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"GIVE ME A LEVER LONG ENOUGH...AND SINGLE-HANDED I CAN MOVE THE WORLD"

From a very early age, we are taught to break apart problems, to fragment the world. This apparently makes complex tasks and subjects more manageable, but we pay a hidden, enormous price. We can no longer see the consequences of our actions; we lose our intrinsic sense of connection to a larger whole. When we then try to "see the big picture," we try to reassemble the fragments in our minds, to list and organize all the pieces. But, as physicist David Bohm says, the task is futile—similar to trying to reassemble the fragments of a broken mirror to see a true reflection. Thus, after a while we give up trying to see the whole altogether.

The tools and ideas presented in this book are for destroying the illusion that the world is created of separate, unrelated forces. When we give up this illusion—we can then build "learning organizations," organizations where people continually expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and where people are continually learning how to learn together.

As the world becomes more interconnected and business becomes more complex and dynamic, work must become more "learningful." It is no longer sufficient to have one person learning for the organization, a Ford or a Sloan or a Watson or a Gates. It's just not possible any longer to figure it out from the top, and have everyone else following the orders of the "grand strategist." The organizations that will truly excel in the future will be the organizations that discover how to tap people's commitment and capacity to learn at all levels in an organization.

Learning organizations are possible because, deep down, we are all learners. No one has to teach an infant to learn. In fact, no one has to teach infants anything. They are intrinsically inquisitive, masterful learners who learn to walk, speak, and pretty much run their households all on their own. Learning organizations are possible because not only is it our nature to learn but we love to learn. Most of us at one time or another have been part of a great team, a group of people who functioned together in an extraordinary way—who trusted one another, who complemented one anothers's strengths and compensated for one another's limitations, who had common goals that were larger than individual goals, and who produced extraordinary results. I have met many people who have experienced this sort of profound teamwork—in sports, or in the performing arts, or in business. Many say that they have spent much of their life looking for that experience again. What they experienced was a learning organization. The team that became great didn't start off great—it *learned* how to produce extraordinary results.

One could argue that the entire global business community is learning to learn together, becoming a learning community. Whereas once many industries were dominated by a single, undisputed leader—one IBM, one Kodak, one Xerox—today industries, especially in manufacturing, have dozens of excellent companies. American, European, or Japanese corporations are pulled forward by innovators in China, Malaysia, or Brazil, and they in turn, are pulled by the Koreans and Indians. Dramatic improvements take place in corporations in Italy, Australia, Singapore—and quickly become influential around the world.

There is also another, in some ways deeper, movement toward learning organizations, part of the evolution of industrial society. Material affluence for the majority has gradually shifted people's orientation toward work—from what Daniel Yankelovich called an "instrumental" view of work, where work was a means to an end, to

a more "sacred" view, where people seek the "intrinsic" benefits of work.[1] "Our grandfathers worked six days a week to earn what most of us now earn by Tuesday afternoon," says Bill O'Brien, former CEO of Hanover Insurance. "The ferment in management will continue until we build organizations that are more consistent with man's higher aspirations beyond food, shelter and belonging."

Moreover, many who share these values are now in leadership positions. I find a growing number of organizational leaders who, while still a minority, feel they are part of a profound evolution in the nature of work as a social institution. "Why can't we do good works at work?" asked Edward Simon, former president of Herman Miller, a sentiment I often hear repeated today. In founding the "Global Compact," UN Secretary General Kofi Annan invited businesses around the world to build learning communities that elevate global standards for labor rights, and social and environmental responsibility.

Perhaps the most salient reason for building learning organizations is that we are only now starting to understand the capabilities such organizations must possess. For a long time, efforts to build learning organizations were like groping in the dark until the skills, areas of knowledge, and paths for development of such organizations became known. What fundamentally will distinguish learning organizations from traditional authoritarian "controlling organizations" will be the mastery of certain basic disciplines. That is why the "disciplines of the learning organization" are vital.

DISCIPLINES OF THE LEARNING ORGANIZATION

On a cold, clear morning in December 1903, at Kitty Hawk, North Carolina, the fragile aircraft of Wilbur and Orville Wright proved that powered flight was possible. Thus was the airplane invented; but it would take more than thirty years before commercial aviation could serve the general public.

Engineers say that a new idea has been "invented" when it is proven to work in the laboratory. The idea becomes an "innovation" only when it can be replicated reliably on a meaningful scale at practical costs. If the idea is sufficiently important, such as the telephone, the digital computer, or commercial aircraft, it is called a "basic innovation," and it creates a new industry or transforms an

existing industry. In these terms, learning organizations have been invented, but they have not yet been innovated.

In engineering, when an idea moves from an invention to an innovation, diverse "component technologies" come together. Emerging from isolated developments in separate fields of research, these components gradually form an ensemble of technologies that are critical to one another's success. Until this ensemble forms, the idea, though possible in the laboratory, does not achieve its potential in practice.[2]

The Wright brothers proved that powered flight was possible, but the McDonnel Douglas DC-3, introduced in 1935, ushered in the era of commercial air travel. The DC-3 was the first plane that supported itself economically as well as aerodynamically. During those intervening thirty years (a typical time period for incubating basic innovations), myriad experiments with commercial flight had failed. Like early experiments with learning organizations, the early planes were not reliable and cost-effective on an appropriate scale.

The DC-3, for the first time, brought together five critical component technologies that formed a successful ensemble. They were: the variable-pitch propeller, retractable landing gear, a type of lightweight molded body construction called "monocque," a radial air-cooled engine, and wing flaps. To succeed, the DC-3 needed all five; four were not enough. One year earlier, the Boeing 247 was introduced with all of them except wing flaps. Boeing's engineers found that the plane, lacking wing flaps, was unstable on takeoff and landing, and they had to downsize the engine.

Today, I believe, five new component technologies are gradually converging to innovate learning organizations. Though developed separately, each will, I believe, prove critical to the others' success, just as occurs with any ensemble. Each provides a vital dimension in building organizations that can truly "learn," that can continually enhance their capacity to realize their highest aspirations:

Systems Thinking. A cloud masses, the sky darkens, leaves twist upward, and we know that it will rain. We also know the storm runoff will feed into groundwater miles away, and the sky will clear by tomorrow. All these events are distant in time and space, and yet they are all connected within the same pattern. Each has an influence on the rest, an influence that is usually hidden from view. You can only understand the system of a rainstorm by contemplating the whole, not any individual part of the pattern.

