutinous crew'.

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Thus, a journey into the partially known or unknown is an apt metaphor. As we will see, so many of the other lessons feed into and corroborate this one. Even well developed innovations represent journeys for those encountering them for the first time. With skills and understanding at stake — never acquired easily — it could not be otherwise. Other more complex reforms represent even greater uncertainty because more is being attempted, but above all because the solution is not known in advance. 'Route and destination', says Stacey (1992), 'must be discovered though the journey itself if you wish to travel to new lands' (p. 1). In the face of unpredictable change, 'the key to success lies in the creative activity of making new maps'. (p. 1)

Under conditions of uncertainty, learning, anxiety, difficulties, and fear of the unknown are *intrinsic* to all change processes, especially at the early stages. One can see why a risk-taking mentality and climate are so critical. People will not venture into uncertainty unless they or others appreciate that difficulties are a natural part of any change scenario. And if people do not venture into uncertainty, no significant change will occur (see Lesson 3 — problems are our friends).

We know that early difficulties are guaranteed. The perverse part is that later stages are unpredictable as well. It is true that in cases of eventual success there are great highs, ecstatic feelings of accomplishment, and moments of deep personal satisfaction and well being. With greater moral purpose and change agent capacity (chapter 2) the chances are greater that there will be more successes than failures. But sometimes things get worse rather than better even if we are doing all the right things. And sometimes they get better, even if we are making mistakes. As dynamic complexity generates surprises, for better or for worse, there is an element of luck. Non-luck comes into play in how we relate to these unanticipated events, not in whether we can prevent them in the first place. Sometimes they will be overwhelmingly frustrating and bad, and we won't be able to do a thing about it. People who learn to control their inner experiences, while contending with the positive and negative forces of change will be able to determine the quality of their lives (Csikszentmihalyi, 1990). Productive educational change, like productive life itself, really is a journey that doesn't end until we do.

Lesson 3: Problems are our Friends

(Problems are inevitable, but the good news is that you can't learn or be successful without them.)

It follows from almost everything I have said that *inquiry* is crucial. Problems are endemic in any serious change effort; both within the effort itself and via unplanned intrusions. Problems are necessary for learning, but not without a capacity for inquiry to learn the right lessons.

It seems perverse to say that problems are our friends, but we cannot develop effective responses to complex situations unless we actively seek and confront the real problems which are in fact difficult to solve. Problems are our friends because it is only through immersing ourselves in problems that we can come up with creative solutions. Problems are the route to deeper change and deeper satisfaction. In this sense effective organizations 'embrace problems' rather than avoid them.

Too often change-related problems are ignored, denied, or treated as an occasion for blame and defense. Success in school change efforts is much more likely when problems are treated as natural, expected phenomena, and are looked for. Only by tracking problems can we understand what has to be done next in order to get what we want. Problems need to be taken seriously, not attributed to 'resistance' or the ignorance or wrong-headedness of others. Successful change management requires problem-finding techniques like 'worry lists', and regular review of problem-solving decisions at subsequent meetings to see what happened. Since circumstances and context are constantly changing, sometimes in surprising ways, an embedded spirit of constant inquiry is essential. Says Pascale (1990, p. 14) 'inquiry is the engine of vitality and self-renewal'.

Louis and Miles (1990) found that the least successful schools they studied engaged in 'shallow coping' — doing nothing, procrastinating, doing it the usual way, easing off, increasing pressure — while the successful schools went deeper to probe underlying reasons and to make more substantial interventions like comprehensive restaffing, continuous training, redesigning programs, and the like. Successful schools did not have fewer problems than other schools — they just coped with them better. Moreover, the absence of problems is usually a sign that not much is being attempted. Smoothness in the early stages of a change effort is a sure sign that superficial or trivial change is being substituted for substantial change attempts. Later on, once mastered, changes can produce incredible highs through seemingly easy effort. There is nothing like accomplished performance for increasing self-esteem and confidence to go to even greater heights.

