

KNOWLEDGE, MANAGEMENT, AND LEARNING WHEN THE CONTEXT OF THE ORGANIZATION IS PLANETARY

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Abstract

To manage the activities of others through application of communication technologies world-wide merits reconsideration of what well established concepts, namely management and learning, mean in the context of trans-national, inter-continental human organizations. A particular form of knowledge to manage and guide human organizations is becoming increasingly important due to operational complexities associated with global outreach. This form is called open knowledge. Team oriented approaches characteristically systemic, holistic, socioculturally sensitive, interdependent, chameleon-like, and expertise-wise diverse in know-how are more important than ever, while individuals must be allowed greater freedom to operate in the broadened context. Open knowledge may emerge when particular conditions exist. Expanding one's conception of the learning organization helps one to comprehend as well as participate in global human activity systems. Appearance of and application of open knowledge brings consequential modifications of familiar and established local-regional managerial practices.

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Introduction

The purpose of this article is to expound the view that knowledge of a special kind has a central place in the conduct of human activities at the global level. This kind of knowledge is indigenous to macro level management across vast geographic distances. I am giving the name open knowledge to this kind of knowledge. It is knowledge proven useful, regardless of field of study and discipline, to know how best and effectively to manage global processes of human activity defining global organizations.

To grasp the idea of open knowledge, we can note the importance of its precursor, metapattern (e.g. a pattern of patterns), contributed by Bateson (1979), popularly communicated as “the pattern that connects,” and taken up by Volk (1995). Metapatterns are macro level phenomena, pervasively woven structural-functional rudiments of systems, deceptively simple at first glance, invisibly intricate in their complexity, and just what one would be looking for at the global level of organization, expectantly indicative of open knowledge. Bateson was a global thinker and synthesizer, and his disciple Volk followed his tradition. Though metapattern relates to the general idea of what open knowledge is, for the purposes of this article, the construct is construed in terms pertinent to the learning organization and effective practices of organizational activity at the most macro level of description, the planetary context.

One can argue, given the contemporary geopolitical global theater, open knowledge transcends national and continental boundaries. Such knowledge, as an emergent phenomenon, is destined to become a currency of immense value to learning organizations, as the peoples of the planet become one global society. With planetary globalization of many production processes,

products and services in a consumer oriented global economy, the kind of knowledge required to manage the flows of human activity world-wide alters significantly what it means to be a learning organization. I shall take up the theme that the form of knowledge best suited to this endeavor is open knowledge.

Globalization

Although various historical accounts, such as the proliferation of indigenous groups in the Americas and the coming of their European invaders (Josephy, 1994), may suggest many of the same developmental complexities of expanding human civilization occurring in the present era of globalization, there are marked advances in technologies of communication and mobility enabling rapid globalization currently underway the likes of which are new to the planet. For example, a well known phenomenon is the prolific presence and use of mobile telephones by millions of human beings within this decade, and with them, an invisible addition of high levels of electromagnetic waves imbuing the biosphere of the planet without clear comprehension of its consequence on the health and well being of all living beings, and the evolution of life as we know it on the planet. Another example is the accompanying rate at which we are experiencing the movement of many peoples, cultures, and societies toward one global interdependent economy--a seemingly incomprehensible beehive of humanity. What must have seemed to many in Europe during three centuries in voyages of discovery, colonization, and exploitation of distant natural resources to enrich home countries, pales in comparison with the planetary interconnectedness evident since the middle of the twentieth century.

To focus on the human organization, much of what it means to be globalized stems from reformulations of what it means to comprehend a human organization in the context of the planet, in contrast to more delimited continental and national borders. This realization is disconcerting, because after centuries of confining thought to provincial ideas of what it means to be part of a company, business, and corporation, a major shift in thinking is required. In regard to communications, products, processes, and services, it is no longer the local, regional and national, but now it is the global context that matters as much as the micro and meso levels of organization. As such for human organizations, clearly and presently, it is a more complex world.

