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Management Learning Organizations

Enhancing Business Education for the 21st Century

Abstract

Although the topic of organizational learning is still in the early stages of development, there are two interrelated issues that guide most discussions in the literature. How is knowledge acquired and used by individuals and organizations? How can the speed at which knowledge is acquired and used be increased? This article resolves these key questions in terms of describing, controlling and improving *learning processes* within self-designed subunits and across organizational networks. Such an approach can then use the extensive literature on quality management and organizational development as the basis for building and improving learning organizations. This article then describes how an entire incoming class of 250 full-time MBA students was formed into 18 self-designed learning organizations for the purpose of speeding up and improving their acquisition and use of business knowledge. Last, the conclusion outlines how all other types of organization can also form self-designed global learning networks in order to improve their rate of acquiring and using strategic knowledge.

Many academics and practitioners are currently optimistic about the prospects for organizational learning—as a theoretical concept and a social technology. Since this timely convergence of active interest rarely happens across these two (mostly separate) communities, it seems important to seize the opportunity to produce useful knowledge for organizations.

For practitioners who are always on the lookout for additional ways to improve corporate

performance, the learning route offers a new approach to continuous improvement and knowledge utilization. As Stata (1989: 64), chairman of Analog Devices, has proposed: 'the rate at which individuals and organizations learn may become the only sustainable competitive advantage'. Or as Kiernan (1993: 9), chairman of the INNOVEST Group International, has proclaimed: 'Propelled by the competitive exigencies of speed, global responsiveness, and the need to innovate constantly or perish, and enabled by the new information technologies, learning will become the only viable alternative to corporate extinction.' Such assessments should be reason enough for practitioners to increase their interest in learning.

For academics, it is easy to suggest many reasons why organizational learning is now in vogue. But one underlying factor must be that learning is at the very heart of university life: its core competency. Perhaps the topic was 'too close to home' in the past, when interest in learning was mostly left to experimental psychologists and educational administrators. Now, however, both individual and organizational learning are being viewed as important avenues to reframe most other topics in the social and organizational sciences (see the special journal issues on organizational learning: Cohen and Sproull, 1991; *Organizational Dynamics*, 1993).

Yet there is a special place where the learning needs of practitioners and academics can be addressed together over an extended period of time—the business educational programs that are purposefully designed to prepare the future executives of the world. A wonderful opportunity arose for the University of Pittsburgh's full-time Masters in Business Administration (MBA) program: a major curriculum revision included the formation of learning organizations, which we called MBA Learning Organizations, Management Learning Organizations, or simply MLOs. All 250 incoming students had the opportunity to spend their entire 11-month MBA program in *permanent* MLOs, varying in size from 12 to 14 members (resulting in 18 MLOs in total). Several required courses used these MLOs as the basis for course assignments, projects, cases and exercises (and in many cases, one grade was assigned to all students in the same MLO in order to reinforce *organizational* performance). Moreover, a Student Learning Network (SLN), consisting of one representative from each MLO, became responsible for (1) addressing the dynamic learning problems that arose throughout the MBA program and (2) transferring what they learned across all 18 MLOs—similar to a global network or global learning organization (Jarvenpaa and Ives, 1994; Kilmann and Kilmann, 1991; Marquardt and Reynolds, 1994; Snow et al., 1992).

This paper first reviews the theories and concepts of organizational learning that were used to define and build the MLOs. Then the story is told of how these MLOs were initially formed during a 4-day

workshop prior to the start of the MBA program, some of the obstacles that the students encountered in their MLO course projects and assignments, how the SLN helped resolve these various learning problems, and what has been learned from this experience to date. Last, this paper suggests how this intense experience in forming and managing MLOs can serve as a useful prototype for how all other types of organization can enable their members to improve their learning processes—to survive and succeed in a turbulent world.

Theories and Concepts of Organizational Learning

Numerous authors have offered definitions of organizational learning that are intended to guide the practice of building learning organizations. Perhaps the most cited work is Peter Senge's *The Fifth Discipline* (1990), which is often credited with stimulating the recent surge of interest on the topic. Senge (p. 1) defines learning organizations as: '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'. While appreciating the inspirational quality of Senge's definition, Garvin (1993) draws attention to its vagueness and suggests that we must be much more specific about what organizational learning *means*, how to *manage* it and how to *measure* it—the three Ms—if managers are to derive value from this new approach. Garvin (1993: 80) then provides his own working definition: 'A learning organization is an organization skilled at creating, acquiring, and transferring knowledge, and at modifying its behavior to reflect new knowledge and insights.'

Garvin's perspective thus highlights what organizational learning is intended to produce (i.e. better knowledge for better action), which should help operationalize the concept for managers who wish to build learning organizations. Argyris and Schon (1978) and other works by Argyris (1990; 1991; 1993), have already developed this action-science, action-research or knowledge-for-action perspective of organizational learning. Moreover, a related approach has also been captured by Nonaka's (1991: 96) notion of the *knowledge-creating company*, which he introduces in the following manner: 'When markets shift, technologies proliferate, competitors multiply, and products become obsolete almost overnight, successful companies are those that consistently create new knowledge, disseminate it widely throughout the organization, and quickly embody it in new technologies and products.'

Nonaka (1991) suggests that knowledge creation involves transforming what is currently *implicit* (e.g. an idea that hasn't been expressed or shared) into something *explicit* (i.e. expressing, documenting and sharing it widely throughout an organization). For

Nonaka, ongoing cycles of shifting back and forth between implicit and explicit knowledge (across individuals, work units and organizations) is what the acquisition and use of knowledge is all about. Knowledge is thus created by restructuring previous (implicit) knowledge through extensive cross-boundary (cross-disciplinary) interaction.

But what exactly is knowledge? Anderson (1983) examines this age-old question by refining this key distinction: *declarative knowledge* is a conceptual understanding of systems, dynamics, relationships, events and facts (as in knowing why... knowing about... or knowing that...), regardless of whether one can do anything with this knowledge. *Procedural knowledge*, however, is having the skill to do something, mentally and/or physically (as in knowing how...), regardless of whether one consciously understands what one is doing. Naturally, combining declarative and procedural knowledge creates the very best of both worlds: providing the 'whys' behind the 'hows' for informed decision-making, action-taking and collective learning—across all boundaries. Thus, individuals and organizations can strive to acquire and use declarative and procedural knowledge, to create better technologies (and also design better organizations), to deliver better products and services to their customers (and other key stakeholders)—to survive and succeed.

But where is knowledge located? Certainly, organizations make some of their declarative and procedural knowledge explicit and then store it electronically (e.g. in databases) or on paper (e.g. in official documents on operating routines and administrative procedures). But it should be evident that most of the knowledge acquired and used for organizational decisions and actions is located in *the minds of individuals* (Kim, 1993). In particular, the literature on 'schema theory' suggests that every person's knowledge is stored as mental categories and relationships among these categories (see Markus and Zajonc, 1985). And two types of schema can be defined: *declarative schemas* that are networks of meaning for understanding 'the whys' and *procedural schemas* that are networks for action for performing 'the hows'. Moreover, there are several ways of representing changes in these schemas: (1) assimilating data within existing schemas—in order to confirm knowledge or gain confidence; (2) gradually restructuring schemas—by adding new categories or changing some relationships within existing schemas; and (3) radically restructuring schemas—by changing whole schemas and their relationships with other schemas (Bartunek and Moch, 1987; Vosniadou and Brewer, 1987). To build learning organizations, therefore, we must be able to use—and change—the declarative and procedural schemas in every person's mind.

But where is the mind located? The debate still rages whether the brain contains all of a person's mind and consciousness (Horgan, 1994) or if

the brain is also a conduit for the collective mind that exists 'out there' in the universe (Grof, 1993). Nevertheless, explorations with the latest technologies reveal that the brain's organic structures and biochemical networks provide the storage for long-term and short-term memory of both declarative and procedural knowledge (Petri and Mishkin, 1994). Specifically, the cerebral cortex and cerebellum store long-term (implicit) memory in *automatic* neural networks. The hippocampus and surrounding cortical structures use *conscious* short-term (explicit) memory to (1) retrieve schemas from long-term memory; (2) use these schemas to collect information, make inferences or take action; and (3) gradually or radically restructure these schemas before they are stored in long-term memory (Leahey and Harris, 1993; Squire 1987, 1992).

Without delving further into this exciting new research on learning, knowledge and memory, suffice it to say that the effective functioning of global network organizations parallels the dynamic functioning of neural networks in the brain (and networks of meaning and action in the mind). To be successful, therefore, a global network must operate as a *collective brain* that has fluid access to all its declarative and procedural schemas—and can readily restructure its schemas gradually and radically as needed or desired. Developing such a collective brain/mind of *shared schemas* thus represents the epitome of acquiring and using knowledge across all boundaries. Keep in mind, however, that developing shared schemas (from individual schemas) requires extensive interaction among organizational members (Kim, 1993), intensive reflection or 'mental dialogue' within each individual (Harris, 1994) and formal systems and adaptive cultures to store this shared knowledge into organizational memory (Walsh and Ungson, 1991).

Organizational Learning via Learning Processes

Appreciating the mental and neurological processes that enable individuals to learn (via schemas and neural networks) makes it easier to recognize the corresponding *organizational processes* by which knowledge is acquired, distributed, interpreted and used (e.g. Huber, 1991). After a review of the literature, Fiol and Lyles (1985; 803) provided this process definition: 'Organizational learning means the process of improving actions through better knowledge and understanding.' This process view of organizational learning was also taken several years earlier by Duncan and Weiss (1979). Moreover, in what could be the earliest article that focused exclusively on organizational learning, Cangelosi and Dill (1965) built their work on the 'learning process' perspective first mentioned by Simon (1953) and then pursued by Cyert and March (1963) and Levitt and March (1988).