Avoidance of real problems is the enemy of productive change because it is these problems that must be confronted for breakthroughs to occur. Senge (1990, p. 24) paints the negative case:

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All too often, teams in business tend to spend their time fighting for turf, avoiding anything that will make them look bad personally, and pretending that everyone is behind the team's collective strategy — maintaining the *appearance* of a cohesive team. To keep up the image, they seek to squelch disagreement; people with serious reservations avoid stating them publicly, and joint decisions are watered-down compromises reflecting what everyone can live with, or else reflecting one person's view foisted on the group. If there is disagreement, it's usually expressed in a manner that lays blame, polarizes opinion, and fails to reveal the underlying differences in assumptions and experience in a way that the team as a whole could learn.

Problems are our friends is another way of saying that *conflict is essential* to any successful change effort:

People do not provoke new insights when their discussions are characterized by orderly equilibrium, conformity, and dependence. Neither do they do so when their discussions enter the explosively unstable equilibrium of all-out conflict or complete avoidance of issues . . . People spark new ideas off each other when they argue and disagree — when they are conflicting, confused, and searching for new meaning — yet remain willing to discuss and listen to each other. (Stacey, 1992, p. 120)

The proper way to deal with confusion, observes Saul (1992, p. 535), 'is to increase that confusion by asking uncomfortable questions until the source of the difficulties is exposed'. Yet we do the opposite by affirming rhetorical truths, and covering up conflict.

A pattern is beginning to emerge. Substantial change involves complex processes. The latter is inherently problem rich. A spirit of openness and inquiry is essential to solving problems. Change is learning. Pascale (1990, p. 263) summarizes why problems are our friends:

Life doesn't follow straight-line logic; it conforms to a kind of curved logic that changes the nature of things and often turns them into their opposites. Problems then, are not just hassles to be dealt with and set aside. Lurking inside each problem is a workshop on the nature of organizations and a vehicle for

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personal growth. This entails a shift; we need to value the *process* of finding the solution — juggling the inconsistencies that meaningful solutions entail.

In short, problems are our friends; but only if you do something about them.

Lesson 4: Vision and Strategic Planning Come Later

(Premature visions and planning can blind.)

Visions are necessary for success but few concepts are as misunderstood and misapplied in the change process. Visions come later for two reasons. First, under conditions of dynamic complexity one needs a good deal of reflective experience before one can form a plausible vision. Vision emerges from, more than it precedes, action. Even then it is always provisional. Second, *shared* vision, which is essential for success, must evolve through the dynamic interaction of organizational members and leaders. This takes time and will not succeed unless the vision-building process is somewhat open-ended. Visions coming later does not mean that they are not worked on. Just the opposite. They are pursued more authentically while avoiding premature formalization.

Visions come later because the process of merging personal and shared visions takes time. Senge (1990) provides an illuminating discussion of the tension between personal and collective ideals.

Shared vision is vital for the learning organization because it provides the focus and energy for learning. While adaptive learning is possible without vision, generative learning occurs only when people are striving to accomplish something that matters deeply to them. In fact, the whole idea of generative learning — ‘expanding your ability to create’ — will seem abstract and meaningless *until* people become excited about some vision they truly want to accomplish.

Today, ‘vision’ is a familiar concept in corporate leadership. But when you look carefully you find that most ‘visions’ are one person’s (or one group’s) vision imposed on an organization. Such visions, at best, command compliance — not commitment. A shared vision is a vision that many people are truly committed to, because it reflects their own personal vision. (p. 206)

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And,

Organizations intent on building shared visions continually encourage members to develop their personal visions. If people don't have their own vision, all they can do is 'sign up' for someone else's. The result is compliance, never commitment. On the other hand, people with a strong sense of personal direction can join together to create a powerful synergy toward what I/we truly want. (Senge, 1990, p. 211)

By contrast, the old and dead wrong paradigm is still being promulgated, such as Beckhard and Pritchard's (1992) recommendations for vision-driven change. There are four key aspects, they say: creating and setting the vision; communicating the vision; building commitment to the vision; and organizing people and what they do so that they are aligned to the vision (p. 25). Not!