Business and other human endeavors are also systems. They, too, are bound by invisible fabrics of interrelated actions, which often take years to fully play out their effects on each other. Since we are part of that lacework ourselves, it's doubly hard to see the whole pattern of change. Instead, we tend to focus on snapshots of isolated parts of the system, and wonder why our deepest problems never seem to get solved. Systems thinking is a conceptual framework, a body of knowledge and tools that has been developed over the past fifty years, to make the full patterns clearer, and to help us see how to change them effectively.

Though the tools are new, the underlying worldview is extremely intuitive; experiments with young children show that they learn systems thinking very quickly.

Personal Mastery. "Mastery" might suggest gaining dominance over people or things. But mastery can also mean a special level of proficiency. A master craftsman doesn't dominate pottery or weaving. People with a high level of personal mastery are able to consistently realize the results that matter most deeply to them—in effect, they approach their life as an artist would approach a work of art. They do that by becoming committed to their own lifelong learning.

Personal mastery is the discipline of continually clarifying and deepening our personal vision, of focusing our energies, of developing patience, and of seeing reality objectively. As such, it is an essential cornerstone of the learning organization—the learning organization's spiritual foundation. An organization's commitment to and capacity for learning can be no greater than that of its members. The roots of this discipline lie in both Eastern and Western spiritual traditions, and in secular traditions as well.

But few organizations encourage the growth of their people in this manner. This results in vast untapped resources: "People enter business as bright, well-educated, high-energy people, full of energy and desire to make a difference," says Hanover's O'Brien. "By the time they are 30, a few are on the fast track and the rest 'put in their time' to do what matters to them on the weekend. They lose the commitment, the sense of mission, and the excitement with which they started their careers. We get damn little of their energy and almost none of their spirit."

And surprisingly few adults work to rigorously develop their own personal mastery. When you ask most adults what they want from their lives, they often talk first about what they'd like to get rid of: "I'd like my mother-in-law to move out," they say, or "I'd

like my back problems to clear up." The discipline of personal mastery starts with clarifying the things that really matter to us, of living our lives in the service of our highest aspirations.

Here, I am most interested in the connections between personal learning and organizational learning, in the reciprocal commitments between individual and organization, and in the special spirit of an enterprise made up of learners.

Mental Models. Mental models are deeply ingrained assumptions, generalizations, or even pictures or images that influence how we understand the world and how we take action. Very often, we are not consciously aware of our mental models or the effects they have on our behavior. For example, we may notice that a co-worker dresses elegantly, and say to ourselves, "She's a country club person." About someone who dresses shabbily, we may feel, "He doesn't care about what others think." Mental models of what can or cannot be done in different management settings are no less deeply entrenched. Many insights into new markets or outmoded organizational practices fail to get put into practice because they conflict with powerful, tacit mental models.

For example, in the early 1970s, Royal Dutch/Shell, became one of the first large organizations to understand how pervasive was the influence of hidden mental models. Shell's success in the 1970s and 1980s (rising from one of the weakest of the big seven oil companies to one of the strongest along with Exxon) during a period of unprecedented changes in the world oil business—the formation of OPEC, extreme fluctuations in oil prices and availability, and the eventual collapse of the Soviet Union—came in large measure from learning how to surface and challenge managers' mental models as a discipline for preparing change. Arie de Geus, Shell's Coordinator of Group Planning during the 80s, said that continuous adaptation and growth in a changing business environment depends on "institutional learning, which is the process whereby management teams change their shared mental models of the company, their markets, and their competitors. For this reason, we think of planning as learning and of corporate planning as institutional learning."[3]

The discipline of working with mental models starts with turning the mirror inward; learning to unearth our internal pictures of the world, to bring them to the surface and hold them rigorously to scrutiny. It also includes the ability to carry on "learningful" conversations that balance inquiry and advocacy, where

people expose their own thinking effectively and make that thinking open to the influence of others.

Building Shared Vision. If any one idea about leadership has inspired organizations for thousands of years, it's the capacity to hold a shared picture of the future we seek to create. One is hard-pressed to think of any organization that has sustained some measure of greatness in the absence of goals, values, and missions that become deeply shared throughout the organization. IBM had "service"; Polaroid had instant photography; Ford had public transportation for the masses and Apple had "computers for the rest of us."[4] Though radically different in content and kind, all these organizations managed to bind people together around a common identity and sense of destiny.

When there is a genuine vision (as opposed to the all-too-familiar "vision statement"), people excel and learn, not because they are told to, but because they want to. But many leaders have personal visions that never get translated into shared visions that galvanize an organization. All too often, a company's shared vision has revolved around the charisma of a leader, or around a crisis that galvanizes everyone temporarily. But, given a choice, most people opt for pursuing a lofty goal, not only in times of crisis but at all times. What has been lacking is a discipline for translating individual vision into shared vision—not a "cookbook" but a set of principles and guiding practices.

The practice of shared vision involves the skills of unearthing shared "pictures of the future" that foster genuine commitment and enrollment rather than compliance. In mastering this discipline, leaders learn the counterproductiveness of trying to dictate a vision, no matter how heartfelt.

Team Learning. How can a team of committed managers with individual IQs above 120 have a collective IQ of 63? The discipline of team learning confronts this paradox. We know that teams can learn; in sports, in the performing arts, in science, and even, occasionally, in business, there are striking examples where the intelligence of the team exceeds the intelligence of the individuals in the team, and where teams develop extraordinary capacities for coordinated action. When teams are truly learning, not only are they producing extraordinary results, but the individual members are growing more rapidly than could have occurred otherwise.

The discipline of team learning starts with "dialogue," the capacity of members of a team to suspend assumptions and enter into a genuine "thinking together." To the Greeks dia-logos meant a free-flowing of meaning through a group, allowing the group to discover insights not attainable individually. Interestingly, the practice of dialogue has been preserved in many "primitive" cultures, such as that of the American Indian, but it has been almost completely lost to modern society. Today, the principles and practices of dialogue are being rediscovered and put into a contemporary context. (Dialogue differs from the more common "discussion," which has its roots with "percussion" and "concussion," literally a heaving of ideas back and forth in a winner-takes-all competition.)