Importantly, the idea of a human organization need not have changed. One can consider organizations, such as the small family run business within a local community, a manufacturer whose plant supports the economy of a region, and a corporation employing under a thousand people in an urban center. But the context in which organizations of all kinds thrive has certainly grown considerably. In former centuries of human civilization, what was most meaningful to an individual was being part of and participating in a local economy, and less so but possibly regional activities. Histories of prior centuries of human activity favor their telling by descriptions of nations and empires. The rise and attenuation of the Euro-colonial expansions in particular in recent centuries moved significantly peoples to think in terms of national and international entities of human organization. But after the second world war in the middle of the twentieth century, trends toward population explosion of the human species and subsequent globalization became overwhelmingly evident. Corporations became trans-national, and today, markets and business activities are typically considered in terms of planetary supplies and

demands. The enhanced mix and migrations of peoples have greatly facilitated this shift in thinking. Where in former centuries an enterprising upstart in business was largely confined to local and regional resources, currently the potentialities comprising a job search are planetary. Further, a business plan to provide a manufacturing process, product, and service may involve materials, resources, finances, and labor from any location on the planet. Such an expansion requires global and systemic thinking, an awareness of networks and flows of human activity world-wide, and a kind of knowledge about what works and what does not on this global level to yield beyond chance that the organization's capitalistic pursuits can bring a modicum of financial success.

In the next sections I examine select key constructs used in this discussion to consider some consequences and implications later in the article. In doing so, I draw upon my experience working in human organizations, many lessons learned, personal observations from three decades of international travel over my professional career, and select published sources relevant to the key constructs. It is not my purpose to review and critique the large body of published literature on the phenomenon of globalization, the learning organization, and any key construct selected to develop the theme of this article. I leave these endeavors to those who have such propensities and interests. But I can contribute a perspective to the discourse that is systemic, holistic, and ecological, emphasizing a global ethic (Collen, 1993, 1994). Approaching the end of my sixth decade, as a witness, observer and participant, I have experienced massive changes in the course of human affairs that take my breath away. It is upon my personal reflections, interpretations, and insights that I rest my argument.

Knowledge

As expounded elsewhere (Collen, 2002), knowledge comes in particular forms. One can articulate the construct in terms of its level of description and generalizability to explain phenomena. There is mono-, inter-, cross-, multi-, trans-, and meta-disciplinary knowledge. Knowledge serves various aims, specifically, to explain, understand, and/or ameliorate. The paradigmatic assumptions, interests and aims held by the inquirer largely determine which one or more aims governs the form it takes. Finally, knowledge has an important relationship with the process that generates it. It can emerge by means of a process of discovery that reveals how life works in the physical universe, personal experience that builds up a rich cognitive map and ways of being in a particular environment, creative activity that brings insights into realms of human consciousness, and acquired know-how that enables construction and maintenance of the artificial.

Such knowledge typologies are merely representative to make the point that one has multiple means to study and define the construct, and that each type may not be limited or exclusive. For example, my statement about the artificial is illustrative only; it is well established that know-how applies to all realms of human activity.

Before moving to the central place open knowledge has in global human activity systems, I continue my scrutiny of key constructs that shall better position me to fulfill the theme of this paper.

Management

To manage is easily associated with to parent, control, and regulate, all of which mean strictures and impositions on the activities of human beings. Those providing leadership engage in the creation of rules of conduct by expectation and/or mandate. Those who administrate, the managers, supervise and enforce them. These hackneyed and familiar conceptions of management are thought to keep the organization intact as an entity, to preserve, maintain and sustain the organization. If one is vague about the implications of this approach to management, one can allude to the biological construct of homeostasis and the mechanical analogy of the thermostat to communicate what managers are supposed to do. These notions have been popular in the twentieth century and often effective for local management of the human organization, but they seem far adrift from the idea of the learning organization, or at best, a very narrow view of it. That is, if one learns well the rules of conduct and act to perpetuate the organization within its boundaries of regulation, then this primitive definition of the learning organization has been met.