Seeking to integrate the foregoing perspectives, I find that knowledge (declarative and procedural schemas of both individuals and organizations) and the learning process (how schemas are gradually

and radically improved) provide useful ways to operationalize the essence of organizational learning. I offer the following definition as a basis for building learning organizations: a learning organization describes, controls and improves the processes by which knowledge is created, acquired, distributed, interpreted, stored, retrieved and used for the purpose of achieving long-term organizational success.

This definition has numerous advantages in comparison with the earlier ones cited. In particular, the theme of describing, controlling and improving processes is derived from the literature on quality management (e.g. Deming, 1986; Harrington, 1995; Juran, 1991). In fact, there is an extensive literature and specific techniques from total quality management (TQM) that can easily be transferred to organizational learning. TQM, therefore, provides for organizational learning what Garvin (1993) recommends: (1) operational definitions that give practical *meaning* to each step of process management; (2) specific guidelines, procedures and tools for *managing* processes effectively; and (3) well-developed metrics for *measuring* process improvements (e.g. Ernst & Young, 1992; Harrington, 1995; Imai, 1986; Ishikawa, 1986; Juran, 1988; Montgomery, 1991). Moreover, business process re-engineering (BPR) also uses a process approach for achieving its principal objectives: quantum improvements in cycle times, process costs and customer satisfaction by radically restructuring work units around horizontal business processes (enabled by information technology). And the recent literature on BPR also operationalizes what re-engineering means, how to manage it and how to measure results (e.g. Davenport, 1993; Hall et al., 1993; Hammer and Champy, 1993; Keen, 1991; Tapscott and Caston, 1993; Teng et al., 1994). Coincidentally, or not, BPR's objective of radically restructuring processes seems analogous to radically restructuring schemas (creating fundamentally different categories with new interrelationships)—and perhaps BPR can't succeed *without* restructuring schemas.

Ironically, knowledge development has often been described as the process of using analogies, metaphors, homomorphs and isomorphs in order to transfer what is known from a more developed area of knowledge to one that is less known and less familiar (Beer, 1984; Nonaka, 1991; Tsoukas, 1991). Thus, analogizing the process view of *quality* to a process view of *knowledge* provides the necessary foundation for building learning organizations.

Specifically, individuals and work units can learn to describe the processes by which they learn (i.e. how they acquire and use knowledge)—especially focusing on those key areas that contribute most to the strategic goals of their organization (e.g. the critical success factors). Naturally, this pursuit of both declarative and procedural knowledge may require work units to interact with key stakeholders *outside* the organization (e.g. external customers and suppliers, com-

petitors, government agencies, communities, families and so on) and *inside* the organization (e.g. one another, internal customers and suppliers, managers and other work units). But it is precisely these extensive interactions across organizational boundaries (and intensive reflections within individuals) that enable shared schemas to coalesce in the first place and then be gradually and radically improved thereafter. Consider how work units can describe, control and improve their learning processes—thereby making their *implicit* declarative and procedural knowledge more *explicit* and, hence, available for collective action.

With regard to *describing learning processes*, imagine asking work units throughout an organization to flowchart (1) how they learn (i.e. acquire knowledge) about their customers' needs; (2) apply what they learn (i.e. use knowledge) to satisfy those needs; and (3) how they can identify and remove 'description barriers': not knowing or not agreeing who their customers really are; making incorrect assumptions regarding how to acquire valid and useful knowledge about their customers; and not agreeing on which learning processes must be followed by all members at all times (Harrington, 1995). Thus by drawing flowcharts, members would be making their core learning processes *explicit* (i.e. the particular steps by which they acquire and use declarative and procedural knowledge).

With regard to *controlling learning processes*, imagine asking work units to assess (1) how regularly and consistently they actually follow their processes for learning about customer needs; (2) how regularly and consistently they use what they learn to satisfy customer needs; and (3) how they identify and remove the 'special causes' which prevent these work units from performing their learning processes regularly and consistently (Deming, 1986).

With regard to *improving learning processes*, imagine asking work units to consider (1) how they can acquire knowledge *better and faster* than before; (2) how they can use this knowledge *better and faster* in order to radically reduce the time (and costs) needed to satisfy their present and future customers; and (3) how they can identify and remove the 'common causes' which prevent these work units from redesigning their learning processes—by gradually or radically changing the systems and resources that constrain these processes (Deming, 1986).

Besides using the explicit knowledge (procedural and declarative) of quality management in order to help operationalize organizational learning, the theories and methods of organizational change provide an additional body of knowledge to help build learning organizations. Several researchers, for example, are studying how to create *effective dialogue* within self-designed, self-organizing, self-managed, empowered teams—as the basic foundation for individual and organizational

learning (Isaacs, 1993; Schein, 1993; Senge, 1990; Watkins and Marsick, 1993). This recent focus on effective dialogue seems to have its roots in the laboratory method for improving interpersonal and group behaviour (Bradford et al., 1964), planned change (Lippitt et al., 1958), intervention theory (Argyris, 1970; Argyris and Schon, 1978), organizational development (Cummings and Worley, 1993) and organizational transformation (Kilmann and Covin, 1988; Kochan and Useem, 1992). Therefore, to enable individuals, work units and organizations to become successful at describing, controlling and improving their learning processes, we must draw on the knowledge base that helps initiate and manage planned change within a complex web of systems and cultures (Kilmann, 1989, 1995). The following case illustrates how the principles and practices of organizational development can be combined with the philosophy and tools of process management in order to build prototype learning organizations.

Building Learning Organizations: The Case of 250 MBA Students

The business school faculty at the University of Pittsburgh decided to form the incoming MBA class of 250 full-time students into microcosms of the kind of organizational world that many businesses would be experiencing in the 21st century (and, indeed, is already being experienced by some global network organizations). The term MBA Learning Organizations or Management Learning Organizations (MLOs) was used to label this unique effort at enhancing business education. The master plan was to initiate the effort by conducting an intensive 4-day workshop for all 250 students prior to the start of their more traditional coursework. As a result of this workshop, it was expected that students would have sufficient time to (1) learn about learning organizations; (2) develop the crucial skills that would be necessary to function well in such learning organizations; and (3) get acquainted with many of their fellow classmates who comprise a very diverse student body (about 25 percent of the class was foreign to the US, representing more than 20 nations across six continents). With this basic knowledge and shared experience, it was expected that these diverse students could self-select and self-design their own learning organizations of 12–14 members (which would create 18 MLOs in total).

It should be noted that even though the formation and functioning of small groups (of about five to seven members) would have been much easier to manage in many respects, such informal groups would not have presented the essential problems, challenges and dynamics of *real-world* organizations (Kilmann, 1975). Most important, it was expected that MLOs of 12–14 members each would frequently have to subdivide into smaller subunits and then coordinate the task flow across these subunits into a functioning whole. Naturally, the basis for subdividing

into subunits and then networking task flow would depend on the nature of the project at hand and the expertise of the members. Every MLO project, case, exercise and assignment could thus have a different structure and process—much like the flexible, self-organizing systems described by the concept of global learning organizations (Marquardt and Reynolds, 1994). Indeed, whether forming MLOs or managing MLO problems and opportunities, the guiding principle remained the same: to simulate the experience and skills that are essential for effective functioning in real-world learning organizations.

Before discussing how the MLOs were integrated into the curriculum and what learning problems and opportunities emerged from this intensive effort at organizational learning, it seems worthwhile to review the design and events of the 4-day workshop that initiated the whole process of planned change. Here we see the key ingredients of initiating and building learning organizations.

The 4-Day MLO Workshop

In the week prior to the start of formal coursework, all incoming students were required to participate in a 4-day workshop, which ran on consecutive days from 8:30am to 5:00pm at an off-site location. A serene rural setting away from the busy university campus was chosen to provide a quiet, relaxed environment for learning. The facilities included (1) an auditorium that could seat all 250 students, (2) a large lobby that could be used for all students to mill around and self-select both temporary and permanent MLOs, and (3) 18 separate classrooms that could accommodate the members of each MLO in one large circle or in several subgroups. Note: attendance was used as the sole basis for satisfying the formal requirements of the workshop (which was registered on each student's university transcript). All students were provided with a specially designed workbook which included all the exercises, forms, guidelines and procedures (and copies of all the overhead slides) that were used throughout the 4-day workshop (Kilmann, 1994).

Before I describe the 4-day workshop in detail, it might be helpful to present the distinction between forming *temporary* vs *permanent* MLOs. Actually, the first 2 days of the workshop relied exclusively on forming 18 *temporary* MLOs for each of four MLO exercises and cases. It was not until the start of the third day that the 18 *permanent* MLOs were formed. The rest of the third day and the entire fourth day of the workshop were then devoted to developing these newly formed MLOs—so they could get off to a good start for the classes that would begin the next week.

The notion of temporary MLOs was developed for several reasons. First, the students hardly knew each other since, as was mentioned above, they came from more than 20 different nations (and even the

American students, who made up the largest contingent, came from all regions of the country). Thus, we wanted to provide the students with several opportunities to get better acquainted. Consequently, the first 2 days of the workshop involved four different exercises whereby, for each exercise, all students formed into *different* MLOs of 12–14 persons each. In fact, the instruction before each exercise was: 'self-select into MLOs to be with people you haven't had a chance to meet'. In each case, the students left the auditorium, went into the large lobby, milled around, formed their temporary MLOs and then went to one of the 18 classrooms to proceed with a particular exercise.