The discipline of dialogue also involves learning how to recognize the patterns of interaction in teams that undermine learning. The patterns of defensiveness are often deeply ingrained in how a team operates. If unrecognized, they undermine learning. If recognized and surfaced creatively, they can accelerate learning.

Team learning is vital because teams, not individuals, are the fundamental learning unit in modern organizations. This is where the rubber meets the road; unless teams can learn, the organization cannot learn.

If a learning organization were an engineering innovation, such as the airplane or the personal computer, the components would be called "technologies." For an innovation in human behavior, the components need to be seen as *disciplines*. By "discipline," I do not mean an "enforced order" or "means of punishment," but a body of theory and technique that must be studied and mastered to be put into practice. A discipline (from the Latin *disciplina*, to learn) is a developmental path for acquiring certain skills or competencies. As with any discipline, from playing the piano to electrical engineering, some people have an innate gift, but anyone can develop proficiency through practice.

To practice a discipline is to be a lifelong learner. You never arrive; you spend your life mastering disciplines. You can never say, "We are a learning organization," any more than you can say, "I am an enlightened person." The more you learn, the more acutely aware you become of your ignorance. Thus, a corporation cannot be "excellent" in the sense of having arrived at a permanent excellence; it is always in the state of practicing the disciplines of learning, of getting better or worse.

That organizations can benefit from disciplines is not a totally new idea. After all, management disciplines such as accounting have been around for a long time. But the five learning disciplines differ from more familiar management disciplines in that they are personal disciplines. Each has to do with how we think and how we interact and learn with one another. In this sense, they are more like artistic disciplines than traditional management disciplines. Moreover, while accounting is good for "keeping score," we have never approached the subtler tasks of building organizations, of enhancing their capabilities for innovation and creativity, of crafting strategy and designing policy and structure through assimilating new disciplines. Perhaps this is why, all too often, great organizations are fleeting, enjoying their moment in the sun, then passing quietly back to the ranks of the mediocre.

Practicing a discipline is different from emulating a model. All too often, new management innovations are described in terms of the "best practices" of so-called leading firms. I believe benchmarking best practices can open people's eyes as to what is possible, but it can also do more harm than good, leading to piecemeal copying and playing catch-up. As one seasoned Toyota manager commented after hosting over a hundred tours for visiting executives, "They always say 'Oh yes, you have a Kan-Ban system, we do also. You have quality circles, we do also. Your people fill out standard work descriptions, ours do also.' They all see the parts and have copied the parts. What they do not see is the way all the parts work together." I do not believe great organizations have ever been built by trying to emulate another, any more than individual greatness is achieved by trying to copy another "great person."

When the five component technologies converged to create the DC-3 the commercial airline industry began. But the DC-3 was not the end of the process. Rather, it was the precursor of a new industry. Similarly, as the five component learning disciplines converge they will not create *the* learning organization but rather a new wave of experimentation and advancement.

THE FIFTH DISCIPLINE

It is vital that the five disciplines develop as an ensemble. This is challenging because it is much harder to integrate new tools than simply apply them separately. But the payoffs are immense.

This is why systems thinking is the fifth discipline. It is the disci-

pline that integrates the disciplines, fusing them into a coherent body of theory and practice. It keeps them from being separate gimmicks or the latest organization change fads. Without a systemic orientation, there is no motivation to look at how the disciplines interrelate. By enhancing each of the other disciplines, it continually reminds us that the whole can exceed the sum of its parts.

For example, vision without systems thinking ends up painting lovely pictures of the future with no deep understanding of the forces that must be mastered to move from here to there. This is one of the reasons why many firms that have jumped on the "vision bandwagon" in recent years have found that lofty vision alone fails to turn around a firm's fortunes. Without systems thinking, the seed of vision falls on harsh soil. If nonsystemic thinking predominates, the first condition for nurturing vision is not met: a genuine belief that we can make our vision real in the future. We may say "We can achieve our vision" (most American managers are conditioned to this belief), but our tacit view of current reality as a set of conditions created by somebody else betrays us.

But systems thinking also needs the disciplines of building shared vision, mental models, team learning, and personal mastery to realize its potential. Building shared vision fosters a commitment to the long term. Mental models focus on the openness needed to unearth shortcomings in our present ways of seeing the world. Team learning develops the skills of groups of people to look for the larger picture beyond individual perspectives. And personal mastery fosters the personal motivation to continually learn how our actions affect our world. Without personal mastery, people are so steeped in the reactive mindset ("someone/something else is creating my problems") that they are deeply threatened by the systems perspective.

Lastly, systems thinking makes understandable the subtlest aspect of the learning organization—the new way individuals perceive themselves and their world. At the heart of a learning organization is a shift of mind—from seeing ourselves as separate from the world to connected to the world, from seeing problems as caused by someone or something "out there" to seeing how our own actions create the problems we experience. A learning organization is a place where people are continually discovering how they create their reality. And how they can change it. As Archimedes said, "Give me a lever long enough . . . and single-handed I can move the world."

11

TEAM LEARNING

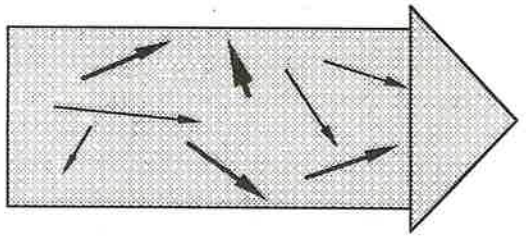
THE POTENTIAL WISDOM OF TEAMS

"By design and by talent," wrote basketball player Bill Russell of his team, the Boston Celtics, "[we] were a team of specialists, and like a team of specialists in any field, our performance depended both on individual excellence and on how well we worked together. None of us had to strain to understand that we had to complement each other's specialties; it was simply a fact, and we all tried to figure out ways to make our combination more effective. . . . Off the court, most of us were oddballs by society's standards—not the kind of people who blend in with others or who tailor their personalities to match what's expected of them."[1]

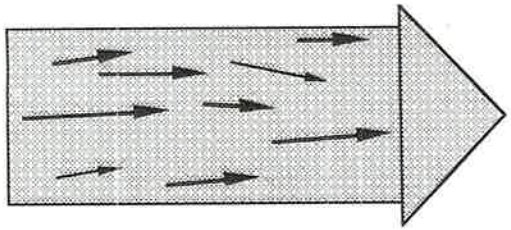
Russell is careful to tell us that it's not friendship, it's a different kind of team relationship that made his team's work special. That relationship, more than any individual triumph, gave him his greatest moments in the sport: "Every so often a Celtic game would heat up so that it became more than a physical or even mental game," he

wrote, "and would be magical. The feeling is difficult to describe, and I certainly never talked about it when I was playing. When it happened I could feel my play rise to a new level . . . It would surround not only me and the other Celtics but also the players on the other team, and even the referees . . . At that special level, all sorts of odd things happened. The game would be in the white heat of competition, and yet I wouldn't feel competitive, which is a miracle in itself . . . The game would move so fast that every fake, cut, and pass would be surprising, and yet nothing could surprise me. It was almost as if we were playing in slow motion. During those spells, I could almost sense how the next play would develop and where the next shot would be taken . . . To me, the key was that *both* teams had to be playing at their peaks, and they had to be competitive. . . ."