Obviously, organizations exist in a dynamic environment. The context is not static. The conditions are in constant flux, in motions of press and pull. Human organizations must be responsive and adapt to ongoing challenges. This more developmental, adaptive view of the learning organization as an entity in dynamic interactive relation with its surroundings mimics the developmental, nature-nurture viewpoint of the human being. As individuals react, learn and adapt to situations and circumstances, so do organizations learn in analogous ways. Where one can study in detail the learning of an individual, one can study in collective manner the learning of a group of individuals constituting the human organization. In this view, to manage shifts from the most conservative and conventional to the elastic, adaptive and developmental, it means to guide, facilitate, and consolidate collective learning for the ongoing benefit of the organization. Rules of conduct, means of control, policy and procedures that regulate human action become subservient to the learning process of the collective interactive with and in relation to its environment, which typically translates to other individuals and collective entities representing other human organizations. Importantly, managers who confine their supervision to conservative homeostatic definitions can retard, even jeopardize the organization as conditions demand ongoing adaptation.

Morgan (1986, 1993) provides a creative and useful approach to understanding and developing organizations still of currency in my view. The various perspectives, conveyed in metaphoric terms, reveals the multi-dimensional possibilities of comprehending organizational life, though their range serves as background to inquiry and to inform participants of various ways (lenses if you prefer) of viewing their organization that delimit and potentially impede the emergence and application of open knowledge. When exercised at the global level, action learning and research that Morgan and others (p ex Argyris et al, 1985) advocate bring focal emphasis to inquiry suited to the emergence and use of open knowledge. But in my view, the action research and systems oriented methodological contributions of the last century, as helpful as they were, will require considerable advance to meet the demands of this century for organizations to operate effectively in the global arena.

To understand what seems to separate management of the prior century from contemporary practices, one must imagine the context as an expanded reality that managers cannot clearly see. The proximal is the local and to some degree regional. But the global often exists in a vague and foggy distal plane. Yet it impacts on the daily life of managers in ways that seem largely invisible because they remain ignorant of what to see that provides the evidence the distal environment is relevant to their current practices. The net effect becomes the same as the manager holding the conservative view of management. Failing to see the situation from a global perspective and holding the view of the adaptive manager, thinking one's actions are helping, they are really doing the opposite, they may hold hostage and impede the effectiveness of the organization competing in the global marketplace. Relevant is a growing awareness that participatory team oriented learning needs to take priority over individualized instrumental learning (Suárez-Herrera et al., 2009).

When considering ways to comprehend what it means to manage people comprising human organizations, as organizations have reached from local to global markets, by a corresponding necessity, it has become advantageous to redefine what it means to manage the organization. If an organization is operating in the global context, what is being managed? The persons constituting the organization are participants around the globe, subject to all forces, drifts and whims that make the global marketplace what it is. One must monitor daily such movements, as when one was confined to local to regional affairs--but that is not the planetary context. That broader context is more complex, semi-visible, and expansive. Trying to work the global marketplace can be exhausting. I am reminded of the hunted constantly vigilant, weary of any predator lurking in the vicinity, predators who intentionally maintain invisibility to the hunted. The state of chronic stress that can easily result must be abated through teamwork, organized interdependent teams trained to work in the global marketplace under such conditions.

Given the mobility and vast distances involved, management of others requires more flexibility and a shift from supervision of others to the allowance and expectation of self-management. Less dependence on others for direction and making decisions is coupled with more self-discipline to get the work done by deadline, using the resources in the location, as well as collaborative teamwork that involves a disparate network of players interdependently collaborating toward the same aim. This shift in the nature of management appears prudent and productive at the global level of human activities. There is cognizance that one's activities are part of a larger whole, that is, one's project or part of the larger process is but one element in a complex network of elements spread about the planet. All contributors must be active to experience success in accomplishing the aim of larger whole. For example, the process may involve coordination among engineers, designers, factory workers, and sales operatives located in different nations. To ensure production and world-wide distribution of the product, all entities and interactions of the organization have to be continuously active and guided toward such aims.

Learning

Learning is a phenomenon characteristic of a living being. To attribute learning to a collective, like a human organization, may at first seem misplaced. Organizations do not learn, individuals do. In retort, one might argue true learning is inherently a human attribute, but at what point can

one conclude that enough individuals constituting the organization have learned to justify attribution of learning to the whole? Evidence of such would appear not only in the actions of single individuals, but eventually and likely more convincingly in the interactions among the individuals comprising the organizational system. We witness this phenomenon commonly in organizations. A practice is improved. Some take to it immediately, while others have some difficulty adapting. Eventually, it becomes wide-spread and commonplace, as if it was always the practice.