In their study of twenty-six plants over a five-year period, Beer, Eisenstat and Spector (1990) conclude just the opposite:

Change efforts that begin by creating corporate programs to alter the culture of the management of people in the firm are inherently flawed even when supported by top management. (p. 6)

The programmatic approach often falsely assumes that attempts to change how people think through mission statements or training programs will lead to useful changes in how people actually behave at work. In contrast our findings suggest that people learn new patterns through their interaction with others on the job. (p. 150)

Stacey (1992) extends these ideas starting with a critique of the vision-driven model which prescribes the following:

... form a vision of the future state we desire to achieve, persuade others to believe in it as well, and then together, if we get our facts right, we will be able to realize it. In this view, top management action will take the form of trying to find out in advance what is likely to happen. Managers will prepare forecasts, and they will go off for weekends to formulate visions and missions. They will mount comprehensive culture change programs of persuasion and propaganda to get people throughout the organization to commit to a new vision. But if the

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belief upon which these actions are based is unfounded, they will have wasted their time and probably missed doing what was really necessary for success. (p. 125)

Further:

Reliance on visions perpetuates cultures of dependence and conformity that obstruct the questioning and complex learning necessary for innovative leadership. (p. 139)

Recall Stacey's advice that 'success has to be the discovery of patterns that emerge through actions we take in response to the changing agendas of issues we identify' (p. 124). Stacey concludes:

The dynamic systems perspective thus leads managers to think in terms, not of the prior intention represented by objectives and visions, but of continuously developing agendas of issues, aspirations, challenges, and individual intentions. The key to emerging strategy is the effectiveness with which managers in an organization build and deal with such agendas of issues.

This perspective produces a different definition of intention in an organization. Instead of intention to secure something relatively known and fixed, it becomes intention to discover what, why, and how to achieve. Such intention arises not from what managers foresee but from what they have experienced and now understand. It is intention to be creative and deal with what comes, not intention to achieve some particular future state. (p. 146)

In short, the critical question is not whether visions are important, but *how* they can be shaped and reshaped given the complexity of change. Visions die prematurely when they are mere paper products churned out by leadership teams, when they are static or even wrong, and when they attempt to impose a false consensus suppressing rather than enabling personal visions to flourish.

And yes, visions can die or fail to develop in the first place if too many people are involved at the beginning, when leaders fail to advocate their views, when superficial talk rather than grounded inquiry and action is the method used. Another paradox. Trying to get everyone on board in advance of action cannot work because it does not connect to the reality of dynamic complexity. Understanding this process puts the concept of ownership in perspective. Ownership cannot be achieved *in advance* of learning something new.

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Deep ownership comes through the learning that arises from full engagement in solving problems. In this sense, ownership is stronger in the middle of a successful change process than at the beginning, and stronger still at the end than at the middle or beginning. Ownership is a process as well as a state. Saying that ownership is crucial begs the question, unless one knows how it is achieved.

Strategic planning is also called into question. Spending too much time and energy on advance planning, even if it builds in principles of flexibility, is a mistake. Participation, elaborate needs assessment, formal strategic plans are uncalled for at the outset of complex change processes. Louis and Miles (1990) call this the evolutionary perspective.

The evolutionary perspective rests on the assumption that the environment both inside and outside organizations is often chaotic. No specific plan can last for very long, because it will either become outmoded due to changing external pressures, or because disagreement over priorities arises within the organization. Yet, there is no reason to assume that the best response is to plan passively, relying on incremental decisions. Instead, the organization can cycle back and forth between efforts to gain normative consensus about what it may become, to plan strategies for getting there, and to carry out decentralized incremental experimentation that harnesses the creativity of all members to the change effort . . . Strategy is viewed as a flexible tool, rather than a semi-permanent expansion of the mission. (p. 193)

The development of authentic shared vision builds on the skills of change agency: personal vision building through moral purpose, inquiry, mastery, and collaboration (chapter 2). Collective vision-building is a deepening, 'reinforcing process of increasing clarity, enthusiasm, communication and commitment' (Senge, 1990, p. 227). As people talk, try things out, inquire, re-try — all of this jointly — people become more skilled, ideas become clearer, shared commitment gets stronger. *Productive change is very much a process of mobilization and positive contagion.*

'Ready, fire, aim' is the more fruitful sequence if we want to take a linear snapshot of an organization undergoing major reform. Ready is important, there has to be some notion of direction, but it is killing to bog down the process with vision, mission, and strategic planning, before you know enough about dynamic reality. Fire is action and inquiry where skills, clarity, and learning are fostered. Aim is crystallizing new beliefs, formulating mission and vision statements and

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focussing strategic planning. Vision and strategic planning come later; if anything they come at *step 3*, not *step 1*.