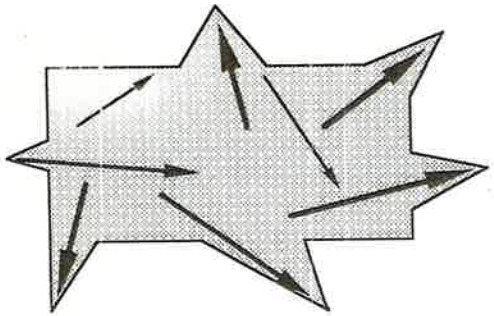
Russell's Celtics (winner of eleven world championships in thirteen years) demonstrate a phenomenon we have come to call "alignment," when a group of people function as a whole. In most teams, the energies of individual members work at cross purposes. If we drew a picture of the team as a collection of individuals with different degrees of "personal power" (ability to accomplish intended results) headed in different directions in their lives, the picture might look something like this:[2]



The fundamental characteristic of the relatively unaligned team is wasted energy. Individuals may work extraordinarily hard, but their efforts do not efficiently translate to team effort. By contrast, when a team becomes more aligned, a commonality of direction emerges, and individuals' energies harmonize. There is less wasted energy. In fact, a resonance or synergy develops, like the "coherent" light of a laser rather than the incoherent and scattered light of a light bulb. There is commonality of purpose, a shared vision, and understanding of how to complement one another's efforts. Individuals do not sacrifice their personal interests to the larger team vision; rather, the shared vision becomes an extension of their



personal visions. In fact, alignment is the *necessary condition* before empowering the individual will empower the whole team. Empowering the individual when there is a relatively low level of alignment worsens the chaos and makes managing the team even more difficult:



Jazz musicians know about alignment. There is a phrase in jazz, "being in the groove," that suggests the state when an ensemble "plays as one." These experiences are very difficult to put into words—jazz musicians talk about them in almost mystical terms: "the music flows through you rather than from you." But they are no less tangible for being hard to describe. I have spoken to many managers who have been members of teams that performed at similarly extraordinary levels. They will describe meetings that lasted for hours yet "flew by," not remembering "who said what, but knowing when we had really come to a shared understanding," of "never having to vote—we just got to a point of knowing what we needed to do."

Team learning is the process of aligning and developing the capacity of a team to create the results its members truly desire. It builds on the discipline of developing shared vision. It also builds on personal mastery, for talented teams are made up of talented individuals. But shared vision and talent are not enough. The world is full of teams of talented individuals who share a vision for a

while, yet fail to learn. The great jazz ensemble has talent and a shared vision (even if they don't discuss it), but what really matters is that the musicians know how to *play* together.

There has never been a greater need for mastering team learning in organizations than there is today. Whether they are management teams or product development teams or cross-functional task forces—teams, "people who need one another to act," in the words of Arie de Geus, are becoming the key learning unit in organizations. This is so because almost all important decisions are now made in teams, either directly or through the need for teams to translate individual decisions into action. Individual learning, at some level, is irrelevant for organizational learning. Individuals learn all the time and yet there is no organizational learning. But if teams learn, they become a microcosm for learning throughout the organization. Insights gained are put into action. Skills developed can propagate to other individuals and to other teams (although there is no guarantee that they will propagate). The team's accomplishments can set the tone and establish a standard for learning together for the larger organization.

Within organizations, team learning has three critical dimensions. First, there is the need to think insightfully about complex issues. Here, teams must learn how to tap the potential for many minds to be more intelligent than one mind. While easy to say, there are powerful forces at work in organizations that tend to make the intelligence of the team less than, not greater than, the intelligence of individual team members. Many of these forces are within the direct control of the team members.

Second, there is the need for innovative, coordinated action. The championship sports teams and great jazz ensembles provide metaphors for acting in spontaneous yet coordinated ways. Outstanding teams in organizations develop the same sort of relationship—an "operational trust," where each team member remains conscious of other team members and can be counted on to act in ways that complement each other's actions.

Third, there is the role of team members on other teams. For example, most of the actions of senior teams are actually carried out through other teams. Thus, a learning team continually fosters other learning teams through inculcating the practices and skills of team learning more broadly.

Though it involves individual skills and areas of understanding, team learning is a collective discipline. Thus, it is meaningless to say

that "I," as an individual, am mastering the discipline of team learning, just as it would be meaningless to say that "I am mastering the practice of being a great jazz ensemble."

The discipline of team learning involves mastering the practices of dialogue and discussion, the two distinct ways that teams converse. In dialogue, there is the free and creative exploration of complex and subtle issues, a deep "listening" to one another and suspending of one's own views. By contrast, in discussion different views are presented and defended and there is a search for the best view to support decisions that must be made at this time. Dialogue and discussion are potentially complementary, but most teams lack the ability to distinguish between the two and to move consciously between them.

Team learning also involves learning how to deal creatively with the powerful forces opposing productive dialogue and discussion in working teams. Chief among these are what Chris Argyris calls "defensive routines," habitual ways of interacting that protect us and others from threat or embarrassment, but which also prevent us from learning. For example, faced with conflict, team members frequently either "smooth over" differences or "speak out" in a no-holds-barred, "winner take all" free-for-all of opinion—what my colleague Bill Isaacs calls "the abstraction wars." Yet, the very defensive routines that thwart learning also hold great potential for fostering learning, if we can only learn how to unlock the energy they contain. The inquiry and reflection skills introduced in Chapter 9 begin to release this energy, which can then be focused in dialogue and discussion.