Application of the construct learning to a human organization, in the phrase “the learning organization,” may be metaphorical. The utility of this idea cannot be under appreciated. By analogy and comparison, we attribute many human qualities to organizations, anthropomorphizing them extensively. For example, when we cannot articulate causes and consequences of being at the effect of organizations, we have great facility using their brand names to explain, complain, and blame them for various events. In reality, it is the action of an individual or small decision making group within the organization responsible, not the organization as such.

However, organizations in many respects appear to act like they learn. I have been repeatedly amazed over my tenure at my university that we discuss various matters leading us to adopt academic policy and procedure, only to question it months later when an incidence occurs that requires us to invoke a policy or procedure adopted months to years earlier. It soon becomes apparent there is a diversity of recollections on what was decided and why. Hence, it is critical we have documentation that we can turn to renew our understanding to ensure our collective action aligns with university policy and procedure. Such documents are often referred to as the collective memory of the organization. Without it, organizations are doomed repeatedly to fester in the same issues with little resolution about how best to manage them. Learning and memory are two sides of the same coin, so to speak. We may conclude that the actions of individuals in accord with the organizational memory reflect a state of organizational learning. In this sense, its application is not metaphorical, but substantive, because it can be studied and evidenced in the activities of persons comprising the organization with its documented and archived historical trail of communications and records.

One carries one version of organizational memory, and when global situations appear, one has to be open to new ways of learning how best to negotiate one’s way successfully through the situation. Local and regionally-based organizational memory (policy and procedure) and one’s version of it may be of very limited application. Though stated for one, it applies equally well to collectives, that is, teams collaborating toward organizational change. This openness to different and unexplored answers to questions, solutions to problems, and views on issues is one critical characteristic that allows open knowledge to emerge.

New challenges appear when we consider this phenomenon of organizational learning at the global level. Organizational memory is historical; it is also delimited to the context of the time it occurred. Typically, it is local and regional, and more difficult to understand as global. But we can study the dissemination of communications from a central source of decision making, for example, as the communications spread to its distal locations. In fact, one communication can be sent instantaneously to all nodes of the global network. In contrast, we can track and study the emergence of ideas and initiatives at one location in a global network as they are adopted and

spread to other locations. These are exciting applications of research methodology to the study of learning organizations in their global activities. Such a range of applications of research methodology focused on network communications is likely the productive means to witness and articulate the dynamics of open knowledge in global human organizations.

Further, one can quickly see the important relation between management and learning at the global level. Managing others in an unrestricted fashion that allows learning seems key. To the extent that such conditions may be fostered encourages much innovation, experimentation, and considering the seemingly impossible. Knowledge that may come may have broad application, given the global level of operations in which these activities are being pursued. This approach may also be considered an attitude that can be very exciting for those working in the organization, motivated to formulate open knowledge useful to their organization.

Complexification

Complexity is itself a complex construct and the burgeoning literature on the subject makes that rather self evident. Suffice it to state that multiple modes of complexity (descriptive, generative, computational, constitutional, taxonomical, organizational, hierarchical, operational, and nomic) discussed in Rescher (1998) illustrate poignantly the immense interest and breadth of this research focus.

As globalizing trends advance, accordingly, the complexity of human organizations magnifies. For purposes of monitoring and decision making, as well as mapping and comprehending, there are more defining persons, communication nodes, and interactions comprising the human organization at the global level than one could articulate at the local and regional levels, because of interactions between levels. A critical challenge is to know the critical aspects of the global activity system that defines the global learning organization effectively useful for a given circumstance and situation. In many respects, the system is an observer-dependent construction, in that the observer must decide which persons, nodes, and interactions are worth noting to define the system and make it, as a human activity system, visible and comprehensible, again, for purposes of monitoring and decision making. To work meaningfully with the global organization, its open knowledge, interactions, and activities, all participants require more clarity about more persons, nodes of operation, and interactions than needed at local and regional levels. Or if one prefers, to know the essential persons, nodes and interactions. This characteristic of the global organization distinguishes it from its earlier manifestations as a local and regional organization. It also seems a necessary prerequisite to plan and anticipate development from one level of complexity to another. Importantly, the enhanced complexification of the organization allows more potential for open knowledge to emerge in the ongoing operations of the global organization.