A second reason for providing four opportunities to form temporary MLOs was to give students experience in finding different ways to subdivide their organization and then integrate it back together again. This ongoing process of designing *subunits* and coordinating *networks* is unfamiliar to most students unless they have had extensive experience in restructuring work units within complex organizations (e.g. transforming a vertical structure of functional work units into a horizontal organization of business processes). Since almost all students were neither expert nor experienced in designing a flexible network organization, we wanted them to experience the functioning of several different MLOs *before they had to choose their permanent MLOs*. Moreover, we also felt that students might use different criteria in selecting members, once they knew more about the kinds of interpersonal skills and dispositions needed to function well in a temporary society (Bennis and Slater, 1968) and a flexible learning structure (Bushe and Shani, 1991).

A third reason for devoting four exercises to forming temporary MLOs during the first 2 days was to give students some practice in interviewing, negotiating and then selecting the members of their own work units (and, at the same time, being interviewed and selected by others). Actually, it can be uncomfortable (threatening) to be in a wide open space wondering if you will be selected (wanted) by other students. Even though we kept reminding all students that there is a group for everyone, '18 MLOs will be formed to include *all* members of the MBA class', the prospect of being rejected by one's peers makes for an anxiety-producing experience. Nevertheless, it was felt that four practice rounds would increase everyone's confidence and show that self-selected and self-designed organizations can indeed be realized. Incidentally, the obvious alternative of using random selection or any other computer-aided heuristic for forming MLOs from a pool of 250 diverse students was rejected, since it was believed that such an impersonal mechanism could undermine the internal commitment and feelings of ownership that are required of an empowered—energized—learning organization: it seems to take a high-stakes, interactive process to create a high-performance, interactive organization (Lawler, 1992).

The First Day in the Workshop

At the start of the workshop, the students took their seats in the large auditorium and were then introduced to the basic theories and concepts of learning organizations—as these organizations are expected to function in real-world, global settings (using the same quotes and definitions that were presented above). Examples of *real-world learning processes* were provided as well: facilitating cross-boundary exchanges of knowledge among all employees and key stakeholders; extracting useful knowledge from past organizational failures and successes; gaining knowledge through strategic alliances, ventures and acquisitions; conducting experiments on radical organizational forms and networks; capturing employee expertise and experiences into shared databases.

Then the parallels were drawn to the MBA program as a unique place (and a microcosm) for acquiring and using business knowledge. Specifically, the goals of MBA Learning Organizations were summarized as follows: (1) to prepare students for the 21st century—self-designed—network organizations; (2) to enable students to perform more efficiently and effectively on all group projects in the MBA program and later on the job; (3) to build solidarity among students in order to enhance their satisfaction and loyalty to the business school; and (4) to gain the most knowledge from the entire MBA learning experience through describing, controlling and improving learning processes. Examples of MBA learning processes were provided as well: setting priorities on what to learn; reading required materials; learning from lectures; taking and reviewing notes; keeping abreast of current events; benchmarking how others learn; preparing for group meetings; managing group meetings; learning by active listening and participation; focusing attention on what might be new, unfamiliar or uncomfortable; learning from diverse others; applying new concepts in daily life; reflecting on learning processes; improving learning processes; and reducing the cycle time for learning. Some time was also spent on outlining how the MLOs would be used throughout the MBA program, which specific courses were designated to assign MLO cases, exercises and projects, and how the MLO-based work might be graded and combined with individual tests and assignments.

Since so much of each MLO's work would be done in groups (either as one large group of 12–14 members or via several subgroups of three to five members each), considerable time was spent on what makes a group effective and how to get the most knowledge from a group of diverse experts. The students were reminded that the essential purpose of an MLO is to acquire and use all their available knowledge for managing complex problems and completing course projects. Recall that effective—extensive—interaction among MLO members is essential to form shared schemas from individual schemas: to achieve consensus on goals and priorities.

Several key principles of effective group process were then described and illustrated: at the start of each meeting, MLO members should plan their time wisely and determine the priority of all agenda items before they discuss any item at length. They should agree to address the most important items first and the less important items last. Group members also should plan how each agenda item will be approached and whether it can be subdivided into manageable parts and subgroups, so that a project's complexity does not immobilize them. Naturally, spending a little time planning these matters *before* proceeding usually saves a lot of time later. Once the plan is developed, the assumptions underlying all subsequent discussions should be examined—not only to minimize the likelihood of committing problem-solving errors but also to reduce the number of circular, repetitive and superficial discussions (which might also be based on false assumptions).

Furthermore, the more talkative members in the MLO should make a special effort to bring the less talkative members into every discussion to ensure that all viewpoints are heard and all available knowledge can be used (which is especially important if foreign students feel shy or hesitant to speak, since English is not their first language and they still might be trying to figure out the culture and customs of the host country). Members should regularly assess whether their MLO's culture continues to support new bizarre and provocative ideas. All communications should be courteous—respecting everyone's ego and treating everyone with dignity. Only one person in any meeting should be talking at one time and everyone else should be listening. The spirit should be collaborative on complex matters (to synthesize all the individuals' knowledge in a creative way for the best *group* outcome) and not competitive (to see who talks the most and who wins the final argument). Every now and then, members should halt the group discussion on content and inquire about the *process*: how are we doing as a group? Are we applying the new concepts and skills we learned? If not, what should we be doing differently? (See Forsyth, 1990, for a comprehensive review of the extensive literature and key principles of group dynamics.)

When it comes to ensuring that members will actually apply these principles and be able to improve their group process, it is most beneficial to appoint one member as a 'process observer' at the start of every group meeting. This person is responsible for monitoring how well the above principles guide group discussions. At the end of each meeting, the process observer summarizes what the group did particularly well and in what ways the group fell short. Moreover, a different member should be appointed to this role every time the group meets. As a result, over a period of several weeks or a few months, every group member will have the opportunity to develop observation skills and practice giving constructive feedback. Eventu-

ally, it will no longer be necessary to appoint a formal process observer—the responsibility for assessing and improving the group's process will have become shared among all group members.

Throughout the 4-day workshop, *every* group discussion used a different process observer according to the above guidelines (with specially designed feedback forms): when an MLO met as one large group, a single process observer was assigned; when an MLO subdivided into several smaller subgroups, each subgroup assigned its own process observer. Thus the entire community of MBA students became familiar—and skilled—at looking at group process and finding ways to improve it.

Once the students were introduced to organizational learning, effective group process, the process observer and the rationale behind the design of temporary MLOs (before forming their permanent MLOs), the remainder of the day was spent on two exercises to foster *personal mastery*, one of the five disciplines for organizational learning advocated by Senge (1990). The first exercise prompted each student to write down responses to these questions: what do you truly want to achieve—both personally and professionally—by the end of your MBA program? What images come to mind? What tangible results would satisfy your needs and wants? Can you list several specific goals (personal and professional)? After students had time to reflect and respond to these questions, they formed temporary MLOs, went to a separate classroom and proceeded to (1) form two subunits; (2) appoint a process observer for each subunit; (3) share their individual responses; (4) develop a list of *common themes* within—and across—both subunits; (5) develop a list of *unique themes* (that were not typical across MLO members); (6) receive and discuss feedback from the process observer; and then (7) prepare for a community presentation (in the auditorium) that summarizes the content of their group discussions as well as the quality of their group process (including what they plan to do differently for the next MLO exercise).

It is important to point out that the several MLO presentations which were made to the entire community of MBA students (in the auditorium) did much to foster the development of a learning culture. These community-wide presentations also provided the first opportunity to share useful knowledge about collective aspirations and effective group process across all MLOs—a primary goal of learning organizations.

The second exercise of the first day was conducted in a similar manner. For the purpose of further building *personal mastery* for a learning organization, each student was asked to write down responses to the following questions: how do you define your essence and what makes you special and unique? How do you develop your skill and consistency at being who you are? How do you assess what value you contribute to other people's lives? How do you judge whether you

are a good or bad person and whether you deserve to be happy? How do you decide who controls who you are, what you do and whether you are good or bad, happy or sad? Naturally, these questions get at the heart of one's ego: self-identity, self-efficacy, self-esteem, self-worth and self-responsibility (Kilmann and Kilmann, 1994). The students thus had the opportunity to experience this underlying premise: *if you don't know who you are, how can you possibly decide what you truly want to achieve, and how can you possibly make good choices about what knowledge to acquire and toward what ends to use it?* Stated differently, having individuals clarify their *self-schemas* provides the foundation for improving all other schemas.

After the students had time to reflect and respond to these essential questions, they formed their second temporary MLOs (with others they had not met before), went to a separate classroom and proceeded to (1) form *three* subunits (to expand their design experiences); (2) appoint a process observer for each subunit; (3) share their individual responses; (4) develop a list of *common themes* within—and across—all three subunits; (5) develop a list of *unique themes* (that were not typical across MLO members); (6) receive and discuss feedback from the process observer; and then (7) prepare for a community presentation that summarizes the content of their group discussion as well as the quality of their group process (and what they plan to do differently for their next MLO exercise).

As before, not only did this second exercise help students get further acquainted with one another (at the deeper level of ego, rather than at the more superficial level of 'how do you like this city?'), but the several MLO community presentations further reinforced reflection, learning and sharing knowledge across all MLOs—in the spirit of organizational learning.

The Second Day in the Workshop This day was devoted to learning crucial skills for managing complex problems and projects. The morning session reviewed the five basic steps of problem management: sensing the existence of an important problem; defining the root causes of the problem; deriving a viable solution; implementing the solution within a complex social system; and evaluating whether the problem still needs further attention (Kilmann, 1989). Naturally, these five steps of problem management are also reflected in the Shewhart (1931) and Deming (1986) cycle of Plan, Do, Check, Act (PDCA) and the principles of experiential learning (Kolb, 1984). But the difference is that the five steps of problem management focus attention on five errors—by drawing on the basic inquiring systems from the philosophy of science (Churchman, 1971).