Systems thinking is especially prone to evoking defensiveness because of its central message, that our actions create our reality. Thus, a team may resist seeing important problems more systemically. To do so would imply that the problems arise from our own policies and strategies—that is "from us"—rather than from forces outside our control. I have seen many situations where teams will say "we're already thinking systemically," or espouse a systems view, then do nothing to put it into practice, or simply hold steadfastly to the view that "there's nothing we can do except cope with these problems." All of these strategies succeed in avoiding serious examination of how their own actions may be creating the very problems with which they try so hard to cope. More than other analytic frameworks, systems thinking requires mature teams capable of inquiring into complex, conflictual issues.

Lastly, the discipline of team learning, like any discipline, requires practice. Yet, this is exactly what teams in modern organizations lack. Imagine trying to build a great theater ensemble or a great symphony orchestra without rehearsal. Imagine a championship sports team without practice. In fact, the process whereby such teams learn is through continual movement between practice and performance, practice, performance, practice again, perform again. We are at the very beginning of learning how to create analogous opportunities for practice in management teams—some examples are given below.

Despite its importance, team learning remains poorly understood. Until we can describe the phenomenon better, it will remain mysterious. Until we have some theory of what happens when teams learn (as opposed to individuals in teams learning), we will be unable to distinguish group intelligence from "groupthink," when individuals succumb to group pressures for conformity. Until there are reliable methods for building teams that can learn together, its occurrence will remain a product of happenstance. This is why mastering team learning will be a critical step in building learning organizations.

THE DISCIPLINE OF TEAM LEARNING

DIALOGUE AND DISCUSSION[3]

In a remarkable book, *Physics and Beyond: Encounters and Conversations,* Werner Heisenberg (formulator of the famous "Uncertainty Principle" in modern physics) argues that "Science is rooted in conversations. The cooperation of different people may culminate in scientific results of the utmost importance." Heisenberg then recalls a lifetime of conversations with Pauli, Einstein, Bohr, and the other great figures who uprooted and reshaped traditional physics in the first half of this century. These conversations, which Heisenberg says "had a lasting effect on my thinking," literally gave birth to many of the theories for which these men eventually became famous. Heisenberg's conversations, recalled in vivid detail and emotion, illustrate the staggering potential of collaborative learning—that collectively, we can be more insightful, more intelligent than we can possibly be individually.

The IQ of the team can, potentially, be much greater than the IQ of the individuals.

Given Heisenberg's reflections, it is perhaps not surprising that a significant contributor to the emerging discipline of team learning was a contemporary physicist, the late David Bohm. Bohm, a leading quantum theorist, worked to develop a theory and method of "dialogue," when a group "becomes open to the flow of a larger intelligence." Dialogue, it turns out, is a very old idea revered by the ancient Greeks and practiced by many "primitive" societies such as the American Indians. Yet, it is all but lost to the modern world. All of us have had some taste of dialogue—in special conversations that begin to have a "life of their own," taking us in directions we could never have imagined or planned in advance. But these experiences come rarely, a product of circumstance rather than systematic effort and disciplined practice.

Bohm's later work on the theory and practice of dialogue represents a unique synthesis of the two major intellectual currents underlying the disciplines discussed in the preceding chapters: the systems or holistic view of nature, and the interactions between our thinking and internal models and our perceptions and actions. "Quantum theory," said Bohm, "implies that the universe is basically an indivisible whole, even though on the larger scale level it may be represented approximately as divisible into separately existing parts. In particular, this means that, at a quantum theoretical level of accuracy, the observing instrument and the observed object participate in each other in an irreducible way. At this level perception and action therefore cannot be separated."

This is reminiscent of some of the key features of systems thinking, which calls attention to how what is happening is often the consequence of our own actions as guided by our perceptions. Similar questions are raised by the theory of relativity, as Bohm suggested in a 1965 book, *The Special Theory of Relativity*[4] In this book, Bohm started to connect the systems perspective and mental models more explicitly. In particular, he argued that the purpose of science was not the "accumulation of knowledge" (since, after all, all scientific theories are eventually proved false) but rather the creation of "mental maps" that guide and shape our perception and action, bringing about a constant "mutual participation between nature and consciousness."

However, Bohm's most distinctive contribution, one which leads to unique insights into team learning, stems from seeing thought as

"largely as collective phenomenon." Bohm became interested fairly early in the analogy between the collective properties of particles (for example, the system wide movements of an "electron sea") and the way in which our thought works. Later, he saw that this sort of analogy could throw an important light on the general "counterproductiveness of thought, as can be observed in almost every phase of life. "Our thought is incoherent," Bohm asserts, "and the resulting counterproductiveness lies at the root of the world's problems." But, Bohm says, since thought is to a large degree collective, we cannot just improve thought individually. "As with electrons, we must look on thought as a systemic phenomenon arising from how we interact and discourse with one another."

There are two primary types of discourse, dialogue and discussion. Both are important to a team capable of continual generative learning, but their power lies in their synergy, which is not likely to be present when the distinctions between them are not appreciated.

Bohm points out that the word "discussion" has the same root as percussion and concussion. It suggests something like a "ping-pong game where we are hitting the ball back and forth between us." In such a game the subject of common interest may be analyzed and dissected from many points of view provided by those who take part. Clearly, this can be useful. Yet, the purpose of a game is normally "to win" and in this case winning means to have one's views accepted by the group. You might occasionally accept part of another person's view in order to strengthen your own, but you fundamentally want your view to prevail." A sustained emphasis on winning is not compatible, however, with giving first priority to coherence and truth. Bohm suggests that what is needed to bring about such a change of priorities is "dialogue," which is a different mode of communication.

By contrast with discussion, the word "dialogue" comes from the Greek *dialogos*. *Dia* means through. *Logos* means the word, or more broadly, the meaning. Bohm suggests that the original meaning of dialogue was the "meaning passing or moving through . . . a free flow of meaning between people, in the sense of a stream that flows between two banks."[5] In dialogue, Bohm contends, a group accesses a larger "pool of common meaning," which cannot be accessed individually. "The whole organizes the parts," rather than trying to pull the parts into a whole.

The purpose of a dialogue is to go beyond any one individual's understanding. "We are not trying to win in a dialogue. We all win

if we are doing it right." In dialogue, individuals gain insights that simply could not be achieved individually. "A new kind of mind begins to come into being which is based on the development of a common meaning . . . People are no longer primarily in opposition, nor can they said to be interacting, rather they are participating in this pool of common meaning, which is capable of constant development and change."