Granted the potential for description of the organization at various levels of complexity, it becomes markedly more challenging to comprehend the global system at any given moment. I have found useful to apply the term complexification (Casti, 1994; Collen, 2003) to convey the dynamics of the process of organizational development from more local and regional activities to participating actively in the global marketplace as a global organization. A spreading geography and virtual outreach bring immense challenges that press ever more greatly upon organizations

struggling to survive and thrive. Organizations are being drawn increasingly into operational complexities simply because of the outsourced locations of various raw materials and products they require to provide their products and services. Understanding organizational development from regional to global as a process of complexification is helpful. Leaders can imagine what is required to participate at a global level and envision phases of development from present operations to that more macro level end. In a complementary fashion, participants can map the complexifications of concurrent communications stemming from disparate sources impacting the organization to adapt operations that worked at regional levels, but no longer work at the global level. Conversely, looking for emergent operations that are working well at the global level--potential open knowledge--that seems non-existent at local and regional levels merits even closer scrutiny. The challenge is tapping into and applying more open knowledge shown to be effective at the global level to facilitate adoption of newer practices to become a global organization. For example, shifts to interdependency on more distal suppliers requires more knowledge of their locations that effect supply and delivery, as well as the unintended consequences of expenses and resources required to adjust the time of production processes, well known with local suppliers, to the time required by distant suppliers. These adjustments are no simple matters. Shifting from well established practices with one local supplier to the replacement by a handful of distal suppliers represents a mammoth jump in complexification of the organization. Learning well what must be done to manage these complexified processes of production and service to clients and consumers is major in this regard. It has become a necessary, highly demanding shift for many human organizations coping with globalizing trends.

Finally, highly relevant to complexification from regional to global is any decision by an organization to seek markets for products and services beyond its established regional base of clients and consumers. The decision to expand, whether consciously or reluctantly made, brings the organization face-to-face with a host of often bewildering complexifications.

Some Defining Characteristics of Open Knowledge

Before discussing some qualifiers and concluding this article, it is helpful to provide a brief description that highlights seven characteristics of what we mean by open knowledge--knowledge that is emergent at the global level of operations of the learning organization. This coverage is not intended to be exhaustive, only demonstrative of the salient features of open knowledge. They also hint at conditions that favor the emergence of open knowledge at the global level.

Team based. It makes little sense to think that one person can generate and hold open knowledge, since the process that supports it is a collective endeavor. We have learned much from decades of action oriented and participatory action research to know that small teams and work groups are effective means to bring about organizational change (Brydon-Miller et al., 2003). This long history (Brydon-Miller and Maguire, 2009) should be put to wise use. Teams of collaborators working together with a common cause and goal provide a key requisite for where open knowledge is likely to emerge. The group context becomes a likely center of focus, in contrast to isolated individuals working solo on projects. Further, effective practices at the global level, apparent in different locations of the organization's global network, or among

organizations of like kind, provide a backdrop for replication and validation of open knowledge. Participants should be on the outlook for such opportunities.

Systemic. To illustrate a central challenge facing the learning organization operating in the global arena, note the range of philosophical perspectives discussed in Arbnor and Bjerke (1997). I selected this survey type textbook among several available, because of its direct relevance. Although they organize their coverage upon three general superordinate approaches (analytical, systems, and actors), there are numerous less obvious philosophical perspectives constituting the gambit of means inquirers have used to advance research methodologies for studying, understanding, and developing human organizations (e.g. observational, rational, functional, pragmatic, systemic, cybernetic, social action, symbolic interaction, hermeneutic, phenomenological, and intentional). They discuss them in relation to the three general approaches, seeking a meaningful, manageable, and practical avenue for those who work with research methodologies in organizational settings. The scheme helps to make the point stressed earlier that applications of means (methodology) to open knowledge at the global level rest upon this sophistication. In other words, open knowledge is systemic. It is unrestricted to one philosophical perspective (lens) and compatible methodological means to generate it. There are important interrelations to know contributed by each perspective that may have relevance to a particular situation under study. Team execution of multi-method action oriented research methodologies (Little et al., 2006) merged with multi-modal technologies monitoring global activities will provide promising directions for inquiry yielding open knowledge.