In working on reform in teacher education in Toronto we have experienced this sequence over the past five years. When we started in 1988 we deliberately rejected launching immediately into large-scale strategic planning, or establishing yet another task force. Instead we began with a few readiness principles: work on the teacher education continuum, link teacher development and school development, commit to some field-based programs, work in partnership with schools, infuse our efforts with continuous inquiry. The firing part took the form of establishing a number of field-based pilot projects with different teams of faculty and cohorts of student teachers, and entering into action-oriented agreements like the Learning Consortium (see chapters 5 and 6). Near the end of year 3 we were ready to focus our aim, by establishing a Strategic Planning Committee and hiring an external consultant to facilitate the process with the Committee and the faculty as a whole. In a faculty-wide retreat with student representatives we generated images of what we should be striving for which were grounded in people's experiences through the pilot projects and other ideas. I believe, we were far more able to be clear (the aim) through this sequence than we would have had we started with the development of (what would have been) an abstract and/or partially owned mission statement and strategic plan. There is still debate and unresolved issues, but we are now in a far better position to pursue reforms with greater clarity of purpose as we enter new phases, driven (this time) by shared vision (see chapter 6).

Thorah Elementary School, north-east of Toronto in our Learning Consortium, is another case in point. Starting on a small scale (the Principal and two teachers out of a staff of twenty-three), the school developed from an individualistic to a highly collaborative culture over a three-year period; not by starting with a vision, but by working toward a shared vision generated through their actions (Fullan, 1992).

Pascale (1990) also captures the ready-fire-aim sequence when he analyzes how the Ford Motor company developed a widely shared mission and values statement in the 1980s.

In hindsight, a major factor in the wide acceptance of this statement [Ford's vision and values] is that its principles were *enacted* for several years before they were formally announced. Most companies disseminate their value statements the other way around, and the product is dismissed as PR hype. (p. 170)

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Charismatic, high flying leaders and premature strategic planning are blinding because they 'distract us from our *own* possibilities' (*ibid*, p. 265). In the new paradigm of change organizations will have to reverse traditionally held assumptions about vision and planning. By so doing they will 'arrive at' deeper and more powerful shared visions which inspire committed action on a day-to-day basis throughout the organization. But 'arrival' as we have seen is only temporary; the most powerful shared visions are those that contain the basis for further generative learning and recognize that individual and organizational development will always be in dynamic tension. Recognizing, indeed valuing this tension, and incorporating values and mechanisms for continually processing it is essential.

Contending with the forces of change is a never-ending process of finding creative ways to struggle with inherently contentious factors — and none more so than Lesson 5.

Lesson 5: Individualism and Collectivism Must Have Equal Power

(There are no one-sided solutions to isolation and groupthink.)

Productive educational change is also a process of overcoming isolation while not succumbing to groupthink. Paradoxes provide the seeds for learning under conditions of dynamic complexity:

Paradox serves us by setting up polar opposites and affirming both sides. Two factors, mutual exclusivity and simultaneity are essential for a genuine paradox . . .

It is useful to draw a distinction between two types of problems: *convergent* problems (such as balancing your checkbook) that deal with distinct, quantifiable problems amenable to logic, and *divergent* problems (how to reorganize the production department) that are not quantifiable or verifiable, and that do not lend themselves to a single solution. When one solves a convergent problem, one literally eliminates it. There is nothing wrong with that. Divergent problems, however, cannot be permanently eliminated, and benefit from the lateral thinking that paradox evokes. (Pascale, 1990, p. 110)

There are few more endemic paradoxes in humankind than the creative tension between individual and group development. As with

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all paradoxes there are no one-sided solutions. To illustrate let us trace through the problem of isolation in search of a solution.

Teaching has long been called 'a lonely profession', always in pejorative terms. The professional isolation of teachers limits access to new ideas and better solutions, drives stress inward to fester and accumulate, fails to recognize and praise success, and permits incompetence to exist and persist to the detriment of students, colleagues, and the teachers themselves. Isolation allows, even if it does not always produce, conservatism and resistance to innovation in teaching (Lortie, 1975).