In dialogue, a group explores complex difficult issues from many points of view. Individuals suspend their assumptions but they communicate their assumptions freely. The result is a free exploration that brings to the surface the full depth of people's experience and thought, and yet can move beyond their individual views.

"The purpose of dialogue," Bohm suggests, "is to reveal the incoherence in our thought." There are three types of incoherence. "Thought denies that it is participative." Thought stops tracking reality and "just goes, like a program." And thought establishes its own standard of reference for fixing problems, problems which it contributed to creating in the first place.

To illustrate, consider prejudice. Once a person begins to accept a stereotype of a particular group, that "thought" becomes an active agent, "participating" in shaping how he or she interacts with another person who falls into that stereotyped class. In turn, the tone of their interaction influences the other person's behavior. The prejudiced person can't see how his prejudice shapes what he "sees" and how he acts. In some sense, if he did, he would no longer be prejudiced. To operate, the "thought" of prejudice must remain hidden to its holder.

"Thought *presents* itself (stands in front) of us and pretends that it does not *represent*." We are like actors who forget they are playing a role. We become trapped in the theater of our thoughts (the words "theater" and "theory" have the same root—*theoria*—"to look at"). This is when thought starts, in Bohm's words, to become "incoherent." "Reality may change but the theater continues." We operate in the theater, defining problems, taking actions, "solving problems," losing touch with the larger reality from which the theater is generated.

Dialogue is a way of helping people to "see the representative and participatory nature of thought [and] . . . to become more sensitive to and make it safe to acknowledge the incoherence in our thought." *In dialogue people become observers of their own thinking.*

What they observe is that their thinking is active. For example, when a conflict surfaces in a dialogue people are likely to realize that there is a tension, but the tension arises, literally, from our thoughts. People will say, "It is our thoughts and the way we hold on to them that are in conflict, not us." Once people see the participatory nature of their thought, they begin to separate themselves from their thought. They begin to take a more creative, less reactive, stance toward their thought.

People in dialogue also begin to observe the collective nature of thought. Bohm says that "Most thought is collective in origin. Each individual does something with it," but originates collectively by and large. "Language, for example, is entirely collective," says Bohm. "And without language, thought as we know it couldn't be there." Most of the assumptions we hold were acquired from the pool of culturally acceptable assumptions. Few of us learn truly to "think for ourselves." He or she who does is sure, as Emerson said long ago, "to be misunderstood."

They also begin to observe the difference between "thinking" as an ongoing process as distinct from "thoughts," the results of that process. This is very important, according to Bohm, to begin correcting the incoherence in our thinking.

If collective thinking is an ongoing stream, "thoughts" are like leaves floating on the surface that wash up on the banks. We gather in the leaves, which we experience as "thoughts." We misperceive the thoughts as our own, because we fail to see the stream of collective thinking from which they arise.

In dialogue, people begin to see the stream that flows between the banks. They begin to "participate in this pool of common meaning, which is capable of constant development and change." Bohm believes that our normal processes of thought are like a "coarse net that gathers in only the coarsest elements of the stream. In dialogue, a "kind of sensitivity" develops that goes beyond what is familiar, what we normally recognize as thinking. This sensitivity is "a fine net" capable of gathering in the subtle meanings in the flow of thinking. Bohm believes this sensitivity lies at the root of real intelligence.

So, according to Bohm, collective learning is not only possible but vital to realize the potentials of human intelligence. "Through dialogue people can help each other to become aware of the incoherence in each other's thoughts, and in this way the collective thought becomes more and more coherent [from the Latin *cohaerere*—"hanging together"]. It is difficult to give a simple defi-

nition of coherence, beyond saying that one may sense it as order, consistency, beauty, or harmony.

The main point, however, is not to strive for some abstract ideal of coherence. It is rather for all the participants to work together to become sensitive to all the possible forms of *incoherence*. Incoherence may be indicated by contradictions and confusion but more basically it is seen by the fact that our thinking is producing consequences that we don't really want.

Bohm identifies three basic conditions necessary for dialogue:

1. all participants must "suspend" their assumptions, literally to hold them "as if suspended before us";
2. all participants must regard one another as colleagues;
3. there must be a "facilitator" who "holds the context" of dialogue.

These conditions contribute to allowing the "free flow of meaning" to pass through a group, by diminishing resistance to the flow. Just as resistance in an electrical circuit causes the flow of current to generate heat (wasted energy), so does the normal functioning of a group dissipate energy. In dialogue there is "cool energy, like a superconductor." "Hot topics," subjects that would otherwise become sources of emotional discord and fractiousness become discussable. Even more, they become windows to deeper insights.

Suspending Assumptions. To "suspend" one's assumptions means to hold them, "as it were, 'hanging in front of you,' constantly accessible to questioning and observation." This does not mean throwing out our assumptions, suppressing them, or avoiding their expression. Nor does it say that having opinions is "bad," or that we should eliminate subjectivism. Rather, it means being aware of our assumptions and holding them up for examination. This cannot be done if we are defending our opinions. Nor, can it be done if we are unaware of our assumptions, or unaware that our views are based on *assumptions*, rather than incontrovertible fact.

Bohm argues that once an individual "digs in his or her heels" and decides "this is the way it is," the flow of dialogue is blocked. This requires operating on the "knife edge," as Bohm puts it, because "the mind wants to keep moving away from suspending assumptions . . . to adopting non-negotiable and rigid opinions which we then feel compelled to defend."

For example, in a recent dialogue session involving a top management team of a highly successful technology company (reported in detail below), people perceived a deep "split" in the organization between R&D and everyone else, a split due to R&D's exalted role at the company. This split had its roots in the firm's thirty year history of innovation: they literally pioneered several dramatic new products that in turn became industry standards. Product innovation was the cornerstone of the firm's reputation in the marketplace. Thus, no one felt able to talk about the split, even though it was creating many problems. To do so might have challenged the long-cherished value of technology leadership and of giving highly creative engineers the autonomy to pursue their product visions. Moreover, the number-two person in R&D was in the meeting.