In particular, using the analogies of decision trees, roots, branches and whole problem forests, the students now learned the five errors of

problem management: *sensing errors* (denying the reality of a problem or being too sensitive to normal variation); *defining errors* (describing obvious symptoms instead of identifying root causes—or working on a trivial problem or the wrong problem); *solving errors* (choosing solution A when solution B is in fact better or vice versa); *implementing errors* (ignoring egos, culture, politics, fear and anxiety while implementing solutions or assuming that solutions will automatically be used); and *evaluating errors* (falsely assessing the significance of a problem and thereby continuing to work on a non-problem or ceasing to work on a crucial problem).

Essentially, unless these five primary errors of problem management are minimized, individuals and groups will waste their precious time by working on the wrong problems or repeatedly cycling through the steps of problem management without success (and creating additional problems for themselves and others).

To practice the steps and minimize the errors of problem management, the students were introduced to a case study about a temporary task force that fell apart while attempting to address a complex organizational problem (Kilmann, 1994: 2.21–32). The students left the auditorium, went to the large lobby, formed temporary MLOs (of students who hadn't yet worked together), found a classroom and proceeded to (1) form *two* subunits; (2) appoint a process observer for each subunit; (3) analyze the case within—and across—the two subunits; (4) receive and discuss feedback from the process observer; and (5) prepare for a community presentation that summarizes their case analysis and group process (and what they plan to do differently for their next MLO exercise). The MLO presentations on both content and process continued to reinforce the sharing of knowledge, the importance of group process and a growing sense of community.

That afternoon, the students were introduced to another crucial skill for managing complexity among diverse experts: assumptional analysis (Kilmann, 1989; Mason and Mitroff, 1981). Now the students learned why different experts tend to make vastly different assumptions about the key stakeholders on any complex problem—and then proceed to treat these hidden assumptions as true facts. But to get to the heart of a complex problem, and thereby minimize the errors of problem management, it is essential to *surface assumptions* (write them out explicitly), *classify assumptions* (according to their relative importance and certainty of being true or false) and *synthesize assumptions* (collect more information about the validity of the most important/ uncertain assumptions and then revise how the problem is sensed, defined, solved and so forth—based on these revised, up-to-date assumptions). Many students began to realize that assumptional analysis would provide them with a deeper, more valid approach for managing their complex problems and course projects—especially

among diverse experts, like themselves. Incidentally, it should be mentioned that several key works on organizational learning also stress the importance of uncovering the tacit assumptions behind individual and shared schemas—using 'mental models' (Senge, 1990) and 'theories in use' (Argyris and Schon, 1978).

To practice the steps of assumptional analysis, the students were presented with another complex problem—this one quite real and relevant to their lives throughout the MBA program. The students were asked to consider what assumptions had to be true (regarding all key stakeholders) in order to argue, convincingly, that 'we (as individuals) can achieve what we truly desire'. (Recall that this topic was examined individually and in temporary MLOs on the day before.) Moreover, the students were asked to pinpoint the important assumptions behind this conclusion that were clearly false or highly uncertain. As a result, they could then develop action plans to make their false or uncertain assumptions become true, which would thus enable them to achieve what they truly desire. It should be noted that such a *normative approach to assumptional analysis* does not take assumptions as fixed but as strategic targets that can be changed—by changing the properties of key stakeholders (Kilmann, 1989).

The students again self-selected into another set of 18 temporary MLOs and proceeded to (1) form *two* subunits; (2) appoint a process observer for each subunit; (3) analyze their assumptions within—and across—the two subunits; (4) receive and discuss feedback from the process observer; and (5) prepare for a community presentation that summarizes their assumptional analysis, action plans and group process. As a result of these presentations, the students seemed to appreciate the value of analyzing the many different assumptions that different people make—to learn about a complex world.

The Third Day in the Workshop

As the students filed into the auditorium at the start of the third day, collective apprehension (anxiety) filled the air: they knew that they would be forming their 'permanent' MLOs which would probably remain together for the next 11 months. Although we did tell the students that some restructurings and transfers of members among MLOs could possibly be arranged (just as these occur in the real world of business organizations), the initial plan was to keep these MLOs intact. (This policy of maintaining permanent MLOs throughout the MBA program was designed to motivate students to make good choices and to work hard at making their MLOs effective—rather than to switch MLOs at the first sign of trouble.)

After acknowledging—and empathizing with—the normal anxiety that surrounds such a socially provocative selection process, the students were formally introduced to the criteria for selecting members for their permanent MLOs. (The criteria, incidentally, had been

informally presented and discussed every time that the students had formed temporary MLOs during the first 2 days of the workshop.) We first listed numerous dimensions on which people can choose others— via either their similarities or differences (e.g. age, gender, race, religion, nationality, ethnic background, language, sexual orientation, personality, attitudes, values, educational background, work experi- ence, specialization, pets, hobbies, interests, physical qualities, groom- ing habits, clothes and so forth).

We also noted that when people choose one another *exclusively on similarity*, they will likely (1) feel comfortable and safe; (2) approach complex problems from the same—narrow—perspective (leading to failed solutions); (3) have very little to learn from one another; (4) become bored or depressed; and (5) wish they had chosen another MLO—or other members. Alternatively, when people choose one another *exclusively on dissimilarity*, they will likely (1) feel threatened and defensive; (2) approach simple problems as if they were extremely complex (fostering inefficient meetings); (3) feel that it isn't worth the effort to learn from such different people; (4) become cautious or with- drawn; and (5) wish they had chosen another MLO—or other members. Naturally, these characterizations are stated in the extreme in order to highlight the effects of one approach (choosing others based on similar- ities) as compared to the other (choosing others based on differences).

To create 'the best of both worlds', we emphasized the benefits of achieving a *balance of similarities and differences* when choosing mem- bers to form each MLO. In particular, if an MLO is formed on the basis of similarities *and* differences, members will (1) feel comfortable—yet challenged; (2) approach complex problems from multiple perspec- tives—and simple problems from one perspective; (3) have much to learn from most of the other members in the MLO; (4) be as actively involved as they wish; and (5) be glad that they chose such a balanced—effective—MLO.

Once all 250 students seemed to understand the criteria and the prime objective, they went from the auditorium to the outer lobby in order to form their permanent MLOs. This time, however, we asked them to take their time, shop around and remain open and flexible. As small pockets of potential members began to coalesce, we asked them to assess their similarities and differences—and negotiate changes in membership as the smaller pockets of people merged into larger units. About 1 hour later, 18 permanent MLOs had been formed—despite all the obvious nervousness.

Back in the auditorium, students were asked to sit with their MLOs while we introduced the useful concept of *organizational culture*, which Trice and Beyer (1993: 33) have appropriately defined as 'shared, interrelated sets of beliefs about how things work; values that indicate what's worth having or doing; and norms that tell people how they

should behave'. Building on the manageable aspects of *behavioral norms*, we illustrated the kinds of positive and negative norm that are experienced in the classroom and in other group settings. Specifically, here are some typical *negative* norms: come to class late and leave the room whenever you feel like it; tell your instructor exactly what she wants to hear; do only the minimum amount of work (you are not here to learn—you are here to get grades and your degree); don't volunteer for anything (if you keep quiet, someone else will surely volunteer to get things done); if, despite your disinterest, you are still chosen to do something, feel free to let others down; if you are bored, read a newspaper, chat with your neighbor or leave the room to get something to eat or drink.

In sharp contrast, here are some *positive* norms: come to class on time and leave only when it is over (or on a break); tell your instructor what you believe (using supportive communication); do the required amount of work to maximize your learning throughout the MBA program; volunteer for necessary group tasks and activities (get involved in doing your share of the work); if you choose (or are chosen) to do something, get it done to the best of your ability—don't let others down; if you get bored, it's your fault—therefore ask questions or switch the discussion to a more relevant (and interesting) topic.

Since each MLO is a flexible arrangement without formal structure or bureaucratic procedures, each MLO's culture (beliefs, values and norms) has a powerful impact on how members behave toward one another and how the work gets done (Kilmann et al., 1985; Trice and Beyer, 1993). Based on this premise, the first task for the permanent MLOs was to discuss and document the negative norms that could creep into their *modus operandi* versus what positive norms would help members achieve what they truly desire—personally and professionally. Now each MLO was asked to find a classroom and proceed to (1) remain in one large group—since the entire MLO should be guided by the same culture for effective communication and cooperation; (2) appoint a process observer; (3) list potential *negative* norms that could form in both the classroom and in MLO meetings; (4) list *positive* norms that will enhance the MLO's functioning; (5) develop a *sanctioning system* to reinforce and sustain the positive norms; (6) receive and discuss feedback from the process observer; and (7) prepare for a community presentation on both organizational culture and group process.

The difference between negative and positive behavioral norms results in a culture-gap (Kilmann, 1989). The way to close culture-gaps is for each group to design and use a *sanctioning system* that monitors and enforces the positive norms over the negative norms. This sanctioning system functions as a self-designed reward system in place of (or in support of) any formal rewards that may be applied at a later

time (e.g. the formal grading system). Thus (in item 5 above), each MLO was asked to develop a consensus on what exactly will be done if any member acts out a negative behavior (referred to as a violation) or engages in a positive behavior (referred to as a victory). So long as the system developed is both ethical and legal, every MLO was encouraged to be as creative as possible in coming up with ways to reward desired behaviors and penalize dysfunctional habits. (Incidentally, MLOs were at first hesitant about using a sanctioning system; in time, however, most MLOs realized that group sanctions are necessary in order to manage 'free riders' and other behavioral problems—rather than relying solely on goodwill or on an external reward system.)