Isolation and privatism have many causes. Often they can seem a kind of personality weakness revealed in competitiveness, defensiveness about criticism, and a tendency to hog resources. But people are creatures of circumstance, and when isolation is widespread, we have to ask what it is about our schools that creates so much of it.

Isolation is a problem because it imposes a ceiling affect on inquiry and learning. Solutions are limited to the experiences of the individual. For complex change you need many people working insightfully on the solution and committing themselves to concentrated action together. In the words of Konosuke Matsushita, founder of Matsushita Electric Ltd.

Business, we know, is now so complex and difficult, the survival of firms hazardous in an environment increasingly unpredictable, competitive and fraught with danger, that their continued existence depends on the day-to-day mobilization of every ounce of intelligence. (quoted in Pascale, 1990, p. 27)

Educational problems are all the more complex, and collaborative, 'learning enriched' schools do better than those lingering with the isolationist traditions of teaching (Rosenholtz, 1989; Fullan and Hargreaves, 1991). So what do we do? We drive a good idea to extremes. Collaboration is celebrated as automatically good. Participatory site-based management is the answer. Mentoring and peer coaching are a must. Well, yes and no. Pushed to extremes collaboration becomes 'group-think' — uncritical conformity to the group, unthinking acceptance of the latest solution, suppression of individual dissent (CRM Films, 1991). People can collaborate to do the wrong things, as well as the right things; and by collaborating too closely they can miss danger signals and learning opportunities.

In moving toward greater collaboration we should not lose sight of the 'good side' of individualism. The capacity to think and work

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independently is essential to educational reform (Fullan and Hargreaves, 1991). The freshest ideas often come from diversity and those marginal to the group. Keeping in touch with our inner voice, personal reflection, and the capacity to be alone are essential under conditions of constant change forces. Solitude also has its place as a strategy for coping with change (Storr, 1988).

When from our better selves, we have too long
Been parted by the hurrying world, and droop,
Sick of its business, its pleasures tired,
How gracious, how benign, is Solitude
(Wordsworth, *The Prelude*, cited in Storr, 1988)

Groups are more vulnerable to faddism than are individuals. The suppressing role of groups is clearly portrayed in Doris Lessing's (1986) *Prisons We Choose To Live Inside*.

People who have experienced a lot of groups, who perhaps have observed their own behaviour, may agree that the hardest thing in the world is to stand out against one's group, a group of one's peers. Many agree that among one's most shameful memories are of saying that black is white because other people are saying it. (p. 51)

Group-suppression or self-suppression of intuition and experiential knowledge is one of the major reasons why bandwagons and ill-conceived innovations flourish (and then inevitably fade, giving change a bad name). It is for this reason that I see the individual as an undervalued source of reform. Lessing puts it this way: 'it is my belief that it is always the individual, in the long run, who will set the tone, provide the real development in society' (p. 71).

The dark side of groupthink is not just a matter of avoiding the dangers of overconformity. Under conditions of dynamic complexity different points of view often anticipate new problems earlier than do like-minded close-knit groups. Pascale elaborates:

Internal differences can widen the spectrum of an organization's options by generating new points of view, by promoting disequilibrium and adaptation. There is, in fact, a well-known law of cybernetics — the law of requisite variety — which states that for any system to adapt to its external environment,

its internal controls must incorporate variety. If one reduces variety inside, a system is unable to cope with variety outside. The innovative organization must incorporate variety into its internal processes. (p. 14)

Thus, a tight-knit shared culture is not a desirable end-point:

The dynamic systems perspective leads to a view of culture as emergent. What a group comes to share in the way of culture and philosophy emerges from individual personal beliefs through a learning process that builds up over years. And if the learning process is to continue, if a business is to be continually innovative, the emphasis should be on questioning the culture, not sharing it. A dynamic systems perspective points to the importance of encouraging counter cultures in order to overcome powerful tendencies to conform and share cultures strongly. (Stacey, 1992, p. 145)

Strong sharing and non-sharing cultures are both defective because they have the effect of creating boundaries that are respectively too tight or too loose (Stacey, 1992). Some degree of multiple cultures is essential for questioning the *status quo* in the face of continually changing and contentious issues in the environment. Canon and Honda, for example, hire some managers from other organizations 'for the express purpose of establishing sizable pockets of new cultures' (Stacey, 1992, p. 198).