When the condition of suspending all assumptions was discussed, the head of marketing asked, "*All* assumptions?" When he received an affirmative answer, he looked perplexed. Later, as the session continued, he acknowledged that he held the assumption that R&D saw itself as the "keeper of the flame" for the organization, and that he further assumed that this made them unapproachable regarding market information that might influence product development. This led to the R&D manager responding that he too assumed that others saw him in this light, and that, to everyone's surprise, he felt that this assumption limited his and the R&D organization's effectiveness. Both shared these assumptions *as assumptions*, not proven fact. As a result, the ensuing dialogue opened up into a dramatic exploration of views that was unprecedented in its candor and its strategy implications.

Suspending assumptions is a lot like seeing "leaps of abstraction" and "inquiring into the reasoning behind the abstraction," basic reflection and inquiry skills developed in Chapter 9, "Mental Models." But in dialogue, suspending assumptions must be done collectively. The team's discipline of holding assumptions suspended allowed the team members to see their own assumptions clearly because they could be held up and contrasted with each others' assumptions. Suspending assumptions is difficult, Bohm maintains, because of "the very nature of thought. Thought continually deludes us into a view that 'this is the way it is.'" The discipline of suspending assumptions is an antidote to that delusion.

Seeing Each Other as Colleagues. Dialogue can occur only when a group of people see each other as colleagues in mutual quest for

deeper insight and clarity. Thinking of one other as colleagues is important because thought is participative. The conscious act of thinking of one other as colleagues contributes toward interacting as colleagues. This may sound simple, but it can make a profound difference.

Seeing each other as colleagues is critical to establish a positive tone and to offset the vulnerability that dialogue brings. In dialogue people actually feel as if they are building something, a new deeper understanding. Seeing each other as colleagues and friends, while it may sound simple, proves to be extremely important. We talk differently with friends from the way we do with people who are not friends. Interestingly, as dialogue develops, team members will find this feeling of friendship developing even towards others with whom they do not have much in common. What is necessary going in is the *willingness* to consider each other as colleagues. In addition, there is a certain vulnerability to holding assumptions in suspension. Treating each other as colleagues acknowledges the mutual risk and establishes the sense of safety in facing the risk.

Colleagueship does not mean that you need to agree or share the same views. On the contrary, the real power of seeing each other as colleagues comes into play when there are differences of view. It is easy to feel collegial when everyone agrees. When there are significant disagreements, it is more difficult. But the payoff is also much greater. Choosing to view adversaries as "colleagues with different views" has the greatest benefits.

Bohm expressed doubts about the possibility of dialogue in organizations because of the condition of colleagueship: "Hierarchy is antithetical to dialogue, and it is difficult to escape hierarchy in organizations." He asks: "Can those in authority really 'level' with those in subordinate positions?" Such questions have several operational implications for organizational teams. First, everyone involved must truly *want* the benefits of dialogue more than he wants to hold onto his privileges of rank. If one person is used to having his view prevail because he is the most senior person, then that privilege must be surrendered in dialogue. If one person is used to withholding his views because he is more junior, then that security of nondisclosure must also be surrendered. Fear and judgment must give way. Dialogue is playful; it requires the willingness to play with new ideas, to examine them and test them. As soon as we become overly concerned with "who said what," or "not saying something stupid," the playfulness will evaporate.

These conditions cannot be taken lightly, but we have found many organizational teams consistently up to the challenge if everyone knows what will be expected of him in advance. Deep down, there is a longing for dialogue, especially when focused on issues of the utmost importance to us. But that doesn't mean dialogue is always possible in organizations. If all participants are not willing to live by the conditions of suspending assumptions and colleagueship, dialogue will not be possible.

A Facilitator Who "Holds the Context" of Dialogue. In the absence of a skilled facilitator, our habits of thought continually pull us toward discussion and away from dialogue. This is especially true in the early stages of developing dialogue as a team discipline. We take what "presents itself in our thoughts as literal, rather than as a representation. We believe in our own views and want them to prevail. We are worried about suspending our assumptions publicly. We may even be uncertain if it is psychologically safe to suspend "all assumptions"—"After all, aren't there some assumptions that I must hold on to or lose my sense of identity?"

The facilitator of a dialogue session carries out many of the basic duties of a good "process facilitator." These functions include helping people maintain ownership of the process and the outcomes—we are responsible for what is happening. If people start to harbor reservations that "so-and-so" won't let us talk about this, that constitutes an assumption not held in suspension. The facilitator also must keep the dialogue moving. If any one individual should start to divert the process to a discussion when a discussion is not actually what is called for, this needs to be identified, and the group asked whether the conditions for dialogue are continuing to be met. The facilitator always walks a careful line between being knowledgeable and helpful in the process at hand, yet not taking on the "expert" or "doctor" mantle that would shift attention away from the members of the team, and their own ideas and responsibility.[6]

But, in dialogue the facilitator also does something more. His understanding of dialogue allows him to influence the flow of development simply through participating. For example, after someone has made an observation, the facilitator may say, "But the opposite may also be true." Beyond such reminders of the conditions for dialogue, the facilitator's participation demonstrates dialogue. The artistry of dialogue lies in experiencing the flow of meaning and seeing the one thing that needs to be said now. Like the Quakers, who enjoin members to say not simply whatever pops

into their heads but only those thoughts that are compelling (and which cause the speaker to *quake* from the need to speak them), the facilitator says only what is needed at each point in time. This deepens others' appreciation of dialogue more than any abstract explanation can ever do.

As teams develop experience and skill in dialogue, the role of the facilitator becomes less crucial and he or she can gradually become just one of the participants. Dialogue emerges from the "leaderless" group once the team members have developed their skill and understanding. In societies where dialogue is an ongoing discipline, there usually are no appointed facilitators. For example, many American Indian tribes cultivated dialogue to a high art without formal facilitators. Shamans and other wise men had special roles, but the group was capable of entering a dialogue on its own.

Balancing Dialogue and Discussion. In team learning, discussion is the necessary counterpart of dialogue. In a discussion, different views are presented and defended, and as explained earlier this may provide a useful analysis of the whole situation. In dialogue, different views are presented as a means toward discovering a new view. In a discussion, decisions are made. In a dialogue, complex issues are explored. When a team must reach agreement and decisions must be taken, some discussion is needed. On the basis of a commonly agreed-upon analysis, alternative views need to be weighed and a preferred view selected (which may be one of the original alternatives or a new view that emerges from the discussion). When they are productive, discussions converge on a conclusion or course of action. On the other hand, dialogues are diverging; they do not seek agreement, but a richer grasp of complex issues. Both dialogue and discussion can lead to new courses of action; but actions are often the focus of discussion, whereas new actions emerge as a by-product of dialogue.