Holistic. The history of science is a story par excellence of splitting and analyzing everything under the sun to maximize our knowledge of the parts and pieces that constitute any entity we deem worthy of study. The contrasting complement to analysis is synthesis. Systems approaches to inquiry tend to emphasize the latter, even though a systems analysis may be part of the process of inquiry to, as the nursery rhyme goes, “put Humpty-Dumpty back together again.” Noteworthy is the point in passing that dissecting the corpse and making synthetic inferences as to its functional and organic hole-ness may be informative, but these forms of inquiry lack the vital forces and flows that make the study of human organizations confirmatory of what may be known. We must study in vivo human organizations, typically being part of them, given they exist at a more macro level of description than the individual. Synthesizing research processes are integrative and holistic, in that they foster more macro level descriptions of knowledge. To seek open knowledge at the global level of the organization is an ultimate challenge that must be recognized as such, because it will likely take further developments this century to advance the technologies necessary to make available to organizations ongoing monitoring of their global activities and flows of communications, resources, and activities, thus creating the favorable conditions for detecting the emergence of open knowledge.

Socioculturally sensitive. The peoples of the planet represent a seemingly unlimited richness of sociocultural diversity, despite the apparent homogenization of business enterprises through franchising and social, political, and economic influences one nation may have on the peoples of another. Concerns abound about the disappearance of cultures and languages as globalizing trends bring more peoples into contact with one another, as well as move peoples of the planet toward one heavily interconnected and interdependent civilization. The sociocultural aspects of knowledge indigenous to various peoples that potentially contribute to open knowledge is the

human dimension of that knowledge. Knowledge becomes sterile and lifeless stripped from those who understand and use it, for its participants are part of the context relevant to that knowledge. The human dimension is a valuable and vital ingredient that needs recognition and preservation in its diversity and richness, just as the seeds of grains are vital to the genetic diversity to perpetuate in perpetuity the food supply that feeds the human species. Knowing who is associated and interdependent with the knowledge being described and applied importantly defines in part its relevance and boundaries of application. For example, organizational practices relevant to participants of the global organization working in tropical climates may not be effective for participants working in cold climates. Climate may be considered one major determinant of sociocultural aspects of knowledge, in that it bears heavily on what customs, rituals, traditions, dress, ceremonies, and the like come to manifest the sociocultural aspects of knowledge of a people. It is the peoples and their activities that make the global organization a visible human activity system. Being sensitive to and appreciative of the sociocultural aspects of that knowledge is a vital dimension to be highlighted in any description of open knowledge. Essentially, this characteristic pertains to the question, to whom does the open knowledge apply?

Interdependent. Open knowledge is necessarily an interdependence of what becomes manifest and evident to observers from several locations in the global network of operations. Persons, communications, resources, and activities blend into complex wholes that likely require advances in technology, ways to decipher and read flows and metapatterns, unfamiliar to organizations at this time. This potential is an exciting direction for creating the conditions for the emergence of open knowledge. Aggregations of interdependence may well become meaningful open knowledge units, so to speak, to comprehend levels of complexity in operations at the global level presently invisible and unknown. It is essential here to recognize this interdependence as inherent to open knowledge, and that changing any aspect of the open knowledge aggregate can have critical consequences as well as unintended, secondary consequences. Given the numerous relations among parts of an aggregate, interdependence is a complex construct to comprehend and understand when applied to any situation and aggregate, especially at the global level. This complexity is made even more challenging in this century due to the ecological impact of human activities world-wide. Inclusive of our comprehension of what interdependence must mean must extend to the “web of life” (Capra, 1996) in which the global organization is embedded and dependent for its material resource supports.