After several permanent MLOs made their community presentations, attention shifted to *organizational design*, defined as establishing differentiated subunits to do specialized work and then using integrative mechanisms to coordinate task flow into a functioning whole (Galbraith, 1977; Lawrence and Lorsch, 1967; Thompson, 1967). Some basic design activities that each MLO had to address included the following: clarifying strategic goals, objectives and priorities; scheduling meetings that involve all members of the MLO; determining when and how members divide into several subunits; managing the task flow that crosses subunit boundaries; encouraging positive cultural norms and the use of sanctioning systems to support each separate subunit and the task flow across subunits; discovering better ways for designing subunits and managing task flow; and improving core learning processes within and across subunits.

One viable basis for integrating the efforts of diverse members and their various subunits (especially when the systems and processes of an organization are flexible and informal) is the development and evolution of a *shared vision*. Creating a shared vision, as a special case of developing a shared schema, helps to define, mobilize and channel the collective aspirations and knowledge of organizational members (Kim, 1993; Parker, 1990; Senge, 1990). As a framework for creating shared visions for the 18 MLOs, we relied on the same fundamental questions that define the essence of every person: (1) *Identity*: Who are we? What is our essence—our reason for being? (2) *Competency*: What is our talent or expertise—our core competency? (3) *Value*: How will we contribute to what others need and want? Will others benefit from our actions? (4) *Worth*: Are we a good MLO? Do we deserve to be satisfied with ourselves? (5) *Responsibility*: Who controls who we are, what we do and whether we are good or bad, happy or sad? Thus, the synthesis of individual egos (self-schemas) into a collective ego (organizational schemas) serves as a guiding light for choosing goals and priorities, and then designing subunits to get the right things done by the right people.

As suggested earlier, the spirit of organizational learning involves

not only spreading knowledge *within* organizational boundaries but also *across* the boundaries of other organizations and stakeholder groups. To promote the benefits of *interorganizational learning*, a Student Learning Network (SLN) was conceived as a representative network of one member from each of the 18 MLOs. The SLN would be expected to conduct these systemwide activities: ensuring that all MLOs are improving their learning processes; helping MLOs manage their emerging problems and opportunities; establishing policies and procedures for exchanging members and restructuring MLOs; determining what MLO knowledge and process improvements should be transferred across all MLOs; developing databases for capturing MLO knowledge and experiences; and determining if MLOs are achieving their visions and aspirations.

Once all students seemed to understand the basic concepts of organizational design, shared vision and interorganizational learning, they left the auditorium and went to their separate MLO classrooms. The members in each MLO then proceeded to (1) sit in one large circle—since the whole MLO should be guided by the same design principles; (2) appoint a process observer; (3) create a shared vision and choose a name for their MLO; (4) determine how to structure their MLO into a flexible network of subunits—depending on the nature of the task to be done; (5) outline the roles and responsibilities of the Student Learning Network and choose a representative (and a backup); (6) receive and discuss feedback from the process observer; and (7) prepare for a community presentation on both content and process.

By the end of the community presentations, the permanent MLOs had already spent the entire day together—and were beginning to gel. But some students mentioned that everyone was very 'polite' and wondered what will happen when the first major problem develops, and whether anyone will actually use the sanctioning system. Or, as another student said, it was like getting marriage counselling *before* the marriage (and hence before *real* marital problems had emerged). In the first few days of the MLO workshop (except for the formation of permanent MLOs), everyone had seemed pretty much relaxed in the serene setting away from the realities of intensive coursework, papers and exams. But now students were beginning to think about what life would be like in their MLOs when classes began the following week. While all their questions and concerns could not be put to rest, the students were assured that some of their issues about the transition from the workshop to the workplace (classroom) would be addressed on the next day—the last day of the workshop.

The Fourth Day in the Workshop

The first part of the day was spent briefly reviewing typical MBA learning processes (e.g. learning from diverse others, benchmarking how others learn, focusing attention on what is new and unfamiliar,

and reducing the cycle time for learning) and how various quality tools could be used for describing, controlling and improving these processes—as is usually done for total quality management and business process re-engineering (e.g. Davenport, 1993; Deming, 1986; Ishikawa, 1986; Juran, 1991). While the statistical aspects of quality control were mentioned, it should be noted that the focus was on performing the *qualitative* aspects of the process approach—and not (yet) worrying about data collection and *quantitative* analysis (Harrington, 1995).

Once all students seemed to understand the key concepts of process management, they left the auditorium and went to their designated MLO classrooms. The members in each MLO then proceeded to (1) form a number of subunits and a network to coordinate them back together again; (2) appoint a process observer for each subunit; (3) list 5–15 learning processes; (4) describe (e.g. using flow charts) how their MLO will perform its most important learning processes; (5) indicate how their MLO will ensure that it will use these learning processes— regularly and consistently; (6) suggest how their MLO plans to improve its most important learning processes; (7) receive and discuss feedback from the process observer; and (8) prepare for a community presentation on both content and process.

The presentations illustrated that the students and their MLOs were internalizing the reflective skills for consciously examining their learning processes—and thus making their declarative and procedural knowledge explicit, shared and available to others. But I was most impressed with the members of an MLO who described their process for effectively drawing out the quieter foreign students into the group discussion, while ensuring that the American students would listen (and ask questions) with care, patience and respect. The tone of this MLO presentation was so deep-felt and sincere that the entire audience was held in awe.

The afternoon session focused exclusively on the transition into the real world which, in this case, meant switching from the serene setting of the 4-day workshop into daily MBA coursework (recognizing that, for some people, the latter would still not be considered the 'real world'). To assign primary responsibility on the students themselves (rather than point the finger at all others), two key questions were asked: What behavior and attitudes toward key stakeholders will help you achieve your visions during the MBA program? What barriers may prevent you from achieving your visions—given the realities of daily life in the MBA program?

The key stakeholders to the MBA program were then listed as follows: yourself; administrators, faculty members, students in your MLO, students in other MLOs, the Student Learning Network, corporate recruiters, corporate visitors, the community, friends and family. We then reminded students of all the material that had been

covered during the 4-day workshop and what implications this material had for achieving their visions. For example, all students had developed a common language and some behavioral skills regarding: effective group process, the dynamics of the ego, giving and receiving feedback, communication, defensiveness, problem management, assumptional analysis, organizational culture, sanctioning systems, organizational design and process management. The students realized that this material provided them with many approaches to gain the most from their MBA program—by effectively collaborating *and sharing knowledge* with all key stakeholders. The last exercise of the day asked each MLO to plan how to use what they learned throughout the workshop in order to achieve their shared visions—with special attention to minimizing the errors of problem management by using assumptional analysis. The 4-day workshop ended on a Thursday, registration for elective courses took place on Friday and MBA classes began on Monday.

The Rest of the MBA Program

To bring the 18 MLOs into the classroom, several means were employed. First, all required courses in the first half of the 11-month program (August through December) were composed of *three MLOs* in each of six sections of students (about 40–44 students per class). At a minimum, these MLOs could then be used to learn and study the required course material throughout the first half of the MBA program. In addition, several required courses were designated as MLO-based courses—which meant that group projects, cases and presentations were assigned to each MLO as a whole (and were graded accordingly). Such was the case for the required course Competing in a Global Economy and the follow-up course Organizational Transformation.

For the second half of the 11-month MBA program (January through June), the great majority of the coursework was elective—based on student specialization and interests (and, therefore, MLOs could not be kept intact for these courses). Nevertheless, one required project course, Managing Strategic Performance, was also designed especially for the 18 MLOs—whereby each MLO was assigned to a different consulting project with a local corporation in the Pittsburgh area. This course concluded with an intense 1-week session that included final MLO presentations to executives from these corporations as well as to faculty members in the business school.

Since the limitations of journal space do not allow for a thorough accounting of all the MLO activities during the entire 11-month period, the following discussion highlights some of the more salient experiences. Regarding the first half of the MBA program, (1) a special project course for the 18 members of Student Learning Network (SLN)

was developed to facilitate a more proactive approach to organizational learning and (2) the course, Organizational Transformation, required every MLO to write a final paper describing *their own transformation*—from the 4-day workshop in early August to the end of the course in mid December. Regarding the second half of the MBA program, (3) the SLN developed a list of 12 'hot topics' that summarized the critical issues that had to be managed in virtually all MLOs—in order to survive and succeed at organizational learning. This list of critical success factors was developed for the next incoming class of MBA students at the start of their MLO workshop.

A Project Course for the Student Learning Network

The transition from the workshop to the classroom was a major shock to the students and their MLOs. The hectic pace of taking six or seven courses focused their attention on performance rather than learning. Crisis management was the norm. The MLO-based course, Competing in a Global Economy, required each MLO to do an extensive company, industry and country analysis for a multi-national firm. While this took advantage of the great diversity in every MLO, it also challenged each MLO's capacity to address a complex project—involving both detailed and dynamic complexity (Senge, 1990).