A learning team masters movement back and forth between dialogue and discussion. The ground rules are different. The goals are different. Failing to distinguish them, teams usually have neither dialogue nor productive discussions.

A unique relationship develops among team members who enter into dialogue regularly. They develop a deep trust that cannot help but carry over to discussions. They develop a richer understanding of the uniqueness of each person's point of view. Moreover, they experience how larger understandings emerge by holding one's own point of view "gently." They learn to master the art of holding a

position, rather than being "held by their positions." When it is appropriate to defend a point of view, they do it more gracefully and with less rigidity, that is without putting "winning" as a first priority.

Moreover, to a large degree, the skills that allow dialogue are identical to the skills that can make discussions productive rather than destructive. These are the skills of inquiry and reflection, originally discussed in Chapter 9, "Mental Models." In fact, one of the reasons that dialogue is so important is that it offers a safe environment for honing these skills and for discovering the profound group learning that they can lead to.

Reflection, Inquiry, and Dialogue. In David Bohm's thinking we hear deep echoes of the "action science" approach discussed in Chapter 9—the importance of making one's views open to influence; and the problem of confusing our mental models with reality. What makes Bohm's work distinctive is that he is articulating a "new" vision of what can happen in a group that transcends the disabilities identified by the action scientists. Moreover, Bohm's dialogue is a *team discipline.* It cannot be achieved individually.

Part of the vision of dialogue is the assumption of a "larger pool of meaning" accessible only to a group. This idea, while it may appear radical at first, has deep intuitive appeal to managers who have long cultivated the subtler aspects of collective inquiry and consensus building.

Such managers learn early on to distinguish two types of consensus: a "focusing down" type of consensus that seeks the common denominator in multiple individual views, and an "opening up" type of consensus that seeks a picture larger than any one person's point of view. The first type of consensus builds from the "content" of our individual views—discovering what part of my view is shared by you and the others. This is our "common ground," upon which we can all agree.

The second type of consensus builds more from the idea that we each have a "view," a way of looking at reality. Each person's view is a unique perspective on a larger reality. If I can "look out" through your view and you through mine, we will each see something we might not have seen alone.

If dialogue articulates a unique vision of team learning, reflection and inquiry skills may prove essential to realizing that vision. Just as personal vision provides a foundation for building shared vision, so too do reflection and inquiry skills provide a foundation

for dialogue and discussion. Dialogue that is *grounded in* reflection and inquiry skills is likely to be more reliable and less dependent on particulars of circumstance, such as the chemistry among team members.

DEALING WITH "CURRENT REALITY": CONFLICT AND DEFENSIVE ROUTINES

Contrary to popular myth, great teams are not characterized by an absence of conflict. On the contrary, in my experience, one of the most reliable indicators of a team that is continually learning is the visible conflict of ideas. In great teams conflict becomes productive. There may, and often will, be conflict around the vision. In fact, the essence of the "visioning" process lies in the gradual emergence of a shared vision from different personal visions. Even when people share a common vision, they may have many different ideas about how to achieve that vision. The loftier the vision, the more uncertain we are how it is to be achieved. The free flow of conflicting ideas is critical for creative thinking, for discovering new solutions no one individual would have come to on his own. Conflict becomes, in effect, part of the ongoing dialogue.

On the other hand, in mediocre teams, one of two conditions usually surrounds conflict. Either, there is an appearance of no conflict on the surface, or there is rigid polarization. In the "smooth surface" teams, members believe that they must suppress their conflicting views in order to maintain the team—if each person spoke her or his mind, the team would be torn apart by irreconcilable differences. The polarized team is one in which managers "speak out," but conflicting views are deeply entrenched Everyone knows where everyone else stands, and there is little movement.

For more than forty years, Chris Argyris and his colleagues have studied the dilemma of why bright, capable managers often fail to learn effectively in management teams. Their work suggests that the difference between great teams and mediocre teams lies in how they face conflict and deal with the defensiveness that invariably surrounds conflict. "We are programmed to create defensive routines," says Argyris, "and cover them up with further defensive routines . . . This programming occurs early in life."[7]

Defensive routines, as noted in Chapter 9, "Mental Models," are entrenched habits we use to protect ourselves from the embarrassment and threat that come with exposing our thinking. Defensive routines form a sort of protective shell around our deepest assumptions, defending us against pain, but also keeping us from learning about the causes of the pain. The source of defensive routines, according to Argyris, is not belief in our views or desire to preserve social relations, as we might tell ourselves, but fear of exposing the thinking that lies behind our views. "Defensive reasoning," says Argyris ". . . protects us from learning about the validity of our reasoning."[8] For most of us, exposing our reasoning is threatening because we are afraid that people will find errors in it. The perceived threat from exposing our thinking starts early in life and, for most of us, is steadily reinforced in school—remember the trauma of being called on and not having the "right answer"—and later in work.

Defensive routines are so diverse and so commonplace, they usually go unnoticed. We say, "That's a very interesting idea," when we have no intention of taking the idea seriously. We deliberately confront someone to squash an idea, to avoid having to consider it. Or, in the guise of being helpful, we shelter someone from criticism, but also shelter ourselves from engaging difficult issues. When a difficult issue comes up, we change the subject—ostensibly out of respect for the "manners" of good behavior.

One forceful CEO recently lamented to me about the absence of "real leaders" in his organization. He felt his company was full of compliant people, not committed visionaries. This was especially frustrating to a man who regards himself as a skilled communicator and risk taker. In fact, he is so brilliant at articulating *his* vision that he intimidates everyone around him. Consequently, his views rarely get challenged publicly. People have learned not to express their own views and visions around him. While he would not see his own forcefulness as a defensive strategy, if he looked carefully, he would see that it functions in exactly that way.

The most effective defensive routines, like that of the forceful CEO, are those we cannot see. Ostensibly, the CEO hoped to provoke others into expressing their thoughts. But his overbearing behavior reliably prevented them from doing so, thereby protecting his views from challenge. If expressed as a conscious strategy, the defensiveness is transparent: "Keep people on the defensive through intimidation, so they won't confront my thinking." If the CEO saw his strategy presented in such bald terms, he would almost certainly disavow it. The fact that it remains hidden keeps it operative.