Chameleon-like. This characteristic is perhaps the more elusive and intangible to discuss. But it is also the most intriguing as well as perplexing. Organizations and the environments in which they exist are in states of constant change. Such an oxymoron becomes real in the experiences of those engaged in work in organizations at the global level. Simply put, due to our limitations of being unable to comprehend global activities of the organization, we are constantly vulnerable to flux and variabilities coming from locations unknown to us. Our ability to perceive distal activities that impact the organization appear invisible to us for some time, until their proximal consequences impact on our immediate activities. The ever changing milieu in which organizations exist and thrive suggests that a chameleon-like ability to adapt quickly to accommodate fluctuating conditions may bring a survival advantage. The implication is that open knowledge may foster this ability, in that as fluctuations become more recognized and

anticipated, the global organization can “alter colors” to adapt quickly to change, thus ensuring its viability under such fluctuating conditions.

Expertise-wise diverse know-how. Human organizations tend to focus on results, even though means of course are of central importance. In the global arena, participants need more latitude to act as members of interdependent teams. They cannot be bound to local and regional restrictions that impede their participation at the global level. However, there has to be a respect and balance among the various levels, for all levels of the human organization require healthy conditions to support the activities of the organization at the global level. What a participant learns at more micro levels is important. One has to learn the accompanying delimitations as well, since generalizing practices from a micro to a macro level may not work, and vice versa. Thus, the repertoire of effective practices that constitute the know-how a participant brings to the global level represents a kind of diversity that only experience working at various levels of the organization can supply. The point is that such expertise-wise diverse know-how is an increasingly valuable asset of participants as the organization as a whole develops to become a global organization. Knowing what to do, how to problem solve, and what works and does not in various locations in the global network are priceless assets participants bring to the global organization.

Limitations and Delimitations

Various forms of disciplinary research that produce knowledge are limited by the nature of the research processes executed to yield that knowledge. More micro levels of description (generated in local and regional contexts) cannot be presumed to apply to global levels of description (planetary context). It is best to work at the level of description in which the application is intended. In other words, systemic research executed at the global level puts the human organization, in a position to apply the results of inquiry to the global organization.

Further, even though there is much valuable knowledge to be gained by studying local and regional operations and practices, it is the global context that best allows for the discovery and study of open knowledge. And it is this form of knowledge that likely is sought by the human organization to succeed at the global level. Therefore, ongoing research of and within the global organization, conceived and defined as such, seems a compelling and necessary part of being a global organization.

Given multiple philosophical perspectives that imbue the reality of working in organizations, alluding to such sources of coverage as Arbnor and Bjerke (1997), it is a major undertaking to develop and engage sufficiently knowledgeable, discerning participants who are familiar with the range of perspectives, such that they may make advantageous use of them and recognize their relative value, relevance, strengths, and limitations. It is not a matter of being versed in one or two of them, but true to the conditions and nature of open knowledge, one must play the range to provide every opportunity for open knowledge to emerge, taking full advantage of a systemic-cybernetic approach to apply the multiple of perspectives to any given circumstance and situation at the global level. This challenge is no easy task and expecting much of those who will be taxed to engage in this pursuit. Teamwork therefore comes into favor; it is difficult for participants to attain expertise in a full range of methodological approaches. Instead, each

member of the team brings select expertise, so that the collective has the expertise-wise diverse know-how to act effectively in the global arena.

Looking Ahead

Since making his remark to a journalist of the *San Jose Mercury News*, January 23, 2000, the physicist Stephen Hawking has been popularly quoted, “I think the next century will be the century of complexity.” But it remains to be seen to what extent and in what ways research methodologies of complexity enable us to actualize the global organization with practices of a global ethic. From contributors of the last century of systemic and cybernetic perspectives applied to organizational development, for example Senge (1990), it is a new and challenging enterprise to seek research methodologies and their applications at the global level to global organizations. To reiterate an earlier delimitation, I question whether we can presume generalizability of micro (local and regional) levels of description to the macro (global) level. Moreover, this presumption is widely held among those who adopt and promulgate a systemic and cybernetic approach to the study, understanding, and amelioration of the human predicament associated with negative globalizing trends (e.g. adverse climate change, resource depletion, disease pandemics, and re-urbanization of cities). The pursuit of effective methodological applications is a major, exciting, and challenging aim of the present century, as we bear witness to various globalizing trends uniting all peoples into one planetary civilization.