The 18 student representatives in the SLN were in the same predicament and therefore had great difficulty finding the time to meet. And when they did meet, only 10–14 members were present. While they discussed the numerous problems that were plaguing their MLOs, they didn't seem to have the time—or energy—to address these problems. They worried more about completing their homework assignments and simply surviving. For example, in early September (just 3 weeks after the MLOs had been formed), I met with 10 members of the SLN and shared several concerns that had been repeatedly mentioned by students, faculty and the SLN itself:

1. Let's assume that the distribution of MLO functioning falls into these typical categories: one-third are functioning very well and are continuing to learn and grow; one-third are sitting on the fence and waiting to see what happens; one-third are not functioning well and are, in fact, beginning to disintegrate. How do we reduce this variation and, in particular, help the middle third and bottom third become more effective?
2. Are MLOs using what they learned in the workshop or have they put aside the new tools (process observer, sanctioning system, problem management and assumptional analysis) and are they now relying on habitual ways of surviving (using crisis management)? How can we help MLOs realize that using their learning tools is the best way to manage their complex problems under real-world time constraints? Do the MLOs realize that if they find themselves floundering with

their MBA projects it is probably due to their not using the various learning tools at all—or not using them regularly and consistently?

3. Do MLOs have a leadership vacuum? Are informal or formal leaders arising as needed? Or are MLOs still in the polite stage? Are MLOs still looking for some external source to guide them?

4. In the last 3 weeks in the program, what has been learned about the use of MLOs to complete course assignments? What works and what doesn't work? How rapidly and accurately are these MLO learnings being shared among all MLOs—so that no group has to 'reinvent the wheel' or be disadvantaged by what is already known and working well in another MLO? What role does the SLN play in ensuring that the entire network of MLOs learns—better and faster—throughout the MBA program?

5. Do students see the various connections between how their MLO functions, how well they do in the MBA program and how successful they will be throughout their professional careers? Are MLOs viewed as some short-term arrangement to fulfil the project requirements in three courses? Or are MLOs viewed as the means to prepare students for successful careers in 21st century organizations competing in a global economy? What can be done to help everyone see the relevant connections between the MLOs and the real world—long term?

6. How should each MLO handle a single grade for its performance on a course project when some members may not have contributed much to the project or even failed to perform assigned tasks? Do the foreign students have a disadvantage in contributing to the group projects because of their being challenged by the English language? What is fair for all? Hint: how would actual business organizations handle this problem?

After I reviewed these and other problems with the SLN members, there were few, if any, questions or comments. They were tired and listless. No-one took the initiative or the responsibility to act.

The next day, I shared this experience with several administrators, including the Director of the MBA program and the Associate Dean of the school. We defined the problem of lackluster interest in the SLN as consisting of several components: (1) our current students were neither skilled nor experienced in coordinating a network of learning organizations—so they naturally gravitated to other, more familiar, activities; (2) the SLN did not report to any familiar 'higher authority' (e.g. an administrator or a faculty member)—which perhaps made it difficult for them to pinpoint and focus their responsibility (other than to serve all MBA students); (3) no course credit was given for doing SLN work—so the SLN members allocated their efforts to the MBA courses that counted; (4) perhaps the current SLN representatives had been selected for the wrong reasons (or had no idea of what was really

expected of them when they 'signed up' for the job) and, therefore, the SLN might be better served by other students.

To address these various components of the problem, we decided to launch a special project course (with credit) for the Student Learning Network. I informed the existing SLN members of the purpose and expectations of this project course and that, within 1 week, I needed to know if they or others in their MLO were prepared to take this course and to do the required work. In a short time, I learned that 16 of the current representatives wanted to remain on the SLN and were eager to proceed with the project course. The remaining two were hesitant, but eventually decided to give it a chance.

During two half-day meetings in the last 2 weeks in September, all 18 SLN members met to design their organization. In a brain-storming session, they created four permanent subunits, each with a project manager who reported to a Chief Learning Officer (CLO). The sub-units were named Problem Management, Faculty Communication, Public Relations and Logistics & Administration. The students self-selected into these subunits based on their personal interests and expected workloads.

Problem Management was first concerned with using surveys and other feedback mechanisms to sense MLO problems. Then this subunit was responsible for bringing the most important problems to the attention of the whole SLN and also for leading the discussion on proposed definitions and solutions to these problems. Faculty Communication planned to monitor the time demands of coursework, projects and assignments and then work with faculty members to revise the scheduling of the workload. This subunit was also responsible for working with instructors to improve the grading system and to resolve student–faculty conflicts as they arose, including the special issue of maintaining academic integrity. Public Relations would develop a special MLO newsletter (and use other formal channels of communication) in order to share knowledge with all students, faculty members, administrators and the public at large (e.g. corporate recruiters). Logistics & Administration (along with the Chief Learning Officer) would document what was discussed and learned in SLN meetings. And given the difficulties in finding available meeting space for 18 MLOs, this subunit would try to facilitate space management by developing a directory of available classrooms and seminar rooms in the business school and nearby buildings.

Besides meeting once per week from October through December, the SLN Project Course also required the 18 students to complete a formal document for the faculty and for the next year's class of MLOs (and its SLN). Since this was the first time that the business school had instituted MLOs, there had not been any prior documentation (or word-of-mouth experience) to help MLOs prepare for what was in

store for them (e.g. by highlighting the most debilitating problems and showing how previous MLOs and SLNs had managed them). Basically, the SLN was asked to create an *organizational memory* by providing formal documentation to next year's class—based on what this year's MLOs wished they would have been given when their program began. (Due to the 11-month MBA program, each year's class does not overlap with the next year's class as it would in a '2-year' program—which makes the problem of maintaining organizational memory even more important.)

Documenting the Transformation of Each MLO

During the months of November and December, all MLOs took the required course, Organizational Transformation. This course provided a golden opportunity for the MLOs to reflect on their own efforts at transformation—from an initial community of strangers to becoming a learning organization. Specifically, one-third of the final grades in this course was based on a final MLO paper (i.e. one paper for each MLO). The instructions to this assignment were as follows:

Viewing your MLO as a microcosm of a complex organization, examine its own evolution and revolution—transformation—from the time is was first formed in August to the time you submit your group paper. Make explicit use of all the concepts and tools that you have covered in all segments of the MBA program in order to examine the forces, motivations, processes and outcomes of transformation—with special attention to the theories and methods that were provided during the MLO Workshop, Competing in a Global Economy, Organizational Behavior and Organizational Transformation.

   The objective of this assignment is to take full advantage of all the multi-level dynamics you have experienced in your MLO to date (including personal, interpersonal, group, intergroup and cross-MLO behavior) for you to learn—first-hand—the process of organizational transformation. Can you demonstrate how the various concepts and tools enable your MLO to shift the process of its development from unconscious, unplanned reactions to external forces to deliberate, planned, proactive changes in visions, systems, processes, cultures and minds—to satisfy and delight all key stakeholders? If your MLO has been functioning in a reactive mode to external forces (e.g. crisis management) as opposed to a transformational mode (i.e. planned change), now is the time to make the switch so you have something important to write about!

   Also, be sure to include in your final paper what you learned about organizational transformation as you proceeded to transform your own MLO—and complete this written assignment. If you had the opportunity to do it all over again, how would you conduct transformation differently? What can you recommend to next year's MLOs regarding when and how to proceed with transformation?

   As expected, this written assignment encouraged the students to be reflective about their learning experiences and to focus their attention on transforming their MLOs—if they hadn't done so already. And having one paper per MLO provided the SLN members with addi-

tional information to document the MLO experience for the faculty and for next year's class.

Hot Topics for Next Year's Class

As a way of summarizing what the SLN learned from its experience in coordinating the network of MLOs as well as what they learned by reviewing the 18 papers on the transformation of each MLO, the SLN developed a list of hot topics that virtually all MLOs had to manage at one time or another. In fact, the SLN felt that if the next year's class of MBA students learned about these 'critical success factors' as they were forming their MLOs (and would also learn how previous MLOs had managed these hot topics), they would be well ahead of the 250 students who had taken the maiden voyage without the benefit of this information.

1. *Designing MLOs* for efficient/effective results (subdividing work into subunits and coordinating work across subunits)—and assigning people to jobs based on their expertise and experience.
2. Managing *free riders* (and how to get input from all members).
3. Designing and using a *sanctioning system* (including the need to confront people and problems directly—and early).
4. Specifying and managing individual and group expectations, which includes managing aspirations and *performance standards*.
5. Reinforcing the connections between MLOs and the *real world* (and thus preparing students for cross-boundary teams, project groups and global network organizations).
6. Developing *key skills* for working with peers in groups, teams and projects (without formal authority to get things done).
7. *Learning how to learn*—faster and better—as a key competitive advantage for both individuals and organizations (including what it means to be self-aware, reflective and ambitious about learning).
8. *Being realistic* about what to expect from your MLO: does every member share the same aspirations for performance and learning? Will your MLO develop a shared vision that galvanizes all members toward effective action—in one term or even in 11 months?
9. *Expressing yourself*, being involved, taking initiative—even if you are uncomfortable with the language, the culture or other members.
10. Managing the *performance tension* (i.e. balancing the pressure for results with the desire to learn—and taking the time to be reflective).
11. Taking advantage of *member diversity*—to enhance performance and learning on complex projects and multiple courses.
12. Letting your *network representative* (and other MLO members) know of difficulties or problems—before things get worse.

Naturally, each one of these 'hot topics' can be approached in a number of different ways. But knowing the key issues and being aware of the various alternatives (including the strengths and weaknesses of

each one), will provide next year's MBA class with the declarative and procedural knowledge to begin their MLO journey—based on what was learned during the first year's class. And adding to this knowledge base year after year, faster and better, will demonstrate how an explicit focus on learning processes can enhance business education. But what about the future of business?