It is for these reasons that having a healthy respect for individuals and personal visions is a source of renewal in inquiry-oriented organizations. When the future is unknown and the environment changing in unpredictable ways, sources of difference are as important as occasions of convergence. Because conflict (properly managed) is essential for productive change, i.e., because problems are our friends, the group that perceives conflict as an opportunity to learn something, instead of as something to be avoided or as an occasion to entrench one's position, is the group that will prosper. You can't have organizational learning without individual learning, and you can't have learning in groups without processing conflict.

However, we can overcompensate for groupthink by glorifying the individual, stressing autonomy, and failing to work on shared visions thereby dispersing energy. We come full circle — isolation is bad, group dominance is worse. Honouring opposites simultaneously — individualism and collegiality — is the critical message.

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Lesson 6: Neither Centralization or Decentralization Works

(Both top-down and bottom-up strategies are necessary.)

Centralization errs on the side of overcontrol, decentralization errs towards chaos. We have known for decades that top-down change doesn't work (you can't mandate what matters). Leaders keep trying because they don't see any alternative and they are impatient for results (either for political or moral reasons). Decentralized solutions like site-based management also fail because groups get preoccupied with governance and frequently flounder when left on their own (see chapters 4 and 5, and Fullan, 1991, pp. 200-9). Even when they are successful for short-periods of time, they cannot stay successful unless they pay attention to the centre and vice-versa. Pascale (1990) puts it this way, in examining the Ford case:

Change flourishes in a 'sandwich'. When there is consensus above, and pressure below, things happen. While there was no operational consensus at the top as to precisely what should be done at Ford, the trips to Japan caused many senior managers to agree that the problems lay in the way the organization worked. This might not have led anywhere, however, were it not for pressures for change coming from the rank and file. (pp. 126 and 128)

Control at the top as many reform-minded leaders have found, is an illusion. No one can control complex organizations from the top. The key question (or more accurately the constant contention) as Senge (1990, p. 287) says is 'how to achieve control without controlling'. He continues:

While traditional organizations require management systems that control people's behaviour, learning organizations invest in improving the quality of thinking, the capacity for reflection and team learning, and the ability to develop shared visions and shared understandings of complex business issues. It is these capabilities that will allow learning organizations to be both more locally controlled and more well coordinated than their hierarchical predecessors.

Similarly, it is a mistake for local units, even operating under decentralized schemes to ignore the centre (see lesson 7). For example,

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school and district development must be coordinated. It is possible for individual schools to become highly collaborative despite their districts, but it is not possible for them *to stay* collaborative under these conditions. Personnel moves, transfers, selection and promotion criteria, policy requirements, budget decisions including staff development resources all take their toll on schools if the relationship is not coordinated (see Fullan, in press).

Put differently, the centre and local units *need each other*. You can't get anywhere by swinging from one dominance to another. What is required is a different two-way relationship of pressure, support and continuous negotiation. It amounts to simultaneous top-down bottom-up influence. Individuals and groups who cannot manage this paradox become whipsawed by the cross-cutting forces of change.

Lesson 7: Connection with the Wider Environment is Critical

(The best organizations learn externally as well as internally.)

Many organizations work hard on internal development but fail to keep a proactive learning stance toward the environment. This fatal flaw is as old as evolution. Smith (1984) makes this profound observation:

For a social entity such as an organization to reflect on itself, it must have a system representing both itself and the context in which it is imbedded. That's where nonequilibrium comes in. A social system that promotes paradox and fosters disequilibrium (i.e., encourages variation and embraces contrary points of view), has a greater chance of knowing itself (as the by-product of continually reexamining its assumptions and juggling its internal tensions). This in turn generates a reasonable likelihood of being aware of the context in which it operates. (p. 289, quoted in Pascale, 1990)

Dynamic complexity means that there is constant action in the environment. For teachers and schools to be effective two things have to happen. First, individual moral purpose must be linked to a larger social good. Teachers still need to focus on making a difference with individual students, but they must also work on school-wide change to

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create the working conditions that will be most effective in helping all students learn. Teachers must look for opportunities to join forces with others, and must realize that they are part of a larger movement to develop a learning society through their work with students and parents. It is possible, indeed necessary, for teachers to act locally, while conceptualizing their roles on a higher plane.