Clearly efficacious methodologies must be those that enable the detection, study, and use of open knowledge. The fit of method to aim and focus of inquiry synchronize the characteristics of open knowledge with the means developed to foster them. Not only will the concepts and principles of systemics and cybernetics continue to be part of the means to emerging open knowledge, but also network methodologies that dissolve past, present, and future with location and place will become increasingly important.

To elaborate, the dimensions of both space and time are critical to an effective understanding and application of any research methodology. At the global level, we are attempting to comprehend and work with the planetary system as our arena of inquiry. Given the easiest and most meaningful level of description is the individual (personal) level (Collen, 2003), it is an immense and challenging extension of human sense systems and thinking to comprehend the global level in any comprehensive, holistic, and ecological fashion. That system is comprised of numerous nodes, their interactions and interdependent interrelations vastly more complex than our ongoing personal engagement in the world. It is a cognitive activity few human beings are equipped to do with any enduring skill. Therefore, we rely heavily on technologies to crunch, code, decipher, analyze, represent, and present to us what is happening in systems more micro and macro to our level of description (p ex the microscope and telescope, respectively). We are naturally and severely limited in our abilities. To our credit, it is a remarkable story of our species to learn of our accomplishments in this regard (Derry and Williams, 1060; Williams, 1982). This story has every indication of accelerating in various areas in which advances in technology are enabling advances in various knowledge domains (p ex www.ted.com/talks). We seek to build and integrate ever more complex methodological and technological means to comprehend all kinds of systems at higher order levels of complexity, well beyond our limited

personal level of description. The potential for advancing research methodology and accompanying technologies to as yet unknown levels of sophistication are not difficult to imagine. It is only the patience of continuing to build them that must contain our passion and enthusiasm in this quest.

As we are witness to increasingly more integrated systems of technology, bringing together basic activities of talking, watching, listening, writing, and moving about the planet into one device (e.g. mobile phone, personal computer, workplace and home based communications centers), our experiences of space and time are dissolving. What separates past, present, and future may not require distinctness for us as the century proceeds. Equally evident, our sense of distance from local, regional, continental to global may appear less necessary to require a sense of place and orientation to be an active participant in the global organization.

While it is important to our experience and sanity not to lose these experiences of spacetime dimensions, there are likely to be advantages to facilitate the activities of the global organization. Having historical records in terms of pictures, texts, and statistics--the archives of the organization--always and instantaneously available to us, makes the past appear always present. Having simulation, modeling, and future study scenarios always and instantaneously available to us, makes the future appear always present, in that we can engage in study of possible futures aiding decision making and action plans on an ongoing basis, making daily to weekly adjustments that have ramifications for the organization at large. In other words, time shrinks and expands as we deem it helpful to our participation in the global organization. Given the global outreach and interconnectedness that defines the global organization, our thinking has a tendency to work with our territory that is now planetary, even though we can with a blink of an eye realize all the lesser levels of locality subsumed under the global level. Space is experienced as expansive in the global organization. Once the human organization is established as a global organization, the global level is taken for granted as the basic level of operations and point of reference to and from which all interactions of the human activity system must be understood.

Conclusion

The points to follow are inferential. I am led to them by following the theme developed in this article that open knowledge is the currency associated with the global level of an organization's operations and practices.

The very definition of what it means to manage a learning organization necessitates more systemic integration beyond any single discipline and specialty.

The importance of team oriented approaches involving diverse and knowing expertise in pertinent areas of question formulation and problem definition come to constitute a learning organization of a exceeding importance to the success of human organizations, as more and more organizations are subject to macro level forces. Equally, emphatic to organizational effectiveness in the global arena are applications of team oriented research processes that are systemic, holistic, socioculturally sensitive, interdependent, chameleon-like, and expertise-wise diverse.

Given globalizing trends that situate the learning organization in the planetary context, possibilities of open knowledge, its characteristics and conditions for emergence, lead to revisions of what management means and an expanded view of the learning organization.

“Thinking today as if tomorrow mattered” (Adams, 2000) is a value and attitude well worth contemplating. His book length essay argues the case, squarely setting the stage attitudinally for much of what has been covered in this article.

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