Conclusions: Building Learning Organizations in the Real World

The recent literature on organizational learning spells out numerous principles, disciplines and attributes of learning organizations (Garvin, 1993; Marquardt and Reynolds, 1994; Senge, 1990; Watkins and Marsick, 1993)—with numerous illustrations and vignettes from actual companies that are practicing what these authors are advocating. But the fundamental question remains unanswered: how does an everyday organization (e.g. an old, large command-and-control business corporation) transform itself into a learning organization? For example, while Senge (1990) discusses the five disciplines of learning in great detail (personal mastery, mental models, shared vision, team learning and systems thinking), the reader is not provided with the slightest idea of how to implement these disciplines in an organization. In particular, how does one involve hundreds or thousands of employees in building a learning organization? Where does one start? Are all disciplines implemented at once—or is there a particular order? What does it mean to implement a discipline (or guideline or principle)? And even when other authors, such as Garvin (1993), criticize Senge for being too vague and therefore not practical, they still don't provide us with their own process for implementation. Thus, it is not enough to show executives what it's like being a learning organization, we must also provide them with the declarative and procedural knowledge for getting there.

Essentially, the purpose of building MLOs was two-fold: (1) providing MBA students with the relevant experiences and necessary skills to function effectively in global learning organizations and (2) learning how to build such learning organizations in the first place. Recall that the guiding definition for a learning organization was deliberately connected to the extensive literature on quality management and organizational development—precisely because these well-established areas of knowledge provide operational steps for implementing change in organizations. In particular, we already know how to provide all employees in an organization with the knowledge and skills for describing, controlling and improving work-related processes—based on the many lessons learned from implementing total quality management in thousands of companies (Ernst & Young, 1992) and implementing business process re-engineering in hundreds more (Hall et al., 1993). Similarly, we already know how to introduce and

manage planned change in large complex systems—based on decades of research in organizational development (Cummings and Worley, 1993). Building MLOs simply required the transfer of these knowledge areas to organizational learning and learning processes. Consider a few ways to generalize from the MLO experience to other types of organization.

To begin with, the Dean of the business school gave his full support to the MLOs and the faculty voted to implement MLOs as an integral part of the new MBA curriculum. This 'top management' support is also essential in all cases of organizational transformation (Kilmann and Covin, 1988). When this support is missing from efforts to build learning organizations, whatever outcomes are realized in the short term may soon dwindle—or disappear altogether—leaving the advocates of learning dismayed (Dumaine, 1994).

Next, a 4-day workshop provided all students with the language, concepts and skills in order for them to self-select and self-design their own learning organizations. These workshop experiences and opportunities for skill development can also be provided for all employees in any company: (1) learning group process and using a process observer—so that effective dialogue can occur within and across all boundaries; (2) building personal mastery experiences on 'what I truly desire' and 'who I am'—so that all employees can make well-informed and enlightened choices in everything they do; (3) learning how to manage problems with assumptional analysis—so that diverse experts can apply their collective knowledge on any complex problem; (4) developing positive cultural norms to support effective dialogue within and across all boundaries—and then using a sanctioning system to sustain this adaptive culture; (5) developing the organizational skills to design flexible, temporary subunits with coordinating networks—to match human resources to complex problems; (6) learning how to describe, control and improve learning processes—faster and better—by using the standard tools of quality management coupled with self-awareness about acquiring and using knowledge; (7) transferring what is learned in a workshop back to the workplace—for effective action. Implementing this particular sequence of learning experiences has already been documented and therefore can be applied and refined in subsequent applications (Kilmann, 1994, 1995).

Recall that the Student Learning Network (SLN) became the central nervous system for capturing the knowledge being created within each MLO and then rapidly spreading this knowledge throughout all the other MLOs. This rapid spread (and use) of knowledge (i.e. knowledge velocity) has been cited as the hallmark of the knowledge-creating company (Nonaka, 1991). As might be expected, the extensive literature on quality and re-engineering has already drawn considerable attention to the crucial role of a steering committee to oversee the

whole effort at process improvement—and has provided specific action steps for designing these coordinating networks (e.g. Davenport, 1993; Hammer and Champy, 1993; Harrington, 1995; Juran, 1991). Moreover, the literature on organizational development has also shown how to design 'parallel learning structures' in order to support organizational change and innovation (Bushe and Shani, 1991). Thus, companies wishing to transform themselves into learning organizations can *know why* (declarative knowledge) they need an elaborate network to connect knowledge across all members and work units and they can also *know how* (procedural knowledge) to design and establish such a network—with the most recent advances in information technology (Jarvenpaa and Ives, 1994).

Yet it must be recognized that the MLO experience is not identical to many important features that make up 'real-world' organizations (which function far outside the relatively safe boundaries of university classrooms). In particular, the MLOs have a short time frame: they exist for less than 1 year. Moreover, so long as students maintain a specified grade-point average, they are 'guaranteed employment' in their educational program. In addition, formal reward systems are limited to grades and do not include monetary and other formal incentives that would shape more complex, long-term decisions—and career paths. Of prime importance, the MLOs have to compete with other MLOs for neither resources nor customers. Stated differently, even though 'people are people' and certain motivational, interpersonal and organizational problems are expected to generalize from MLOs to other organizations, subsequent research must examine the particular history, context and life-and-death realities of other organizations to discover what MLO knowledge is indeed generalizeable—and what isn't.

Perhaps the thorniest question in building learning organizations for either educational purposes or corporate survival is how to evaluate the outcomes of organizational learning. Ironically, the extent to which learning results in radically restructured schemas in the mind (and restructured neural networks in the brain), renders before-and-after comparisons meaningless—since the basic categories by which people perceive and judge their world have fundamentally changed (Golembiewski et al., 1976). Using factor analysis, however, for quantitatively measuring the kind of schema changes that occur from organizational learning holds great promise for determining what knowledge has been gained from 'before' the planned change to 'after' (Bartunek and Franzak, 1988; Bartunek and Moch, 1987). Regarding non-longitudinal, cross-sectional or correlational research, any comparisons of learning outcomes would suffer from the problem of falsely claiming a cause-and-effect relationship between knowledge and action. Nevertheless, the field of organizational development (which has been struggling

with program evaluation for decades) does provide some metrics and methodologies for evaluating the impact of interventions on various stakeholders (Cummings and Worley, 1993).

Recognizing the complexities involved in evaluating the outcomes of organizational learning, perhaps the best approach is for both academics and practitioners to work together—what Argyris (1993) terms 'action science'. Combining the practitioner's knowledge of business organizations with the academic's knowledge of research design can lead to knowledge-for-action partnerships—which is often advocated but seldom done. Perhaps the continuing challenge to increase the rate of learning throughout the world will eventually result in effective teams of academics and practitioners that jointly create new educational systems and business organizations—with shared schemas for global learning.

References

Anderson, J. R. (1983) *The Architecture of Cognition.* Cambridge, MA: Harvard University Press.

Argyris, C. (1970) *Intervention Theory and Method.* Reading, MA: Addison-Wesley.

Argyris, C. (1990) *Overcoming Organizational Defenses: Facilitating Organizational Learning.* Needham Heights, MA: Allyn & Bacon.

Argyris, C. (1991) 'Teaching Smart People How to Learn', *Harvard Business Review* May–June: 99–109.

Argyris, C. (1993) *Knowledge for Action: A Guide to Overcoming Barriers to Organizational Change.* San Francisco, CA: Jossey-Bass.

Argyris, C. and Schon, D. A. (1978) *Organizational Learning: A Theory of Action Perspective.* Reading, MA: Addison-Wesley.

Bartunek, J. M. and Franzak, F. J. (1988) 'The Effects of Organizational Restructuring on Frames of Reference and Cooperation', *Journal of Management* 14(4): 579–92.

Bartunek, J. M. and Moch, M. K. (1987) 'First-Order, Second-Order, and Third-Order Change and Organization Development Interventions: A Cognitive Approach', *Journal of Applied Behavioral Science* 23(4): 483–500.

Beer, S. (1984) 'The Viable System Model: Its Provenance, Development, Methodology and Pathology', *Journal of Operational Research Society* 35(1): 7–25.

Bennis, W. G. and Slater, P. E. (1968) *The Temporary Society.* New York: Harper & Row.

Bradford, L. P., Gibb, J. R. and Benne, K. D. (1964) *T-group Theory and Laboratory Method.* New York: Wiley.

Bushe, G. R. and Shani, A. B. (1991) *Parallel Learning Structures: Increasing Innovation in Bureaucracies.* Reading, MA: Addison-Wesley.

Cangelosi, V. E. and Dill, W. R. (1965) 'Organizational Learning: Observations Toward a Theory', *Administrative Science Quarterly* 10(2): 175–203.

Churchman, C. W. (1971) *The Design of Inquiring Systems.* New York: Basic Books.

Cohen, M. D. and Sproull, L. S., eds, (1991) Special Issue on Organizational Learning. *Organization Science* 2(1).

Cummings, T. G. and Worley, C. G. (1993) *Organization Development and Change*. St. Paul: West Publishing Company.

Cyert, R. M. and March, J. G. (1963) *A Behavioral Theory of the Firm*. Englewood Cliffs, NJ: Prentice-Hall.

Davenport, T. H. (1993) *Process Innovation: Reeningeering Work Through Information Technology*. Boston, MA: Harvard Business School

Deming, W. E. (1986) *Out of the Crisis*. Cambridge, MA: Massachusetts Institute of Technology.

Dumaine, B. (1994) 'Mr. Learning Organization', *Fortune* 17 October.

Duncan, R. and Weiss, A. (1979) 'Organizational Learning: Implications for Organizational Design', in B. Staw (ed.) *Research in Organizational Behavior: Volume I*. Greenwich, CT: JAI.