Second, to prosper, organizations must be actively plugged into their environments responding to and contributing to the issues of the day. They must engage state policies, not necessarily implement them literally, if they are to protect themselves from eventual imposition. But most fundamentally, learning organizations know that expectations and tensions in the environment contain the seeds of future development. There are far more ideas 'out there' than 'in here' (see chapter 5). Successful organizations have many antennae to tap into and to contribute to the demands of change which are constantly churning in the environment. They treat the internal and external milieu with equal respect. Seeing 'our connectedness to the world' and helping others to see it is a moral purpose and teaching/learning opportunity of the highest order.

Lesson 8: Every Person is a Change Agent

(Change is too important to leave to the experts.)

There are two basic reasons why *every person* working in an enterprise committed to making continuous improvements must be change agents with moral purpose. First, as we have seen, since no one person can possibly understand the complexities of change in dynamically complex systems, it follows that we cannot leave the responsibility to others. Second, and more fundamental, the conditions for the new paradigm of change cannot be established by formal leaders working by themselves. Put differently, each and every teacher has the responsibility to help create an organization capable of individual and collective inquiry and continuous renewal, or it will not happen.

Formal leaders in today's society are generated by a system that is operating under the old paradigm. Therefore, they are unlikely to have the conceptions and instincts necessary to bring about radical changes consistent with the new mindset we have been describing in this chapter. Saul (1992) claims that the 'age of reason' has become bastardized, while burying common sense and moral purpose:

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The rational advocacy of efficiency more often than not produces inefficiency. It concentrates on how things are done and loses track of why. It measures costs without understanding real costs. This obsession with linear efficiency is one of the causes of our unending economic crisis . . . Worst of all, it is capable of removing from democracy its greatest strength, the ability to act in a non-conventional manner, just as it removes from individuals their strength as nonlinear beings . . . How could a civilization devoted to structure, expertise and answers evolve into other than a coalition of professional groups? How, then, could the individual citizen not be seen as a serious impediment to getting on with business? (Saul, 1992, pp. 582-583)

It is only by individuals taking action to alter their own environments that there is any chance for deep change. The 'system' will not, indeed cannot, do us any favours. If anything, the educational system is killing itself because it is more designed for the *status quo* while facing societal expectations of major reform. If teachers and other educators want to make a difference, and this is what drives the best of them, moral purpose by itself is not good enough. Moral purpose needs an engine, and that engine is individual, skilled change agents pushing for changes around them, intersecting with other like minded individuals and groups to form the critical mass necessary to bring about continuous improvements.

Conclusion

There are exciting, but no comfortable positions in contending with the forces of change because one must always fight against overcontrol on the one hand, and chaos on the other. There is a pattern underlying the eight lessons of dynamic change and it concerns one's ability to work with polar opposites: simultaneously pushing for change while allowing self-learning to unfold; being prepared for a journey of uncertainty; seeing problems as sources of creative resolution; having a vision, but not being blinded by it; valuing the individual and the group; incorporating centralizing and decentralizing forces; being internally cohesive, but externally oriented; and valuing personal change agency as the route to system change.

What this analysis means is that in the current struggle between state accountability and local autonomy, *both* are right. Success depends on the extent to which each force can willingly contend with if not embrace the other as necessary for productive educational change.

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In so doing, learning all eight lessons and recognizing their dynamic interdependency is essential.

The change process is exceedingly complex as one realizes that it is the *combination* of individuals and societal agencies that make a difference. Teachers are major players in creating learning societies, which by definition are complex. Development is 'the continuing improvement in the capacity to grow and to build ever more connections in more varied environments' (Land and Jarman, 1992, p. 30). Internal connections (within oneself, within one's organization) and external connections (to others and to the environment) must co-exist in dynamic interplay.

As the scale of complexity accelerates in post-modern society our ability to synthesize polar opposites where possible, and work with their co-existence where necessary, is absolutely critical to success. One starts with oneself, but by working actively to create learning organizations, both the individual and the group benefit.

Note

- 1 I am indebted to Matt Miles who has developed several of these lessons (see Fullan and Miles, 1992).

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