Ernst & Young (1992) *International Quality Study: Best Practices Report*. Cleveland: Ernst & Young and American Quality Foundation.

Fiol, C. M. and Lyles, M. A. (1985) 'Organizational Learning', *Academy of Management Review* 10(4): 803–13.

Forsyth, D. R. (1990) *Group Dynamics* (2nd edn). Pacific Grove, CA: Brooks/Cole.

Galbraith, J. R. (1977) *Organization Design*. Reading, MA: Addison-Wesley.

Garvin, D. A. (1993) 'Building a Learning Organization', *Harvard Business Review* July–August: 78–91.

Golembiewski, R. T., Billingsley, K. and Yeager, S. (1976) 'Measuring Change and Persistence in Human Affairs: Types of Change Generated by OD Designs', *Journal of Applied Behavioral Science* 12: 133–57.

Grof, S. (1993) *The Holotropic Mind: The Three Levels of Human Consciousness and How They Shape Our Lives*. San Francisco, CA: HarperCollins.

Hall, G., Rosenthal, J. and Wade, J. (1993) 'How to Make Reengineering *Really* Work', *Harvard Business Review* November–December: 119–31.

Hammer, M. and Champy, J. (1993) *Reengineering the Corporation: A Manifesto for Business Revolution*. New York: HarperBusiness.

Harrington, H. J. (1995) *Total Improvement Management: The Next Generation in Performance Improvement*. New York: McGraw-Hill.

Harris, S. G. (1994) 'Organizational Culture and Individual Sensemaking: A Schema-based Perspective', *Organization Science* 5(3): 309–21.

Horgan, J. (1994) 'Can Science Explain Consciousness?', *Scientific American* July: 88–94.

Huber, G. P. (1991) 'Organizational Learning: The Contributing Processes and the Literatures', *Organization Science* 2(1): 88–115.

Imai, M. (1986) *Kaizen: The Key to Japan's Success*. New York: Random House.

Isaacs, W. N. (1993) 'Dialogue, Collective Thinking, and Organizational Learning', *Organizational Dynamics* Autumn: 24–39.

Ishikawa, K. (1986) *Guide to Quality Control*. Minato-ku, Tokyo: Asian Productivity Organization.

Jarvenpaa, S. L. and Ives, B. (1994) 'The Global Network Organization of the Future', *Journal of Management Information Systems* 10(4) Spring: 25–57.

Juran, J. M., ed. (1988) *Juran's Quality Handbook* (4th edn). New York: McGraw-Hill.

Juran, J. M. (1991) *Juran's New Quality Road Map: Planning, Setting, and Reaching Quality Goals.* New York: Free Press.

Keen, P. G. W. (1991) *Shaping the Future: Business Design Through Information Technology.* Boston, MA: Harvard Business School.

Kiernan, M. J. (1993) 'The New Strategic Architecture: Learning to Compete in the Twenty-First Century', *Academy of Management Executive* 7(1): 7–21.

Kilmann, R. H. (1975) 'Designing and Developing a "Real" Organization in the Classroom', *Academy of Management Journal* 18(1): 143–8.

Kilmann, R. H. (1989) *Managing Beyond the Quick Fix: A Completely Integrated Program for Creating and Maintaining Organizational Success.* San Francisco, CA: Jossey-Bass.

Kilmann, R. H. (1994) *MBA Learning Organizations: Improving Learning Processes Throughout the MBA Program—A Four-Day Workshop.* Pittsburgh, PA: Organizational Design Consultants.

Kilmann, R. H. (1995) 'A Holistic Program and Critical Success Factors of Corporate Transformation', *European Management Journal* 13(2): 175–86.

Kilmann, R. H. and Covin, T. J., eds (1988) *Corporate Transformation: Revitalizing Organizations for a Competitive World.* San Francisco, CA: Jossey-Bass.

Kilmann, R. H. and Kilmann, I., eds (1991) *Making Organizations Competitive: Enhancing Networks and Relationships Across Traditional Boundaries.* San Francisco, CA: Jossey-Bass.

Kilmann, R. H. and Kilmann, I., eds (1994) *Managing Ego Energy: The Transformation of Personal Meaning into Organizational Success.* San Francisco, CA Jossey-Bass.

Kilmann, R. H., Saxton, M. J. and Serpa, R., eds (1985) *Gaining Control of the Corporate Culture.* San Francisco, CA: Jossey-Bass.

Kim, D. H. (1993) 'The Link Between Individual and Organizational Learning', *Sloan Management Review* Fall: 37–49.

Kochan, T. A. and Useem, N., eds (1992) *Transforming Organizations.* New York: Oxford University Press.

Kolb, D. A. (1984) *Experiential Learning: Experiences as the Source of Learning and Development.* Englewood Cliffs, NJ: Prentice-Hall.

Lawler, E. E., III (1992) *The Ultimate Advantage: Creating the High-Involvement Organization.* San Francisco, CA: Jossey-Bass.

Lawrence, P. R. and Lorsch, J. W. (1967) *Organization and Environment: Managing Differentiation and Integration.* Boston, MA: Harvard Business School.

Leahey, T. and Harris, R. J. (1993) *Learning and Cognition.* Englewood Cliffs, NJ: Prentice-Hall.

Levitt, B. and March, J. G. (1988) 'Organizational Learning', *Annual Review of Sociology* 14: 319–40.

Lippitt, R., Watson, J. and Westley, B. (1958) *The Dynamics of Planned Change,* New York: Harcourt, Brace & World.

Markus, H. and Zajonc, R. B. (1985) 'The Cognitive Perspective in Social Psychology', in G. Lindzey and E. Aronson (eds) *The Handbook of Social Psychology (3rd edn): Volume I,* pp. 137–230. New York: Random House.

Marquardt, M. J. and Reynolds, A. (1994) *The Global Learning Organization: Gaining Competitive Advantage Through Continuous Learning.* Burr Ridge, IL: Richard D. Irwin.

Management Learning

Mason, R. O. and Mitroff, I. I. (1981) *Challenging Strategic Planning Assumptions.* New York: Wiley.

Montgomery, D. C. (1991) *Introduction to Statistical Quality Control.* New York: Wiley.

Nonaka, I. (1991) 'The Knowledge-Creating Company', *Harvard Business Review* November–December: 96–104.

Organizational Dynamics (1993) Special Issue on the Learning Organization. New York: American Management Association, Autumn.

Parker, M. (1990) *Creating Shared Vision: The Story of a Pioneering Approach to Organizational Revitalization.* Clarendon Hill, IL: Dialog International.

Petri, H. L. and Mishkin, M. (1994) 'Behaviorism, Cognitivism and the Neuropsychology of Memory', *American Scientist* 82: 30–37.

Schein, E. H. (1993) 'On Dialogue, Culture and Organizational Learning', *Organizational Dynamics* Autumn: 40–51.

Senge, P. (1990) *The Fifth Discipline: The Art & Practice of the Learning Organization.* New York: Doubleday/Currency.

Shewhart, W. A. (1931) *Economic Control of Quality of Manufactured Product.* New York: Van Nostrand.

Simon, H. A. (1953) 'Birth of an Organization: The Economic Cooperation Administration', *Public Administrative Review* 13: 227–36.

Snow, C. C., Miles, R. E. and Coleman, H. J., Jr (1992) 'Managing 21st Century Network Organizations', *Organizational Dynamics* 20(3) Winter: 5–20.

Squire, L. (1987) *Memory and Brain.* New York: Oxford University Press.

Squire, L. (1992) 'Memory and the Hippocampus: A Synthesis from Findings with Rats, Monkeys, and Humans', *Psychological Review* 99: 195–231.

Stata, R. (1989) 'Organizational Learning—the Key to Management Innovation', *Sloan Management Review* 30(3) Spring: 63–74.

Tapscott, D. and Caston, A. (1993) *Paradigm Shift: The New Promise of Information Technology.* New York: McGraw-Hill.

Teng, J. T. C., Grover, V. and Fiedler, K. D. (1994) 'Business Process Reengineering: Charting a Strategic Path for the Information Age', *California Management Review* Spring: 9–31.

Thompson, J. D. (1967) *Organizations in Action.* New York: McGraw-Hill.

Trice, H. M. and Beyer, J. M. (1993) *The Cultures of Work Organizations.* Englewood Cliffs, NJ: Prentice-Hall.

Tsoukas, H. (1991) 'The Missing Link: A Transformational View of Metaphors in Organizational Science', *Academy of Management Review* 16(3): 566–85.

Vosniadou, S. and Brewer, W. F. (1987) 'Theories of Knowledge Restructuring in Development', *Review of Educational Research* 57(1): 51–67.

Walsh, J. P. and Ungson, G. R. (1991) 'Organizational Memory', *Academy of Management Review* 16(1): 57–91.

Watkins, K. E. and Marsick, V. J. (1993) *Sculpting the Learning Organization: Lessons in the Art and Science of Systemic Change.* San Francisco, CA: Jossey-Bass.

Management Learning

project course for the Student Learning Network. Moreover, I taught six of the 18 MLOs in the required course Organizational Transformation. Naturally, different stakeholders (including students, faculty members and administrators) would focus on different aspects of the experience and thus would tell their stories from different points of view. For the most part, I describe what was done (i.e. interventions and activities) and what problems were experienced—rather than claim what learning objectives were actually achieved for students, instructors or employers. While I take full responsibility for what is reported here, I would like to thank the many faculty members and administrators of the Katz Graduate School of Business for their emotional support and active involvement with implementing MLOs throughout the new MBA curriculum. And last but not least, I deeply appreciate all the MBA students in general, and the 18 members of the Student Learning Network in particular, for supplying the vital energy and time to make it all happen.

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